A global journey mapping the 'new' world

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ARS ELECTRONICA 2020
Festival for Art, Technology & Society

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In Kepler's Gardens

A global journey mapping the 'new' world

Edited by Gerfried Stocker / Christine Schöpf / Hannes Leopoldseder

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ARS ELECTRONICA 2020
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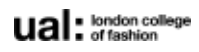
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In Kepler's Gardens

A global journey mapping the 'new' world

Gerfried Stocker (AT)

Hardly any other phrase has been so used in recent months as that the world will be a different place after this crisis: sometimes with a glimmer of hope, more often as a threat. Is this true and, if so, what are the changes ahead? This question is the focus of this year's Ars Electronica.

Following last year's brilliant 40-year anniversary festival, which brought more artists, exhibitors and international experts to Linz than ever before, this year Ars Electronica will undertake a journey or, indeed, become one — a journey through Kepler's Gardens. Travel through the networked biotopes and ecosystems in which people all over the world are working to develop and shape our future, which, these days, means working to save it. Take a journey to — and with — many committed communities that have already started thinking not just about current problems, but working on concrete solutions to them. Places, initiatives and institutions become platforms in which scientists and artists can collaborate, challenge society and try out new alliances and forms of cooperation.

In Kepler's Gardens is not merely the name of Ars Electronica's new venue, which will move from the POSTCITY to Kepler's Gardens on the well-equipped campus of JKU Linz, transforming its beautiful, extensive parks into an extraordinary festival site. It is also the metaphor for Ars Electronica's organizational principle during global lockdown; as a festival that will not be content to dive into the network and disappear there, but that aims to reemerge from it and manifest itself in many places all around the world. Starting in Linz and working with partners from Ars Electronica's vast and storied international network, "real" events, headed by "real" artists and scientists for "real" audiences, will be networked into a global festival from September 9 to 13.

Given this simultaneity in local-physical and globally networked events, Ars Electronica will once again become an exciting experimental laboratory and prototype for a next-level network primarily focused on new forms and possibilities of fusion and coexistence between analog and digital, real and virtual, physical and telematic proximity. Last but not least, *In Kepler's Gardens* also represents a clear commitment to science, and a fact-based, responsible way of dealing with one another. It is a statement on science and art as not only fuel for the economy, but as the basis for culture and civilization. This is, and always has been, among the central tasks of art and culture — one that can only be achieved in cooperation with science, technology and society.

Formats and Programs at the 2020 Festival

The main mission of Ars Electronica has always been to make media-art and science accessible to a wide audience. The efforts to achieve this goal can be traced throughout its history, up to its very beginning; not only in the variety of its formats, which have been consistently expanded or repurposed through the years, but in its ever-growing global network of partners in the scientific and artistic communities, who have borne witness to the endeavor, and in consistently focusing on events and programs that encourage public participation.

In light of Ars Electronica's ambitions to inspire creative collaboration on many levels, this year's festival marks the next step in its evolution by fusing the physical and digital realms into a hybrid event. Besides Kepler's Garden at JKU Linz, the festival first and foremost features **Ars Electronica Partner Gardens** in more than 120 cities all over the world, which contribute local activities and online content on the topics of autonomy, democracy, ecology, humanity, technology, uncertainty and reality. From a broader vantage, the networked festival reflects the myriad existing strategies of online interaction, from live-streaming to participatory virtual environments. More importantly, it also strives to spur novel approaches in the field. After all, intelligent on- and offline solutions for transnational cooperation and the smart distribution of knowledge are essential to our complex world, with the latter being especially urgent given the huge amount of (dis)information on the internet.

Within the local-physical and globally networked framework of the festival there are, of course, our well-known formats which, for the most part, deeply intertwine both domains. This year, the well-established **Ars Electronica Animation Festival** offers — among other things — screenings at selected locations in Linz, as well as high-quality online content focused on the people behind the Top 15 projects of 2020 Prix Ars Electronica in the category of Computer Animation. Over the years, **Gallery Spaces** has sparked great interest, with up-to-date discussions on core issues like the preservation of media-art. This time, it will be held entirely online, with international galleries presenting their current exhibitions on the web alongside artist talks around assorted topics. The **Big Concert Night**, traditionally one of the festivals' main attractions, will be held at the JKU campus and streamed on our online channels. *Fidelio Freedom Project* will address questions of human dignity and liberty while, for the third time, Markus Poschner will conduct the Bruckner Orchestra in conjunction with this format. Last year's first edition of the **AIxMusic festival** at St. Florian Monastery was a great success. In Kepler's Gardens, the program will delve deeper into the connections between music and artificial intelligence by highlighting artistic practices in this territory. For the 2020 **Campus Program**, a further step towards intensifying cooperation with local institutions, the University of Art and Design Linz put together an extensive program titled *The Wild State,* which will be hosted at their facilities.

Naturally, enhanced online expansion due to the pandemic also resulted in new formats. The Ars Electronica Center, for instance, established **Ars Electronica Home Delivery** to feature essential parts of the museum online as live, and often interactive, content on a weekly basis.
Ars Electronica Journeys is another new concept designed to provide interactive guided tours that do not require the audience's physical presence. In these explorations, artists and scientists will not only share exclusive insights into their practices, but also their surroundings, labs or favorite routes to walk when thinking. With **Mozilla Hubs**, an open source project by Mozilla that allows anybody to create and design virtual rooms, we introduce another powerful tool to the online festival that investigates how communication in mixed reality can come to life. This year, more than 60 Mozilla Hubs with a multitude of content were created by Ars Electronica and its partner gardens worldwide.

Symposia, Workshops, Tutorials

This year, the conferences, lectures and workshops program will be largely featured on our online channels. On Saturday, **Renata Schmidt-kunz** and **Walter Ötsch** will curate and moderate a couple of panels with high-profile guests. The **Night Keynotes** are cast with renowned speakers Neri Oxman, Lynn Hershman Leeson and Joanna Bryson. The **Art Thinking Forum** is a new platform to discuss the future role of art with regard to cutting-edge projects in the field.

An already familiar format, **STARTS Day**, will offer online lectures, panels and networking sessions on the potential of evolving future innovators, as well as a pre-recorded tour. Other fixed points include the **Prix Forum**, where prizewinning artists elaborate on their work, and this year's **Expanded Animation Symposium**, *Appeal of the Analog*. Last but not least, the **Home Delivery Conference** focuses on the status quo and future of online cultural content.

Garden Exhibitions at JKU Campus

This year, what was hitherto understood as theme exhibitions at the festival site will take place entirely online and be rooted in the manifold contributions by Ars Electronica Partner Gardens around the world. Our home base in this networked festival is Kepler's Garden at JKU Linz. After five brilliant years at the POSTCITY, it is refreshing and exciting to discover the potential of our new location. Nevertheless, in light of the COVID-19 pandemic and the precautionary steps it is demanding, this year presented the additional challenge of developing a fitting local concept. In contrast to our previous, extensive festivals, the on-site program at JKU for 2020 is indeed smaller, though focused more intensely on mediation, guided tours and proximity to the local audience. Of course, a lot of the program parts at the JKU campus will be accessible through our online channels as well. As for the projects presented within the **Garden exhibitions** at JKU, the idea is to further promote the interplay between arts, research and industry/design, as represented by a group of selected artworks that pick up and play with the garden metaphor, the JKU LIT @ Ars Electronica projects — in which JKU presents an array of their latest research — and the STARTS exhibition, which shows fascinating and prizewinning projects in the fields of creativity and innovation.

From the POSTCITY to Kepler's Gardens

Meinhard Lukas (AT)

It was at the old postal distribution center by the Main Rail Station where the magicians of Ars Electronica transformed an analog yesterday into a digital tomorrow. At no other place and at no other time has Linz been more urban and cosmopolitan than at the POSTCITY. Here, out-of-the-box thinking, reflecting, and creating took place. It was a virtually perfect venue for spending five years exploring and wedding the monumental themes of technology, art, and society. It was a vibrant magnet that attracted people from all around the globe and provided the impetus for visionary thoughts by luminaries from the worlds of science and art.

The POSTCITY created by Ars is a symbol of the enormous innovative power of our provincial capital. The way this location was dealt with in the long term, however, also stands for the lack of courage of one's convictions, a not uncommon problem in this country. There is something ironic about the fact that the name POSTCITY outlived the so exhilarating and successful festival location in order to now serve as the name of a very "Linzian" real-estate project at this site. But that is another story.

Now, the festival is venturing a leap across the Danube. Not simply to where its own Center is located on the river, but rather to the northern edge of the city, to where the foothills of the gently rolling Mühlviertel region begin. This is where the campus of Linz University was established over fifty years ago — a university that the city and the province founded against initial bitter resistance from Vienna. It was opened in 1966 as a university for social and economic sciences, with the social dimension of business and economics to serve as the focus of teaching and research. But the initially skeptical federal policy-makers and the pioneers of the university have turned it into something much more.

Things were possible at Linz University in the 1960s that were unthinkable at that time at Austria's older, time-honored universities. The left-wing historian Karl Stadler was appointed by the school as the first scholar in the country to conduct no-holds-barred research into Austria's role before and during the time of National Socialism. The Jewish economist Kurt Rothschild, who had to flee Austria after its annexation into Hitler's Nazi Germany, and who in his writings dealt extensively with unemployment and equitable income distribution, was one of the founding fathers of the university as a professor for economics there. Another was a former official at Linz's Chamber of Labor (Arbeiterkammer), Rudolf Strasser, who as a professor in Linz not only became a pioneer in Austrian labor relations law but also founded a Linz school of civil law that is still influential today.

Within only a few years, the university developed into a breeding ground for a formidable avant-garde, be it in the fields of marketing, computer sciences, information management, or later in mechatronics, legal gender studies, and environmental law. And still today, the university is a groundbreaking institution with regard to its role and its influence in the area of artificial intelligence and physical intelligence.

The university now employs some 3,500 people and teaches about 20,000 students in four faculties (Engineering and Natural Sciences, Business and Social Studies, Law, and Medicine).

It is above all the research conducted at the intersections and in the intermediate areas between the faculties and subjects that has always made up the university's DNA. This also applies to the Faculty of Medicine, opened only in 2014, whose specialized research areas include medical engineering and health services.

The Linz Institute of Technology (LIT), founded in 2015, is committed to a forward-looking, interdisciplinary conception of technology. It is not only the collaboration between the natural sciences and engineering but also the societal, health-related, economic, and legal dimensions of technology that constitute the core of the LIT. The new LIT Open Innovation Center with a modern cleanroom and the LIT Factory are the home base for an institute of scientific diversity, one that stands first and foremost for responsible technology and — like the JKU in general — for the highest quality standards in teaching and research. In this way, the LIT allocated its funds through university-internal calls conducted in a strictly competitive process and with the oversight of the Austrian Science Fund (FWF).

The name of our university's genius loci, Johannes Kepler, was not adopted until nine years after its founding.

This, of course, had a great deal to do with the establishment in 1969 of the Faculty of Engineering and Natural Sciences, even though his name graces the university in its entirety. This is very much in keeping with the Keplerian perspective, as he even described himself as a polymath. At the same time, this also addresses an important virtue that links the Ars Electronica and the JKU: it is not (only) a specific vision, which in isolation all too frequently becomes tunnel vision, that characterizes the two institutions, but rather an interdisciplinary approach.

The idea of the Keplerian gardens is, of course, only ostensibly related to the name of our university. And the reference to our university's campus, with its fantastic green spaces, has only a superficial significance, as impressive as the centuries-old stand of trees may be. In essence, it naturally has to do with conceptual gardens that can manifest themselves at any analog or even virtual spot in the world. In this sense, the Kepler's Gardens as conceived by Ars Electronica in Linz are the epicenter of a world-spanning, lush garden landscape that can blossom in even the most barren steppes.

Nonetheless: anyone who strives to conceive of and create Kepler's Gardens should reflect at least briefly on his unparalleled life and cataclysmic work; in short, on his genius. His work in Linz alone renders one speechless. It was on May 15, 1618, at a building with the address Hofgasse 7 in Linz, that Johannes Kepler discovered the relationship between the size of a planet's orbit and the length of its orbital period around the sun, now referred to as Kepler's third law. As groundbreaking as this insight was, it remained misunderstood and unappreciated throughout his lifetime. Kepler once again pulverized the state of knowledge of his time. It is not by chance that no less a figure than Sir Isaac Newton was thinking, among others, of Kepler when he uttered his famous metaphor: "*If I have seen further it is by standing on the shoulders of Giants.*"

In this regard, I reiterate my call for a self-reflection on the part of today's scientists: while in Kepler's day it was above all dogmas of the church that placed limits on groundbreaking insights, today, I am afraid, it is academic rituals and pecking orders that at least here and there could represent a stumbling block for earthshaking discoveries.

Moreover, there is and always has been an incredible contrariness prevalent that makes life difficult for geniuses of Kepler's rank. As Kepler wrote himself regarding his character: *"Within me there is a vehemence, an intolerance toward irksome people, a shameless delight in mocking them as well as jesting, and finally an unapologetic proclivity for criticizing people, as I do not leave anyone unchallenged."*

One of Kepler's most outstanding traits, incidentally, has much to do with the aims of Ars Electronica: Kepler thought and researched in an integrated, "all of a piece" manner, as Thomas Posch so aptly described it in his biography. His thought processes were able to unite a world view with knowledge, and a poetic approach to the world with a mathematical one, in a completely natural manner. His *Harmonices Mundi*, in which he published his third law of planetary motion, is in a sense the culmination of Kepler's all-embracing research approach. In this respect, Kepler's "harmony of the world" is a concept that, in a time of the highest degree of specialization and atomization of knowledge, we should hark back to. Kepler's Gardens thus also stand for a renaissance of an integrated research approach.

But above all, the gardens should invite one to dream, to imagine small and great utopias, and to simply wish — just as the fantastic writer Valerie Fritsch described in the text she wrote especially for our "Long Night of Utopia": *"It is commonly said about a person's life that it contains two fateful moments: the moment in which the greatest yearning is fulfilled, and the one in which it is conclusively not. Nothing impels us more than even the smallest of wishes that we find in a corner of our being. In the tabernacle of our chest, we all carry the hope, the desire for the beautiful. If you wish, you are alive, in the middle of the universe; you view the world as a world that is evolving, one in which everything can become anything. There is a power in wishing, a meaningful, boisterous, impetuous delight. It is a resistance against the cast-in-stone, against the probable, the unavoidable; it is a revolution of the heart against the gravity of reality."* May Kepler's Gardens also become spaces of archaic wishing.

The festival's move from the POSTCITY to the campus is in itself an experiment. Corona made it a daring venture that placed enormous demands on all those involved.

The alternative would have been a capitulation to the virus — at a very time in which technology has attained a nearly excessive importance, in which society is wounded and anxious, and art is threatened in its very existence.

Now, of all times, the situation calls for surveying the new world. Let us begin the search for the polymaths of our time. May Kepler's Gardens be a magnet for this!

ARS ELECTRONICA GARDENS

It is an established fact by now that Ars Electronica's main objective is to mediate and interconnect the realms of art, technology and society. Besides opening up the dimensions of media-art and science to a wider audience, one of Ars Electronica's hallmarks has been to encourage new forms of collaboration and networking among communities on a local and global scale. Initiatives bearing witness to these efforts can be traced throughout its history. In 1982, *The World in 24 Hours* connected artists around the world in a non-stop series of dialogues using different telecommunication media to transmit their contributions. The project creatively challenged the idea that modern electronic systems and networks were mostly inaccessible to private individuals. In 1995, *Horizontal Radio* was a telematics radio network project which, for a day, turned 22 radio stations worldwide into an instrument and tool for artistic creativity; a "virtual stage" based on interaction and telepresence.

When confronted with the challenges posed by the coronavirus, it quickly became obvious to us that our task was to ensure the festival still functioned as a community-building platform that was easily accessible to the public. Whereas the goal with projects like *The World in 24 Hours* and *Horizontal Radio* was to dive into more closed networks and show possibilities for public participation, the idea behind this year's festival is to use today's vast online sphere to manifest itself across the globe. We therefore teamed up with over 250 partners in more than 120 cities to contribute local activities and online content on issues like autonomy, democracy, ecology, humanity, technology, uncertainty and reality.

The simultaneity and duality of local-physical and globally networked events marks the next evolutionary step. Ars Electronica will once again become an exciting experimental laboratory and prototype for next-level networking that will focus primarily on new forms and possibilities of fusion and coexistence between the analog and digital, the real and virtual, the physical and telematics.

Accordingly, this festival will not only reflect the multitude of extant strategies of online interaction, from live-streaming to participatory virtual environments; it will—yet more importantly—develop its own rhizomatic dynamic within the extensive partner network, to hopefully spur many novel collaborative practices. After all, intelligent on- and offline solutions for transnational cooperation, as well as for smart distribution of knowledge, are increasingly essential to our complex world.

ADRIATIC SEA

Gjino Šutić, UR Institute (HR), Robertina Šebjanič, PiNA (SI)

aqua_forensic 2.0
solidarity and empathy with waters beyond human perception

Adriatic Garden | aqua_forensic 2.0 connects two places on the Adriatic Sea: Dubrovnik (HR) and Koper (SI), giving special attention to our commitment to the values of care, compassion, environmental justice, action-taking and cooperation with the Adriatic Sea and its creatures. The project framework is the aqua_forensic, ongoing art and science research method, developed by Robertina Šebjanič (SI) and Gjino Šutić (HR), which sheds light on the presence of invisible anthropogenic (pharmaceutical) chemical pollutants in the water environment.

The program *Adriatic Garden | aqua_forensic 2.0* at Ars Electronica Festival 2020 focuses on ecological and climatic changes/challenges of the Adriatic Sea. A distributed exhibition program will be presented in Dubrovnik, Koper, Ljubljana and Linz. The citizen science workshops with a global and local audience will focus on the topics of water pollution and climate change. The *Adriatic Garden* online platform will enable audiences to immerse themselves in the underwater world of the sea by video and listen to the soundscapes under/above water in the sonic wilderness of the Adriatic. The sound program is co-curated by Robertina Š., Gjino. Š., Manja Ristić (SB) and Marko Vivoda (SI).

Art, science and citizen science coalesce within the framework of *Adriatic Garden | aqua_forensic 2.0*, opening up a wider discussion on our solidarity and empathy with waters beyond human perception.

Gjino Šutić (HR), Robertina Šebjanič (SI), UR Institute (HR), PiNA (SI), Ars Electronica within the EMAP/EMARE project (AT) / In partnership with: IZIS festival (SI), Youth Center Dubrovnik (HR); Art Workshop Lazareti (HR); Kontejner / Touch Me festival 2020 (HR); The City of Dubrovnik—Administrative Department for Education, Sports, Social Welfare and Civil Society (HR); City Art gallery Ljubljana (SI); Projekt Atol Institute (SI); Marko Vivoda (SI); Manja Ristić (SB); Computer History Museum Society (SI); Sektor (SI), Miha Godec (SI); Sektor (SI), RUK (SI); KONS (SI); PIF camp (Sl)

ADRIATIC GARDEN Robertina Šebjanič and Gjino Šutić

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ● Workshop
- ● Journey
- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ● Social Media
- ● Online participatory tools
- ○ Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

ARS ELECTRONICA GARDEN
AMSTERDAM

Waag — Technology & Society (NL)

Kepler's Expedition
to the Garden of Planet B.
A Nocturnal Roundtable

When humanity's disruptive power over the environment was momentarily silenced due to Covid-19, our understanding of the garden — and of gardening — began to shift. It shifted in shape and in size, due to compartimentalization of human activity. It shifted in how we as humans relate to the gardens themselves and to the companion species therein, which we culture and cultivate us.

Gardens have a history when it comes to who they were made for and why: be it for power, for pleasure, for food or for trash — or for the imagination. In the frame of our current shift in understanding around gardens and what happens in them — in and out of our sight and senses — we bring together artists, scientists and others to present their work and research and show us what we may have overlooked about them, but may need to urgently consider. *Kepler's Exhibition to the Garden of Planet B* is a nocturnal program of live experiments and presentations for a limited audience to be held on the site of Waag's Planet B location at the Amsterdam Science park and its fringes, where the site reaches former unused farmland with a growing biodiversity.

Kepler's Expedition to the Garden of Planet B is organized by: Waag — Technology & Society
Kepler's Expedition to the Garden of Planet B is made possible by: AFK — Amsterdam Fund for the Arts
NWO — Netherlands Science Organization
Stimuleringsfonds Creative Industrie
European Commission under the H2020-SC5-20-2019 call, Grant Agreement number 868887
Observing the Macroscopic Gardens
Christiaan Zwanikken (NL), Raoul Frese (NL), Angelo Vermeulen (BE), Remco Daalder (NL)
Observing the Microscopic Gardens
Saša Spačal (SI), Toby Kiers (NL/US), Esmee Geerken (NL), De Onkruideniers (NL), Spela Petric (SI), Nicola Triscott (UK)

Build like a shell, Esmee Gerken, © Florian Geerken

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
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- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
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- ○ Participatory virtual environments
- ○ On-demand content
- ○ Experimental tools
- ● Streaming

This Garden is part of the STARTS programme.

AMSTERDAM

Nxt Museum (NL)
Shifting Proximities

The *Shifting Proximities* garden at Ars Electronica hosted by Nxt Musem captures elements of our inaugural exhibition that explore how human experience and interaction in the face of social and technological change continually shifts the proximities between us. Perception of space, and our place within it, is called into question through the collected collaborations of artists, designers, technologists, scientists and musicians.

Nxt Museum is the first museum in the Netherlands dedicated to New Media Art. It is shaped to be a fluid future-facing institution that seeks to examine accelerating socio-political, technological and environmental change by questioning "what is next".

The garden investigates how the tools of new technologies both empower and threaten us, and how those contradictory forces act upon our bodies individually and collectively. New technologies have offered new modes of expression, alongside new avenues of external manipulations, shifting how we relate to each other. In evoking concepts of proximity, our interconnectivity becomes ever more apparent. Within this garden, we look to examine these shifting proximities and together create new forms of networked nearness amongst the Ars Electronica gardens in this unifying moment.

Garden Curator: Bogomir Doringer (RS/NL)

CGI: Benjamin Muzzin. 3D Scan: Helen Blanken

GARDEN PROFILE

FORMATS
- ○ Exhibition
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- ○ Film/Animation

COMMUNICATION STRATEGIES
- ● Social Media
- ● Online participatory tools
- ○ Participatory virtual environments
- ○ On-demand content
- ○ Experimental tools
- ● Streaming

This Garden is part of the Art&Science programme.

ARS ELECTRONICA GARDEN
AMSTERDAM

Vrije Universiteit Amsterdam (NL)
Hybrid Forms

The *Hybrid Forms* Garden at Ars Electronica demonstrates how artists and scientists can work together in speculative, reflective and proof of principle projects.

The Hybrid Forms Lab at Vrije Universiteit Amsterdam is a horizontal research platform where scientists and artists/designers collaborate to explore environmental science, automation, laser and optics based art, living systems and biophysics. The lab is coordinated by Dr. Raoul Frese with the assistance of Dr. Sandrine D'Haene, and seeks to blur the lines between disciplines and to connect the sciences and the humanities through art. The garden features discussions with recently selected STUDIOTOPIA scientists-in-residence and their collaborating artists Christiaan Zwanikken, Dmitry Gelfand and Evelina Domnitch. Christiaan Zwanikken has received international recognition for his kinetic and mechanical sculptures, sound works, performative and responsive installations. The substantive basis of his recent work is based on the assumption that human activities causing climate change and the destruction of biodiversity are symptoms of a greater cognitive and phenomenological problem. Dmitry Gelfand and Evelina Domnitch create sensory immersion environments that merge physics, chemistry and computer science with uncanny philosophical practices. In their twenty years of collaborating with scientific researchers, they have converged on topics such as hydrodynamics, the origins of life, and the foundations of scientific inquiry.

Raoul Frese (NL), Sandrine D'Haene (NL), Wende Wallert (NL)
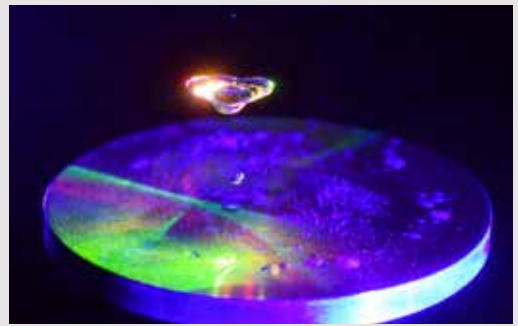
Kinetic Garden, 2015, Christiaan Zwanikken, © Cheryl Schurgers

Force Field, 2016, D. Gelfand & E. Domnitch

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ● Online participatory tools
- ○ Participatory virtual environments
- ○ On-demand content
- ○ Experimental tools
- ○ Streaming

This Garden is part of the STUDIOTOPIA programme.

Víctor Mazón Gardoqui (ES/DE)
Harvesting Isolation

In an attempt to address energy harvesting of isolated spaces, AXIS creates a vertical detection device of acoustic phenomena which focus on the concepts of presence, absence and density of mechanical and electromagnetic waves, harvested from GARS O'Higgins Base and human-made abandoned scientific constructions on the Antarctic Peninsula.

The garden presents an immersive audiovisual VR universe as a journey which displays the magnification, reception and freezing of Earth's natural energy phenomena, in contrast to human impact and its implications for living systems in different ecologies and their biopolitical interconnections. The main drive for this research is the exploration and investigation of what lies beyond human perception, to capture the phenomena within this isolated location that have strong implications worldwide. The work builds a dialogue that both explores and critically addresses this sphere of mechanical and electromagnetic activity — not accessible to human senses- through a series of actions combining reception, transmission and the interruption of signals through custom-made electronic devices and site-specific interventions on the Hertzian space.

The VR installation displays a 3D audiovisual environment with the first study for an ice logarithmic periodic antenna installed in Antarctica, an experimental monopole antenna system that morphs according to the freezing and melting processes affecting the received wavelengths. The system, connected to VLF/ELF wave detectors and µ-wave logarithmic detectors, is capable of receiving a broad band spectrum of natural phenomena and man-made radio waves. The output of the detector system is connected to an ice membrane sound system and a set of transducers. The research and actions took place from December 2018 to January 2019 with a group of scientists, artists and researchers under the POLAR Research Group.

Author: Víctor Mazón Gardoqui
GARS O'Higgins Base — German Antarctic Receiving Station
INACH — The Chilean Antarctic Institute
Polar Research Group

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ● Journey
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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ARS ELECTRONICA GARDEN
ATHENS

Onassis Stegi (GR)
Stories of Athens

Inside the Ars Electronica Garden Athens, Onassis Stegi presents *Data Garden*, a multimedia installation, and *HackAthens 2020*, a series of five works in the form of film, digital games, sound drama and mobile apps. Despite having very different points of departure, both projects explore the local vs. global, the endemic vs. the permanent, algorithms and rituals, data, ecologies and bodies. What are the data ecologies of tomorrow? Can we develop models of symbiosis between humans-plants and data? What are the data secrets hidden in the DNA of a plant secretly grown in the slopes of the Acropolis Hill? What is the future of our connected bodies in post-COVID Athens? Can we reinvent our human relationships, bodily contacts, emotions jobs, sex lives and dreams in a world heavily mediated by technologies and constantly regulated by psycho-political constellations? In contrast to the conception of Romantic gardens, Data Garden becomes a symbiotic locus of humans, data and non-humans, memory and resistance. Cities are reimagined as assemblages of actors equally seeking the right to our memories. Similarly, *HackAthens 2020* aims to explore post-COVID-19 Athens: how are bodies reconfigured in an era where digital communications mediate all forms of activity, where haptic encounters have become rare and where professional and personal spaces are blurred?

What kind of cities are we going to experience when our realities are both expanded and reduced through technology? Are our daily micro-routines a form of resistance or the ultimate instance of compliance?

Program Curation: Christos Carras, Prodromos Tsiavos
Production Coordination: Heracles Papatheodorou
Production: Ioanna Margariti, Katerina Varda
Participating Artists: Vasileia Dereli and Marialena Vyzaki, Kyriaki Goni, Lotus Eaters, Pari Selinas, Evita Skourleti, Christina Chrysanthopoulou and Olga Chatzifoti

AR Portrait of the Invisible Plant, Datagarden 2020 — Kyriaki Goni

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
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- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ● Online participatory tools
- ○ Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

This Garden is part of the AI LAB and EMAP programme.

AUCKLAND

Digital Research Hub and arc/sec Lab at the University of Auckland (NZ)

Aotearoa

The Ars Electronica Garden *Aotearoa* assembles selected projects from New Zealand's technologists, artists and University researchers. The project aims to offer a portal to the creative technology scene in the South Pacific. Curated by the Digital Research Hub (DRH) and developed by the arc/sec Lab at the University of Auckland, the Garden welcomes local and international visitors to a cyber-physical environment. A setting of large-scale projection screens combined with 3D projection mapping creates a dynamic environment which augments physical artefacts with virtual presentation formats using the Mozilla Hubs platform. Physical and digital space are merged through a 1:1 calibration. In Auckland you may explore the exhibition in person or as a digital visitor from anywhere in the world by using a pc screen or a VR headset. The exhibition is designed as a bi-directional platform. It allows for both, to host content from other Ars Electronica hubs and to showcase projects from the New Zealand based contributors. The Ars Electronica Garden *Aotearoa* presents performances and prototypical installations, it offers tours through ateliers and research facilities, and visits to cultural sites and extraordinary landscapes. For access to the garden and information on contributing technologists, artists and researchers visit: www.ars.nz

Garden host: Digital Research Hub (DRH), University of Auckland
Garden development: arc/sec Lab — Uwe Rieger, Yinan Liu and Yan Li
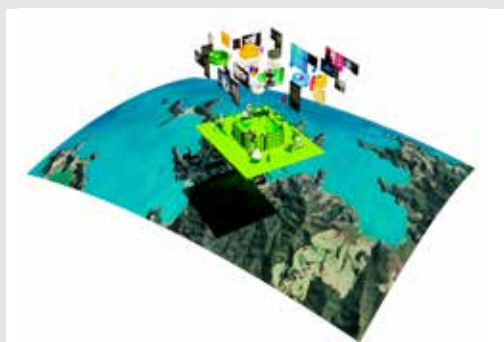
© arcsec

© Tyler Lastovich

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ● Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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ARS ELECTRONICA GARDEN
AUSTRAL

Austral University of Chile, Valdivia (CL)

Mutations

Everyone agrees that there will be a different world after the current global health emergency. But before we get to that after, we still have to get there. We are in the *in-between*. The uncertainty of the *in-between* is the moment of mutation. In the Chilean case, this experience overlaps with unprecedented social and political unrest: the mutation of the constitutional regime that has sustained the country since the 1973 coup d'état. This uncertain *in-between* where local political transformation overlaps with global instability, is the core of the *Mutations* a proposal developed at Austral University of Chile.

The program includes four activities that will present the city's ecosystem and the southern macro-zone of Chile, in relation to historical, cultural, ecological and visual mutations. This artistic proposal includes eight works which address mutation as an internal condition of art: the place of theater in a world that is crumbling, landscapes of inorganic objects, mutations of domestic space in confinement, the boundary between nature and economy, the oral memory of women in confinement, the urban landscape and urban bodies crushed by the violence of the political revolt, the spectral sound of social claims in relation to their suspension due to the pandemic, and the archeology of the technological *mutation* in Chile.

Seismographs of the *in-between*, these works are unfinished processes determined by the mutation.

Faculty of Architecture and Arts, Austral University of Chile
Vice-Chancellorship of Research, Development and Artistic Creation, Austral University of Chile
Museological Direction, Academic Vice-Chancellorship, Austral University of Chile
Artists: Cristian Jimenez (CL), Jesus Roman (CL), Felipe Westermeier (CL), Karla Mendez (CL), Valentina Inostroza (CL), Carolina Ihle (CL), Alejandro Albornoz (CL), Ivan Flores Arancibia (CL)

This project is a cooperation between the Ministerio de las Culturas, las Artes y el Patrimonio, the Ministerio de Relaciones Exteriores | Gobierno de Chile and Ars Electronica

© Jesus Roman

GARDEN PROFILE

FORMATS
- ● Exhibition
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AVIGNON

French Tech Grande Provence (FR)
Art + Tech for Urban Resilience

Today, 55% of the world's population lives in urban areas, a proportion expected to rise to almost 70% by 2050. Over the last century, our cities have been built mainly on an approach based on efficiency and productivity. However, the technical progress our societies has shown its limits in the depletion of natural resources, and the destruction of our natural ecosystems.

In addition to this, the recent outbreak of COVID-19 has presented tremendous challenges for the reorganization of urban areas, many of them related to the massive potential shift in individual habits. To an extent, these new habits may contrast starkly with the longstanding aim of reaching sustainable and equitable cities through, for instance, the re-adoption of private means of transportation, sprawl at much lower densities, and the attraction of living in small towns rather than large cities.

In the light of climate change and health crisis, the concept of the ultra-technological and connected "smart city" has lost ground to that of the resilient and sustainable city. This urban ideal implies the transformation of the existing ecosystem and our habits so that a more resilient society — with enhanced accessibility, social inclusion and citizen well-being — can emerge. What role should be assigned to the conversation between art, science and technology in this transition process? How can artists help create new imaginaries for collective and participatory systems, spaces for reflection and criticism for our future?

This garden is proposed by French Tech Grande Provence as a S+T+ARTS Regional Center. Since the creativity and transversal thinking of artists tends to result in innovative and unconventional ideas and practices, the Regional S+T+ARTS Centers believe that teaming up artists with technologists can advance more economically, ecologically and socially viable futures for Europe.

French Tech Grande Provence
BOZAR
S+T+ARTS

© 300.000 Km/s

GARDEN PROFILE

FORMATS
- ○ Exhibition
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- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ○ Participatory virtual environments
- ○ On-demand content
- ○ Experimental tools
- ● Streaming

This Garden is part of the STARTS programme.

ARS ELECTRONICA GARDEN
BANGKOK

Tentacles Gallery, Freaklab Thailand, Jennifer Katanyoutanant (TH)

Psych Garden: Spanning Metaphysical Geographies

As you join us from home, watching through your own computer frame, travel takes on a whole new meaning. We move viewers through experiences that explore panpsychism and animism rooted in Thai culture, asking visitors to wonder: How do we understand planets, inanimate objects, engineered microorganisms, etc. through a cultural framework? How do scientists, anthropologists, and artists outside the Western canon formulate their perception of the observed world?

Jennifer Katanyoutanat and Scott Kildall have each created different ways to share remote sensations. With collaborator Michael Ang, Scott has created a live streamed audio installation that gives voice to Thai plants. Jennifer and her collaborators Grace Cong Xin Wong and Zden Brungot Svitekova have created a pathway to explore remote sensations through a taste-based guided meditation. Visitors are encouraged to bring their own garlic.

Moving on to the wider world, Tentacles and FREAK Lab Thailand investigate the cultural lens of our observed world through three different journeys exploring life, synthetic biology, geopolitics and geology, and the future of space exploration.

Henry Tan, Tentacles Gallery, Freaklab Thailand, Spacezab, Spaceth.co

Jennifer Katanyoutanant, Scott Kildall — Xenoform Labs, Michael Ang, Grace Cong Xin Wong — Art Farm, Zden Brungot Svíteková

Lunar Rock, © Spacezab

Pearl of Lunar — Roadmap, © Henry Tan

GARDEN PROFILE

FORMATS
- ○ Exhibition
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- ● Streaming

BARCELONA

Hangar (ES), NewArtFoundation (ES), .BEEP { collection;} (ES),
UOC — ISEA Barcelona (ES), Institut Ramon Llull (ES), OFFF Barcelona (ES)

Uncertainty and Ecology

Uncertainty and ecology are two of the keywords in this year's edition that pose two big questions that haunt us at this time of global pandemic. These interconnected concepts have become the sword of Damocles as we make decisions about our future. The Ars Electronica Garden in Barcelona aims to account for the diversity of ways in which the arts, sciences, technologies and thought are facing the endless possibilities that hover over our times. Going from the unexpected changes to all aspects of life with its accidents and catastrophes, to ecology and its systemic interaction between biotic and abiotic factors, we need to address all human and non-human agents that populate and construct the environment. Nature, as constituent of all gardens, far from being an obvious domain of reality, is a way of assembling political order without due process. In this will to interconnect politics with technology and nature, the city of Barcelona, within Catalonia, is here presented through a network of heterogeneous agents made of individuals, nodes, clusters or hubs connecting with each other and the world.

Acknowledgements: Arts Santa Mònica, Disseny HUB Barcelona, IMMENSIVA, Departament de Cultura de la Generalitat de Catalunya, Sónar+D, Quo Artis

Including works by Peter Weibel (AT), Albert Barqué-Duran (ES), Marc Marzenit (ES)

Panelists: Brandon LaBelle (US), Robertina Šebjanič (SI), Oscar Martín (ES), Vanessa Lorenzo (ES), Laura Benítez (ES), José Luis de Vicente (ES), Joana Moll (ES), Andy Gracie (UK), Israel Rodríguez (ES), Ingrid Guardiola (ES), Vanina Hoffman (AR), Lina Bautista (CO), Daniel Moreno Roldán (ES), Agnès Pe (ES), Carolina Jiménez (ES) and Lluís Nacenta (ES), Pau Alsina (ES) with Roc Parés (MX), Marina Garcés (ES), Joan Soler-Adillon (ES), Tere Badia (ES), relator Pau Waelder (ES)

Workshop by Kenneth Dow (DE)

TAXIS series conducted by Antonia Folguera (ES); involved artists and creators: Antoni Muntadas (ES), Antoni Abad (ES), Alba G.Corral (ES), Playmodes (ES), Josep Manuel Berenguer (ES), Marcel·lí Antúnez (ES), Eugènia Balcells (ES), Joan Fontcuberta (ES), Mario Santamaría (ES), Domestic Data Streamers (ES), 300.000 Kms (ES)

Live Coding Session by Toplap, © Luciana Della Villa

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ● Workshop
- ● Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ○ Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

ARS ELECTRONICA GARDEN
BARCELONA

Espronceda — Institute of Art & Culture (ES), MIRA Festival (ES),
Institut Ramon Llull (ES), Helsinki XR Center (FI), ./ Studio Institute for
Experimental Architecture (AT), MEET Digital Culture Center (IT), UCA (UK)

Solar Orchard Garden
Quintessence and Gaia Hypothesis

Curiosity and Complexity defines *Solar Orchard Garden* on the basis of two concepts: quintessence, the fifth element described by alchemy, and the Gaia Hypothesis formulated in the seventies. Humans have always looked up to the skies for otherness and origin — god, knowledge, destination, life. At the same time, Earth a self-regulating complex system, organic and inorganic at once, orchestrates the biosphere, the atmosphere, the hydrospheres and the pedosphere.

The on site and online visitors / participants of the *Solar Orchard Garden* are invited to participate in two complex experiences: *Stargazer* and *Amazonia*. In *Stargazer*, the virtual environment draws its audiovisual inspiration from a pre-scientific understanding of the cosmos, where the essence of the universe is spiritual, divine, mysterious and full of wonder. It functions as a radio telescope observatory and laboratory environment that inspects, manipulates and experiments with the virtual world. Physical activity, like intensity of movement and gestures near the walls of the projection site, translate into visible celestial phenomena in the virtual world. The *Amazonia* experience shows Earth as a continuous ecological equilibrium with the Sun, its source of energy and an extreme danger to life, from COVID-19 spreading across the globe to ritualistic performances that demonstrate to contemporary, Anthropocenic humans, how nature always calls the shots.

Acknowledgements: MIRA Festival, IMMENSIVA, Garage Stories, Eyesberg Studio, Institut Ramon Llull

Fourth Travel, © Kris Pilcher

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Experimental tools
- ● Streaming

BARCELONA

Sónar+D (ES)
Future Perspectives of Music Technology

Sónar+D is an international congress of researchers, innovators and business leaders to explore how creativity is changing our present and promote imagining new futures. Since 2013, this antidisciplinary meeting gathers leading artists, creative technologists, musicians, filmmakers, designers, thinkers, scientists, entrepreneurs, makers and hackers in Barcelona to participate in a carefully commissioned program to inspire and network.

Sónar+D contributes to this edition of Ars Electronica Festival by bringing an artists' conversation on the future of music technology in the era of AI, and a video performance capsule uniting music and artificial intelligence.

Curation and production: Sónar+D
Filming: Factory Berlin

GARDEN PROFILE

FORMATS
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ○ Streaming

Ars Electronica Garden BRUSSELS

STUDIOTOPIA, Roche Ignée (SL), Sandra Lorenzi

Ars Electronica Garden BARCELONA

Fourth Travel, © Kris Pilcher

Ars Electronica Garden CAMBRIDGE

© Ariel Ekblaw, MIT Media Lab

BASEL

HeK (House of Electronic Arts Basel) (CH)
Real Feelings.
Emotion and Technology

HeK (House of Electronic Arts Basel) will partici-pate in the Ars Electronica Garden project with the international group show *Real Feelings,* created in partnership with MU Hybrid Art House in Eindhoven, the Netherlands. Emotions are at the core of human experience. Love them or hate them, they influence every aspect of our lives and shape our social behaviour. In the 21st century, technology has started engaging emotions like never before. The international group exhibition will present works by 20 artists, in mediums ranging from artificial intelligence, interactive installations, robotics and biometrics to gaming, video installations, virtual reality and photogra-phy. They explore how technologies are collating, assessing or triggering our emotions in multiple ways and directions. These technologies are even creating new feelings, which we haven't found words to describe yet. Several works have been produced expressly for this exhibition and will be experienced for the first time. During Ars Electronica, HeK will present virtual tours through the exhibition and online talks with curators Sabine Himmelsbach, Ariane Koek and Angelique Spaninks, as well as with some of the participating artists who have also received prizes

(Lauren LeeMcCarty — Golden Nica Interactive Arts +) or honorary mentions (Lucy McRae and Shinseungback Kimyonghun) in this year's edition of the Prix Ars Electronica.

HeK (House of Electronic Arts Basel) in cooperation with MU Hybrid Art House, Eindhoven
Artists: Antoine Catala, Stine Deja & Marie Munk, Heather Dewey-Hagborg, Justine Emard, Cécile B. Evans, Ed Fornieles, Maria Guta & Adrian Ganea, Esther Hunziker, Seokyung Kim, Clément Lambelet, Lorem, Lauren Lee McCarthy & Kyle McDonald, Simone C. Niquille, Dani Ploeger, Lucy McRae, Shinseungback Kimyonghun, Maija Tammi, Troika, Coralie Vogelaar, Liam Young
Curators: Sabine Himmelsbach, Ariane Koek, Angelique Spaninks

@ Lucy McRae

GARDEN PROFILE

FORMATS
- ● Exhibition
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Experimental tools
- ● Streaming

ARS ELECTRONICA GARDEN
BAVARIA

XR HUB Bavaria, University of Applied Sciences Augsburg, TUM Munich, LMU Munich (DE)

SENSING EXTENDED REALITIES
Gardens a Research-Creation project

Students, teachers and partners of three universities join for the interdisciplinary project *SENSING EXTENDED REALITIES Gardens*: University of Applied Sciences Augsburg, TUM Munich, LMU Munich. Together we explore human senses in the context of extended realities and design interfaces between the real world and abstract data space. For Ars Electronica, we will implement three project ideas as prototypes, merged under the umbrella term *SENSING EXTENDED REALITIES Gardens*. There will be a Podcast documentation of the working process, discussions and remote presentations / performances. We will present three art projects on three different days. We chose different forms of presentation for each project and — in line with the Research Creation mindset — will present a documentation of the process based on ethnographic fieldnotes and accompanying interviews in the form of one or more podcast episode(s). On the last day, we would like to invite participants from Ars Electronica to join our behind the scenes talk and a party in one or several spaces that were created for the XR HUB Bavaria as result of the competition "Dream your virtual space."

Silke Schmidt, Head of XR Hub Bavaria /Munich/ Karin Guminski, PhD, LMU Munich, Head of B.A. Arts and Multimedia / Andreas Muxel, Professor Physical Human-Machine Interfaces, Director HYBRID THINGS LAB, University of Applied Sciences Augsburg / Jan-Hendrik Passoth, PD Dr., Head of Digital Media Lab, MCTS, Technical University of Munich / Aida Bakhtiari, Gnothi Collectiv LMU Munich, Art and Multimedia, Fine Arts ADBK Munich / Andrea Geipel, Deutsches Museum DigitaXRl and PhD student at MCTS, Technical University of Munich / Elias Naphausen, Research Associate HYBRID THINGS LAB, University of Applied Sciences Augsburg / Students from LMU and TUM, Munich and University of Applied Sciences Augsburg, authors of the respective arts projects. The project is supported by the XR HUB Bavaria / Munich.

Stories of an Instant © Lucas Fellner

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ● Experimental tools
- ● Streaming

BELGRADE

Center for the Promotion of Science — CPN (RS)

art+science lab

CPN was founded to initiate, foster and support art & science collaborations in 2014 after its participation in the *European Digital Art and Science Network* (*Creative Europe* project). As an initial member of the Network, which involved three major European scientific institutions as external partners, CPN contributed to shaping first sustainable, live network that could bring creative minds together from seemingly opposed disciplines — arts and sciences.

Back in 2014 and 2015, founding art & science activities took place in Serbia, which were followed by the establishment of annual series *art+science* in 2016. Since then, each annual edition encompasses a diverse program including exhibitions, educational workshops and master classes, talks and panel discussions, symposia and international conferences.

Running in parallel to this year's Ars Electronica Festival, the fifth edition is trying to tackle, analyze and discuss a unique moment of our existence, in which one of the tiniest (living?) creatures succeeds in conquering the planet! By means of limitless artistic creativity and advanced technologies embodied through AI systems, *art+science lab* is more a sequence in time than a well-defined event. Its content is therefore presented in numerous ways and — to be on the safe side — virtually. This, however, leads to an existential question — how to treat digital content that took on a physical existence, only to be re-transferred to a virtual realm? In a loop that may announce new modes of (co)existence, we shall consult one classic idea — replicant or not?

Project manager and chief curator: Dobrivoje Lale Eric
Project and a+s teams coordinator: Petar Lausevic
Art director & designer: Slobodan Coba Jovanovic
Program and a+s teams coordinator: Bojan Kenig
Guest curator: Maja Ciric / IT & Technical support: Vladimir Cicvara, Petar Panjkovic, Ivan Avdic, Mirjana Utvic
3D model of the exhibition: Antonio Giacomin and Mirjana Utvic / Thanks to: Cultural Centre Magacin Belgrade, ESOF2020 Trieste, Milos Milovanovic, Milica Jankovic, Mathematical Institute of the Serbian Academy of Sciences and Arts, School of Electrical Engineering, University of Belgrade, Austrian Cultural Forum Belgrade, French Institute Belgrade / Production: Center for the Promotion of Science
co-funded by the *European ARTificial Intelligence Lab — AI Lab* project (Creative Europe Programme of the European Union)

Digital Prayer, © KristinaTica

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Experimental tools
- ● Streaming

This Garden is part of the AI LAB programme.

ARS ELECTRONICA GARDEN
BERKELEY

AI×MUSIC

The Center for New Music and Audio Technologies (CNMAT), University of California, Berkeley (US)

Machine Creativity at CNMAT

Hybrid-Performance, Machine Listening, Computer-Assisted Music Orchestration, and Audio-Driven VR Environments

CNMAT is dedicated to multidisciplinary research and the creative use of sound, linking the concert hall to the laboratory. Our center creates new works of music/art as well as researches, builds and distributes software tools at the intersection of AI and music. The projects presented in this garden focus on machine listening for hybrid-performance (analysis, extraction and application of parametric data from live sound),music information retrieval for creation (analysis, extraction, and application of data from audio files), as well as concepts related to composable algorithms that empower machines with varying degrees of autonomy for creative decision making.

Edmund Campion, composer and director, CNMAT
Carmine Cella, lead researcher, CNMAT
Claudia Hart, media artist and CNMAT collaborator
Jeffrey Lubow, music systems designer, CNMAT
Andrew Blanton, media artist and percussionist
Jon Kulpa, Composer, sound and media artist

The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

Alice Unchained

GARDEN PROFILE

FORMATS
○ Exhibition
○ Lecture/Conference/Talk
● Workshop
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COMMUNICATION STRATEGIES
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BERGEN

Piksel festival for art and technological freedom (NO)

Piksel Cyber Salon

Piksel Fest Spill 2020 / COPY PASTE exhibition / Hackteria & Badlab

Piksel is an international network and annual event for electronic art and technological freedom. Part workshop, part festival, it is organized in Bergen, Norway, and involves participants from more than a dozen countries exchanging ideas, coding, presenting art and software projects, doing workshops, performances and discussions on the aesthetics and politics of free technologies. *Piksel* participates in the unofficial parallel activities around the Bergen International Festival. We call this new initiative Piksel Fest Spill. The goal of this new program is to add electronic performances to the art scene during the most international season in Bergen, May/June.

Piksel Fest Spill 2020 is premiering the *Piksel Cyber Salon*. Designed by the Mexican artist Malitzin Cortés, the virtual venue hosts *COPY PASTE*, an exhibition featuring the work of five artists who all make copying a core aspect of their work. The exhibition aims to show that copying is natural, and to rethink the way we create/share/copy and paste.

Piksel presents a video program and a Live Coding ALGORAVE. The *Worship — Dinner Performance*, an original idea from Maya Minder, Hackteria, takes elements of #asrm (autonomous sensory meridian response) as a way to explore the online broadcasting of emotions through sound. The *Authors of the Future. Re-imagining Copyleft* lecture, by Constant, is about authors' licensing. The curator's tour will be led by Antonio Roberts, who will participate in the ALGORAVE with Alex McLean.

COPY PASTE Exhibition
Curator: Antonio Roberts
Featured artists: Carol Breen (IR), Constant (BE), LoVid (US), Lorna Mills (CA), Matthew Plummer-Fernandez + Julien Deswaef, Duncan Poulton (UK), Eric Schrijver (NL), Peter Sunde (FI)
Worship — Dinner Performance
Hackteria, BadLAB, Maya Minder (CH). QWAS artists: Dana Iskakova and Takhir Yakhyarov (KA), Renate Synnes Handal and Julie Silset (NO)
Authors of the Future. Re-imagining Copyleft, Constant (BE)
Live Coding ALGORAVE
Alex McLean and Antonio Roberts (UK)
Piksel Team
Piksel Fest Spill 2020 curators: Maite Cajaraville (ES) / Gisle Frøysland, Piksel (NO)
Production and organization: Maite Cajaraville (ES) / Gisle Frøysland, Piksel (NO)
3D modeling (*Piksel Cyber Salon*): Malitzín Cortés/ CNDSD (MX)
Piksel Fest Spill is supported by the Municipality of Bergen, Arts Council Norway and ProHelvetia. In collaboration with Naked Transition, Gessnerallee Zurich.

GARDEN PROFILE

FORMATS
- ● Exhibition
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COMMUNICATION STRATEGIES
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- ● Streaming

ARS ELECTRONICA GARDEN
BERLIN

CyberRäuber (DE)
CyberBallet

CyberBallet is a project that underwent a drastic transformation: originally planned as a live VR installation, we shifted the venue according to the new normal of Covid-19. We transferred *CyberBallet* into Cyberspace: a performance in front of a live audience, sharing the virtual space with their avatars and our performers on a social VR-platform. *CyberBallet*, a collaboration with Badisches Staatsballet, composer Micha Kaplan and choreographer Ronni Maciel, turned into a series of public rehearsals, enabling the team and our audience to learn the basics of performing arts in new surroundings.

Artistically, the project stayed very much the same: what does it mean to have a body, to move in space? Can AI truly grasp the basics of the human experience if it lacks a physical body? We used extensive video recordings of our dancers and machine learning to isolate and analyze them; motion capture of dance movements and interpretative reactions to them.

Logistically it changed a great deal: we not only had to build a whole new stage and devise mechanics to direct the performance in front of a live crowd. We also had to reflect about how a stage works when the usual theatre conventions and learned modi operandi are simply not applicable.

With the public rehearsals ending, the work will premiere in September 2020 at Ars Electronica Festival, in front of an audience that can join the performance in VR, with a desktop PC within VRChat (the platform we use) or via livestream on Twitch.

Concept: Direction CyberRäuber (Marcel Karnapke, Björn Lengers)
Music: Micha Kaplan
Choreography: Dance Ronni Maciel
Stage: Angelika Katzinger
Production: Eva-Karen Tittmann
Choreography, Dance: Badisches Staatsballett
Voice: Jessica Gadani
Funded by Kulturstiftung des Bundes, Fonds Doppelpass

GARDEN PROFILE

FORMATS
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BIRMINGHAM

STEAMhouse, Birmingham City University (UK)
STEAM

The Ars Electronica Garden Birmingham show-cases STEAM education practices from across Europe and is hosted by STEAMhouse, a centre for innovation, creative thinking, prototyping and business development powered by Science, Technology, Engineering, the Arts and Maths, based in Digbeth, in the heart of Birmingham, UK. It is a partnership between Birmingham City University and Eastside Projects, a local artist-run multiverse.

Its aim is to be a space for the open, the curious and the creative that inspires people to experiment, test and develop new knowledge. Since opening its doors in May 2018, it has been privileged to collaborate with local makers, artists, entrepreneurs and project partners from around the world.

STEAMhouse sees that STEAM is centered on collaboration and openness, and believes that those principles are most fully realized when the arts and the sciences are allowed to collide, for the creativity embedded in both to be released. The team at Birmingham City University is involved in a number of initiatives to develop STEAM thinking and approaches including European projects like the Erasmus+ STEAM Innovation and Curriculum, developing and hosting STEAMlabs and creating toolkits to support innovation processes.

Most recently, we have organized The First BCU International STEAM Conference to bring the Sciences, the Arts, industry and academia together.

STEAMhouse: Patrick Bek (UK), Tom Cahill-Jones (UK), Clayton Shaw (UK), Laura Veart (UK)

GARDEN PROFILE

FORMATS
- ○ Exhibition
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ● Streaming

This Garden is part of the STEAM and Art&Science programme.

ARS ELECTRONICA GARDEN
BOURGES

Ecole nationale supérieure d'art (ENSA) (FR), Antre-Peaux (FR)

DRUMS RADIO

Drums is a collective of 9 emerging artists researching and working within the field of sound, and beyond. As part of the postgraduate *Arts and Sound creation* 2019-2020 session at ENSA, the collective reconsiders the relationship between fine arts and sound. Drums will create an experimental platform *Drums Radio* consisting of broadcasts and live moments. Over five days (September 9-13), two hours of streaming will be held. Each daily session will be based on a specific pattern, responding to the pattern of the day before.

> "A throw of the dice never will abolish chance." — Mallarmé

DRUMS will activate a special protocol: DDD. DDD is a conceptual analytical system where the association of three words starting with D creates a tridimensional investigation space. As sound matter is a wave working in three dimensions, we assign it to a tridimensional physical space.

The protocol of our action is as follows: Picking three "D" words per day. These three words frame our exploration field.

Examples or potential D patterns:
Dimension / Decay / Decadence / Decline / Dispute / Demon / DIY / Dilemma / Dissonance / Decolonization / Danger / Discourse / Demystify / Dissolution / Drift / Dystopia / Debate / Decide / Damage / Dream /

Our broadcasting center will be based at Haïdouc of the Antre Peaux Art Center to offer a counterpart to broadcasting: a laboratory of exploration that will allow us to shape and take part in the broadcasting device.

Despite the distance and the dissociation of the sound bodies, *Drums Radio* will become a transdisciplinary moving space: instruments, machines, sound installations, actors are melting into a micro universe.

ENSA (Ecole nationale supérieure d'Art — Bourges — FR)
ANTRE PEAUX (Bourges — FR)
EPAS (European Postgraduate in Arts in Sound — Hogent — Gent — BE)

The collective is composed of Aurore Balsa (FR), Delphine Dora (FR), Ambre Dourneau (FR), Romain Gaudillière (FR), Céline Jiang (FR/CN), Pauline Mikô (BE), Nina Queissner (DE), Natalia Rivera Riffo (CL), Victor Villafagne (FR).

Drums © Jean-Michel Ponty

GARDEN PROFILE

FORMATS
- ○ Exhibition
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Experimental tools
- ● Streaming

This Garden is part of the EMAP programme.

BRAGA

gnration (PT) and INL—International Iberian Nanotechnology Institute (PT/EU)
Art and Nanotechnology

For its Ars Electronica Garden, gnration will present a virtual tour of *The Invention of Sense*, by German artist Marcel Weber.

The Anthropocene impacts issues of global magnitude, the overcoming of which calls for technological evolution. The fabric of the future is developed at nanoscale, far outside the scope of what human senses can fathom; on a scale no eye can discern, no finger can touch and no nose can scent. Scientific work is thus based on vastly-extended sensing and exciting. As with technological nerve endings, this domain of research pries into another dimension through a new apparatus of understanding developed by its users. The infinitely small requires infinitely high sensitivity. The exhibition's pieces explore this extrasensory perception and new sensuality. In the featured works, as well as in their presentation, Sensing, Discovering and Exciting are discussed, stimulated and elevated. Formally, the exhibition takes the premise further by extending the establishedrestrictions of gallery space and turning the room itself into a medium and a stimulating, visceral experience.

This exhibition is held under the program Scale Travels, a collaboration with the International Iberian Nanotechnology Institute (INL).

Work by Marcel Weber (DE)
Commissioned by gnration (PT)
Scientific supervision by INL—International Iberian Nanotechnology Institute (PT / EU)
Video by Neva Films

© NUDO—Carvalho Araújo

© Hugo Sousa

GARDEN PROFILE

FORMATS
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ARS ELECTRONICA GARDEN
BREMEN

Universum® Bremen (DE)

Space Garden

Through the special exhibition "Up to Space" (October 2020 — September 2021) you will be able to discover how to get to space, what it's like up there and how we on Earth profit from space exploration efforts. In conjunction with this — and as a hub of scientific communication — the Universum® Bremen is also part of the current project spaceEU, which aims to promote awareness of space topics and careers, especially among students and teachers.

A fundamental understanding of science and research is necessary to help shape our complex world. At Universum® Bremen our guests of all ages are accompanied with enthusiasm and hospitality while they discover scientific phenomena. Our offerings stimulate amazement and understanding and are thought-provoking. With more than 300 exhibits you can experience and understand scientific phenomena up close and with all your senses. The three subject areas — Technology, Humans and Nature — are waiting to be explored.

spaceEU has received funding from the European Union's Horizon 2020 framework programme for research and innovation under grant agreement nº 821832.

DLR_School_Lab Bremen: Dirk Stiefs (DE), Silke Zierenberg (DE)
Olbers-Planetarium Bremen: Matti Wiemers (DE)

Leefje Roy
Ulrike Isenberg
Universum® Bremen: Melanie Wittig (DE)
Presented Project 1: Ulrike Isenberg, Wilhelm-Wagenfeld-Schule Bremen, Christian Meier-Kahrweg
Presented Project 2, Format 2: Leefje Roy, Oberschule Rockwinkel, Moyo von Wahlert
Format 1: Matti Wiemers, Silke Zierenberg, Dirk Stiefs

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© Universum®Bremen

GARDEN PROFILE

FORMATS
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This Garden is part of the spaceEU programme.

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BRISBANE

Museum of Brisbane (AU)
Man & Wah: CELESTON

Man & Wah's practice is a remedy to reconnect us with nature and the cosmos, pondering the mystery and multilayered momentum that propels the cosmic process and its influence. Their work is informed by how language impacts the way we think and feel, how the past and present can mould ideas, beliefs, and social structures, and how information flow is controlled to induce certain human reactions and ultimately outcomes. During their Museum of Brisbane (MoB) Artists@ Home residency, Man & Wah created the video *CELESTON*, a curated amalgamation of audio, video and photographic material centered on the cosmic and botanical worlds, drawn from the artists' extensive catalogue created over the past seven years. In the context of a global pandemic and the rise to dismantle systemic racism, creating the work was a form of self-directed learning — questioning the artists' place in the events surrounding us all. Museum of Brisbane is dedicated to supporting the city's many talented artists, designers, writers, historians and storytellers. We invite artists to create works inspired by our beautiful city and engage our visitors in a global conversation. MoB Artist@Home Residency was designed to support artists and record their lived experience during the COVID-19 pandemic.

Courtesy the artists and Museum of Brisbane (MoB)
MoB's Artist-in-Residence program is supported by Tim Fairfax AC

Man & Wah, S3 INTERCONNECTEDNESS 08 2020,
Planetary graphics: Erich Karkoschka (Uni of Arizona), and NASA/ESA, David Crisp/WFPC2 Science Team/JPL-Caltech/NASA, NASA/JPL, NASA/Ames/SETI Institute/JPL-Caltech, Bruce Balick (Uni of Washington), Vincent Icke (Leiden Uni, The Netherlands), Garrelt Mellema (Stockholm Uni), NASA/ESA, NASA, ESA & The Hubble Heritage Team (STScI/AURA).

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ● Journey
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- ○ Online participatory tools
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- ○ Experimental tools
- ● Streaming

ARS ELECTRONICA GARDEN
BRUSSELS

AI×MUSIC

Centre for Fine Arts (BOZAR) (BE)

Genetic Biotech Through the Eyes of Artists

Modern biotechnology is developing very quickly. In Prometheus' footsteps, we use new biological tools to transform our healthcare and well-being. The latest CRISPR CAS9 gene technology can permanently erase, weaken or strengthen hereditary properties and add new ones, leading to a fundamental transformation of man as an evolutionary species. In the future, researchers may develop personal medications and therapies that stop us from feeling fatigue or pain, or babies with the DNA of three people that may have been made resistant to COVID19. But these applications are not without danger. Some activists and critics point to the possible social and ethical consequences: what if only the super-rich can make their children more athletic and intelligent? The context of necessary scientific developments and the global COVID19 crisis provides the ideal momentum for public debate on genetic modification. The Flemish Institute for Biotechnology (VIB) — a research institute for the life sciences in Flanders, BE — investigates the fundamental molecular mechanisms of life and how complex biology underlies both health and disease. Together with BOZAR, GLUON and the artists Kuang-Yi Ku & Sandra Lorenzi (Studiotopia

Programme), VIB takes up the challenge to make their cancer research and the use of CRISPR CAS9 technology better known, more negotiable and supported by the general public.
BOZAR will also be part of the AIxMusic Festival. Live coding expert and drummer Dago Sondervan and multi-instrumentalist Andrew Claes team up for an experimental exploration of artificial intelligence in music performance. Armed with an arsenal of specifically developed tools and applications, the duo will train a virtual agent towards musical autonomy and realtime interaction, becoming a trio along the way.

BOZAR LAB
The BOZAR LAB is a space dedicated to the reflection on links between art, society, technology and sustainability in the Centre for Fine Arts, Brussels (BOZAR).

GARDEN PROFILE

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This Garden is part of the STARTS programme.

H3 Studio (RO)
H3 Before Detach

H3 — Before Detach is situated in a special part of Bucharest that was on the periphery at the beginning of the 20th century and is a place for real estate development in the year 2020. The urban landscape is a contradictory jumble of early-twentieth-century residential houses, factories, warehouses, communist blocks of flats, new residential buildings and office buildings in an urban space that has not found its identity in a hundred years. Old buildings make way for urban development, new conflicting changes emerge for the neighborhood and for H3, which is preparing for a new trip. *H3 — Before Detach* is expressing a Bucharest neighborhood's search for identity for over 100 years. *Before Detach* will be the last event happening at H3 Studio before the factory that hosts it is demolished. *H3 — Before Detach* will present a human robot performance *Who am I?*, an exhibition of Interactive Art Installations, a live tour of the exhibition *Before Detach* and of the surrounding neighborhood. H3 is an art & technology studio established in 2017, located in the varied Popa Nan street in Bucharest and based in one of the buildings of Popular Silk, a factory producing silk in Bucharest from 1923 to 1990's. Blurring the boundary between disciplines, H3 Studio is focused on digital technologies and spatial practices to develop artworks, installations, performances and bespoke designs. Working under a sort of alchemical paradigm, their works transmute qualities from various projects and typologies into poetic, evocative experiences.

H3 Studio / Odeon Theatre / Kaustik
Project financed by AFCN (National Cultural Fund Administration): "The project does not necessarily represent the position of the National Cultural Fund Administration. AFCN is not responsible for the content of the project or how the project results can be used. They are entirely the responsibility of the beneficiary of the funding."

Who am I?
Concept: Adrian Damian (RO), Director and writer: Alexandru Berceanu (RO); Set designer: Adrian Damian; Motion designer: Andrei Mitişor (RO), Sebastian Comănescu (RO); Soundscape: Vlaicu Golcea (RO); Coreography: Andrea Gavriliu (RO); Costumes: Luiza Enescu (RO), Video designer: Dilmana Yordanova (BG), Răzvan Pascu (RO), Videographers: Ioana Bodale (RO), Adi Bulboacă (RO), Sorin Florea (RO), Performers: Andrea Gavriliu (RO), Mădălina Ciotea (RO), Vlad Bîrzanu (RO), Anda Saltelechi (RO), Meda Victor (RO), Eduard Trifa (RO), Video engineer: Luca Achim (RO), Lighting designer: Cristian Simon (RO), Light engineer: Andrei Delzeg (RO), Financial Coordinator: Andreea Chindriș (RO); Production Manager: Florin Niculae (RO); Managing producers: Ana Țecu (RO), Ana Ciobanu (RO)

Before Detach
Curators: Adrian Damian (RO), Dilmana Yordanova (BG) and Alexandru Berceanu (RO)

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
BUCHAREST

National University for Theatre and Film IL Caragiale Bucharest (RO)

UNATC Distant Art

In an empty nature lot in the middle of Bucharest, *Distant Art* displays works developed during lockdown by students of interactive technologies for performing and media arts, as well as game design. UNATC Garden also presents the results of the online collaboration between four international artists working in interactive art and CINETic Centre researchers and artists. *Distant Art* looks for new ways of for people to communicate in a world where direct contact was paused for a time. While perspective was drastically shifted for artists working with physical presence, virtual worlds built for digital games made more sense than ever. UNATC Garden offers a perspective on how art students and artists adapted their practice to the no-contact, no-proximity, no-touch world and the strategies they used to reach others. Due to social isolation, students experienced anxiety and disorientation states specific to deprivation of human contact. Projects are directly shaped by isolation, most of them experiencing strange interferences and unexpected paths. UNATC Garden will mix several onsite installations documented online with native online projects in *Distant Arts*. UNATC is a university dedicated mostly to Theatre and Film teaching, but also Choreography, Game Design and Interactive Technologies. UNATC Garden is hosted in the park of the University House of Bucharest University.

National University for Theatre and Film IL Caragiale, CINETic Centre
University of Bucharest
The University House of Bucharest
CINETic residencies was financed by AFCN
(National Cultural Fund Administration)

Curated by: Alexandru Berceanu
Exhibition Design: Iuliana Ghergehescu
Ionuț Crava: ASCII DREAMS/ Cosmin Tița: Ennui/ Maria Năstase: Sonic Images, Hoarder / Emil Drăgan: CONTROLLed, Paradise Swing/ Alexandra Albu: Acts of Perception: Engender/ Sebastian Comăneci: Quantum Polytopes / Cristi Dragomir THE SECRET/ Fiuciuc Andrei Nicolas C.D.P.R./ Bogdan Gheorghiu U Pilot /Andrei Păun: The Galerist/ Cip Făcăeru, Adrian Raicu: Dream Space Mechanics

distantart.sonicimages © Maria Nastase

GARDEN PROFILE

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BUENOS AIRES

Museo de la Universidad Nacional de Tres de Febrero — Centro de Arte y Ciencia (AR)
Universidad Nacional de Tres de Febrero (AR)

The Garden of Curiosity
A Journey Through Multiverse Cultures

A garden can be considered a particular arrangement of ecosystems that can grow in many expected / unexpected ways due to careful planning and bearing. Initial seeds and land design will grow and show us how time cycles and nature develops. A garden engages us with multiple forms and sensations we can't predict beforehand, despite a proposed order. In many languages, the word culture refers to cultivating land. Our knowledge and social practices could grow in a kind of designed territory with more or less boundaries; though developing cultures are always mixed processes. How could we build an ecosystem for culture growing? Muntref Arte y Ciencia can be thought of as a diverse ecosystem; a cultural garden that disseminates through vast and multiple flowerbeds. Since 2011, Muntref Arte y Ciencia has been weaving connections not only with people from diverse disciplines, groups of students, different institutions and several technical environments, but also by generating inspirational and empathic relationships in a growing network. *The Garden of Curiosity* is an interactive navigable visualization through which we aim to share this cultural diversity. When navigating through this environment replete with objects, words, sketches and sounds, and by clicking on each one of them, visitors access audiovisual content linked to many especially invited art and science projects.

Design Concept: Mariano Sardón, Lucía Kuschnir, Cintia Ferstemberg, Rocío Pilar De Lara
SWAP development manager: Guillermo Suarez (UNTREF MEDIA) Developers: Guillermo Bacigalupo (UNTREF MEDIA), Jonathan Rikles (UNTREF MEDIA)
The Garden of Curiosity is a "visual and sound objects" web support scenario. By clicking on specific objects, visitors can access audiovisual content corresponding to different Art-Science research projects linked to Muntref Arte y Ciencia. Among the transdisciplinary works that can be explored are projects by: Mariano Sardón (AR), Mariano Sigman (AR/ES), Marcos Trevisán (AR), Bruno Mesz (AR), Intercambios Transorgánicos (AR), Sebastian Tedesco (AR), Maria Ceña (AR), Leandro Garber (AR), Tomás Ciccola (AR) and others.
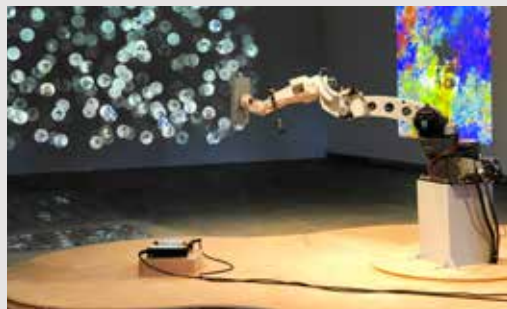
deep unlearning © Milagros Velazco

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
BUENOS AIRES

LatBioLab Latinamerican Bioart Lab, UAI Universidad Abierta Interamericana (AR)
The Nature of our Nature

The contribution of artistic creativity fosters thinking outside the box, and becomes an important ingredient in research groups. The increasing complexity in different disciplines leads us to think of the interdisciplinary as a fundamental tool to generate a synergistic effect, and art cannot be absent.

This is why Rabdomante and Glaciator are confronted by a fundamental challenge in a *Dialogue Between Two Deserts.* Two different places, two different spaces and purposes, joined by one philosophical vision: how can art provide a new vision of the human being through technology?

The Latinamerican Bioarte Lab (LatBioLab) reviews more than 12 years of bioart in Argentina. From *The Biosphere Project,* a simple way to show the world ecosytem, to *Colony*, which connects technology with biology, through *Cellular Seeds—Inexorable Futures*, which generates a new kind of "tech-life."

The Complex Thoughts Lab questions us about what we've learned from COVID-19. Is this crisis an opportunity to think about a new society? Students from UAI University (Universidad Abierta Interamericana) and the University of Puerto Rico express different ideas to shape a new world model for future generations.

This garden hopes to sensitize us on our human condition and our relationship to the Earth Gaia, deepening the journey of discovery around *The Nature of our Nature.*

Curators: Valentino Catricalà / Natalia Matewecki
LatBioLab Latinoamerican Bioart Lab, UAI Universidad Abierta Interamericana (AR), Proyecto SACO (CL), Quo Artis Foundation (ES), Antarctic Biennale (RU), Objeto a (AR)

Dialogue Between Deserts: Joaquín Fargas (AR)
LatBioLab Exhibition: Alejandra Marinaro (AR), Darío Sacco (AR), Joaquín Fargas (AR)
Complex Thoughts Lab: By students of the Universidad Abierta Lationoamericana (AR) and the Universidad de Puerto Rico Recinto de Biopiedras (PR)

The Biosphere Project © Joaquin Fargas

GARDEN PROFILE

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CAIRO

Cairotronica (EG)
WE ARE DATA

WE ARE DATA came as a response to the increasing responsibility placed on "technology" as a tool which facilitates inclusive development and solutions to many challenges currently facing cities like Cairo in sectors such as transportation, health, agriculture and education. This, in turn, raises questions about security, privacy, accountability, bias, agency, transparency, and ethics among many others.

Through the *We Are Data* fellowship, we wanted to encourage dialogue on the complexity of technology and data in the 21st Century from the perspective of 6 Egyptian artists.

The program is structured in a way that creates a space for dialogue, collaboration, and experimentation, as it is meant to learn from and adapt to the local context in which the participants are operating. The program was developed with the aim of focusing on transdisciplinary art education & cultural production in Egypt. We wanted to create a program for Egyptian artists that allowed them to explore & produce at the intersection of art, technology, design, and digital culture in a way that encouraged experimentation & dialogue.

Cairotronica (EG): Haytham Nawar, Ghalia Elsrakbi, Nada Bakr, Ahmed Al-Laithy, Rana Magdy
Impakt (NL): Arjon Dunnewind
Supported by Creative Industries Fund NL

Film Protagonists: Ahmed Aiuby (EG), Ahmed Soleman (EG), Imane Ibrahim (EG), Mona Makhlouf (EG), Sabah El Hadid (EG), Shadwa Ali (EG)
Filmmaker: Selim Elsadek

© Haytham Nawar

© Ahmed Ellaithy

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
CAMBRIDGE

Space Exploration Initiative, MIT Media Lab (US)
Space Has Arrived

If nothing else, 2020 has lifted the veil, and a comprehensive global crisis is now drowning in humanity's collective awareness. Confronted with the urgency of our planetary predicament, we revisits Buckminster Fuller's *Operating Manual for Spaceship Earth,* a reminder that Earth is a spaceship with finite supplies and collaboration is the key to our collective future. We are at a crossroads, having simultaneously gained the potential to destroy all life to extinction and acquired the skills to fulfill the basic survival needs of all humanity. At the Space Exploration Initiative, we are creating and deploying space technologies that envision a bold and culturally rich "new space age," from astro-bacterial wearables, to open-access and shareable cubesat constellations, through musical instruments for our space voyages and floating space habitats. The philosophy of "democratizing access to space exploration" — bringing moonshots and starshots into the purview of hackers and makers — courses through our work, and guides both our research platform and our extensive STEAM outreach efforts. In our garden, we will share the diverse portfolio of the initiative. As the audience "walks" around inside the garden, we want to immerse them in a digital space world: Wellbeing in Extreme Environment. We will invite the public to engage with the imaginative, critical conversations on our planetary future through three workshop events. We will also feature an exhibition on *Sojourner2020,* the first international art open call that took a trip to the International Space Station this March. *Sojourner2020* is created by an unprecedented collection of international artists, bringing in knowledge from indigenous groups, queer communities and diverse cultures, as well as transdisciplinary perspectives.

Space Exploration Initiative, MIT Media Lab
Garden Curator: Xin Liu (CN)
Workshop Leads: Ariel Ekblaw (US), Maggie Coblentz (CA), Che-Wei Wang (US), Sands Fish (US), Mehak Sarang (US),
Sojourner Artists:
bioarchitectures Luis Guzmán (CL)
Unearthing the Futures Xin Liu (CN), Lucía Monge (PE)
Abiogenetic Triptych Levi Cai (US) & Andrea Ling (CA)
Memory Chain: A Pas de Deux of Artifact Kat Kohl (US)
Pearl of Lunar Henry Tan (TH)
Finding Equilibrium Janet Biggs (US)
Nothing, Something, Everything Masahito Ono (JP)
TX-1 Adriana Knouf (US)
Canupa Inyan: Falling Star Woman Erin Genia
(American Sisseton Wahpeton Oyate)

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CAMBRIDGE

Tangible Media Group | MIT Media Lab (US)
Presence of Absence

Presence and Absence are the fundamental states of being; being present or close, and being absent, distant or lost. *Beyond Being There* (Jim Hollan et al. 1997), a seminal work on designing the next generation of telepresence, maps out how to move beyond trying to imitate physical co-presence and face-to-face interactions. Imitation as a goal is a mirage; awareness of the physical separation of our bodies persists. In virtual space, the sense of touch, kinesthesia, and proprioception do not apply to interactions with others' virtual presence and surroundings; thus, we lose the sense of others being there. The infusion of tangibility will enable the reinvention of telepresence. *inTouch* (TMG 1998) physically embodies the concept of *ghostly presence* by making users aware of the other person's existence through the sense of touch without representing the person through pixels (absence of body). By seeing and feeling a physical object moving on its own, we imagine a person's physical presence even though they are physically absent. Absence is a new form of presence. The *Presence of Absence* leads us to the Portuguese word "saudade", which signifies 'the desire for the beloved thing, made painful by its absence' (Teixeira de Pascoaes 1912). We have an intense longing to meet and interact with loved ones who are no longer with us. *MirrorFugue* (Xiao Xiao 2013) exemplifies this by capturing

an inter-generational duet through the tangible medium of a piano. The Cambridge Garden by Tangible Media Group | MIT Media Lab will be featuring selected projects that materialize the *Presence of Absence*. Our garden introduces the latest *Tangible Telepresenc*e research to engage people who collaborate across time and space with synchronized tangibles. We also feature a variety of dynamic computational materials we call *Radical Atoms* that foster a new form of human-material interactions.

Hiroshi Ishii, Zhipeng Liang, Paula Aguilera, Ken Nakagaki, Kyung Yun Choi, Hila Mor, Alice Hong, Jack Forman, Jonathan Williams, Deema Qashat (Tangible Media Group, MIT Media Lab)

© Tangible Media Group | MIT Media Lab

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ARS ELECTRONICA GARDEN
CAMPINAS

University of Campinas (UNICAMP) (BR)
#MemóriasCOVID19 Brazil

The COVID-19 pandemic is changing our life, both individually and globally. Although the modern world has gone through other major epidemics, this one takes on an unprecedented appearance. We can already perceive its dimension as trauma, something that will resize human relationships, our interaction in public spaces, and our perspective on time. *#MemóriasCovid19* is a platform created to allow different journeys to intersect from the point of view of identity. They will transmit their narratives through traits and images, uniting elements experienced by human groups from different social spectra. The current moment is significant for establishing new projects, foreseeing new horizons, and establishing strategies to better face the uncertain future. While in this horizon of waiting, we can gather narratives as a way to collect and preserve fragments of experiences and perceptions. This is a space where you can share written stories, photographs, drawings, letters, audio, songs, and videos about your personal experiences during the pandemic. The collected material will be submitted to the Curatorial Committee; those selected will be notified and published on the platform *#MemóriasCOVID19*. It is up to the applicant to authorize, or not, the disclosure of her/his identity.

Coordination: Ana Carolina de Moura Delfim Maciel (UNICAMP)
Curatorial Committee: Ana Magalhães (USP), Andrea Casa Nova Maia (UFRJ), Benito Bisso Schmidt (UFRGS), Cecilia Helena Lorenzini de Salles Oliveira (USP), Charles Monteiro (PUCRS), Daniel Munduruku (INSTITUTO UK'A), Diego Kern Lopes (UERJ), Elena Brugioni (UNICAMP) Kátia Couto (UFAM), Heloisa Buarque de Almeida (USP), Keila Knobel, Lilia Moritz Schwarcz (USP), Mônica Raisa Schpun (EHESS), Pedro Guimarães (UNICAMP), Raquel Rato (FCSH NOVA), Zélia Amador de Deus (UFPA)

© Dalton Villa

GARDEN PROFILE

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CAPE HORN ISLAND

**Terra Australis Ignota Research Group (CL) with
Santiago Museum of Contemporary Art (MAC)**

Achæoscillator_Towards Incorporeal Forms of Sensing, Listening and Gaze

Achæoscillator_Towards Incorporeal Forms of Sensing, Listening and Gaze is an ongoing research and AR/VR immersive installation that uses the natural energies and drastic conditions of the southernmost island on Earth to build a virtualized representation of the end/start of the Americas. A virtual hub to travel, as a one-person experience, to the remote island of Cape Horn, 55°57'49.6"S 67°13'09.9"W, where extreme weather conditions offer inestimable and uncontrollable evidence of Gaia's power.

Terra Ignota Research Group focuses on these inputs to create site-specific monumental installations which visitors to the festival will experience through virtual reality. The purpose of this research is to trace the presence and significance of acoustic phenomena in relation to the myths and beliefs of indigenous populations present in Tierra del Fuego, the interethnic traces are bio-cultural routes to the past, especially as pertains to the ancestors of the Yagán, the Kawesqar and the Selk'nam in the Almirantazgo Sound area. Attention is also brought to how the Antarctic, Scotia and South America continental plates collide there. The presentation consists of curated text and video essays with local and reknown archaeologists, geologists, seismotectonicists, curators and artists.

Project developed by Terra Australis Ignota / Research Group: Alessandra Burotto, Paula López Wood, Víctor Mazón Gardoqui, Valentina Montero, Alfredo Prieto, Gerd Sielfeld, Nicolas Spencer. AR/VR installations by Víctor Mazón Gardoqui and Nicolás Spencer

This project is a cooperation between the Ministerio de las Culturas, las Artes y el Patrimonio, the Ministerio de Relaciones Exteriores | Gobierno de Chile and Ars Electronica.

© Adina Secretan

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ARS ELECTRONICA GARDEN
CASTELO RODRIGO

Open Science Hub — Portugal, Municipality of Figueira de Castelo Rodrigo (PT)
The Night Sky
Unveiling What Only the Dark Reveals

The night sky darkness of interior of Portugal is among the gems of the region, but this pristine sky is slowly being threatened by light pollution. In this Garden, we invite you to participate in a sensory exploration of the night sky at the historical village of Castelo Rodrigo: one of the Seven Wonders of Portugal. Four capsules and four experiences. Four entry points to the invaluable richness of Portugal's night sky.

Perceiving the Night Sky I: Guided Tour of the Sky by An Astronomer: To observe the night sky is to acknowledge infinitude, a concept hard to grasp and impossible to see. What would reveal the healthiest eye in the darkest sky, and how does light pollution influence our perception of the night sky? *The Ethnography of Dark Skies | Storytelling by Local Inhabitants*: The dark sky has always been a source of inspiration for humans. But darkness also triggers innate fears by exposing our discomfort towards the unknown. How is the dark sky represented in the memory of the local people? *Re-tuning our Perception of the World | Craft Beer Blind Tasting:* We are visual animals, and our perception of the world under-represents the plethora of sensations that reach us from other sensorial streams. Darkness is an opportunity to re-tune our perception.

What is the world like when the other senses take the lead?
Sensing the Night | Observation of Nocturnal Wildlife: Nocturnal animals have evolved an array of adapted senses that allow them to move, mate and hunt in the darkness that surrounds them. Owls have big eyes, bats use ultrasonic sounds for echolocation, snakes have heat sensory receptors. And tonight: what will we find?

Plataforma de Ciência Aberta, Municipality of Figueira de Castelo Rodrigo — University of Leiden. João Retrê, Institute of Astrophysics and Space Sciences. Rewilding Portugal. Associação Transumância e Natureza. Cantinho Café — Castelo Rodrigo

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GARDEN PROFILE

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This Garden is part of the OSHub and spaceEU programme.

CHICAGO

Art & Technology Studies at the School of the Art Institute of Chicago (US)

[Dis]position
Great Lakes Garden Chicago

Society slammed the brakes and we are all still reeling. As we struggle to reorient ourselves — in time, in space, and in relation to one another — the past becomes difficult to distinguish from the future. In this haze, one thing is clear: the present is our moment, and our chance to build the world we want to inhabit. *[Dis]position* is a virtual exhibition space that exploits its immaterial status to bring together digital and physical artworks and environments. Folding the map in on itself to fuse distant geographies, *[Dis]position* underscores the impossibility of a virtual utopia and the urgency of reimagining our collective reality. Using the prefix *dis-* as an organizing principle, the artworks in the exhibition act as a reversing force, embracing the conditions of physical dislocation to foreground the inherent potential of shared aesthetic experience. The first of its type in the United States, SAIC'S Art & Technology Studies department was established in 1969 with the introduction of a single course operating at the intersection of art, science, and technology. Since its inception, the program has continually pioneered the use of emerging technologies in contemporary art, developed new models of artistic practice and integrated these models into the curriculum of one of the world's most influential art and design schools.

Curated by Duncan Bass, Bopha Hul, Patrick O'Shea and Doug Rosman. Web developement by Doug Rosman. Exhibition organized by Art & Technology Studies at the School of the Art Institute of Chicago.

Eduardo Kac, Inner Telescope 2017, © Eduardo Kac

Kio Zhu, Memory of a Veteran 2019, © Kio Zhu

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ARS ELECTRONICA GARDEN
CLUJ

Cluj Cultural Centre (RO)

Questioning Hierarchies Between Art and Science

The Ars Electronica Garden Cluj features the residents invited by Cluj Cultural Centre to participate in the European Art & Science project, Studiotopia. Cluj Cultural Centre embarked on Studiotopia motivated by the challenge of connecting arts and science in a more organic, non-hierarchical manner. The project integrates well with our local engagement and programs to support artists in their work, create a context for knowledge-sharing among professionals in different disciplines, bring STEAM education into schools and develop research. We are also motivated by the partnership built up between such diverse and strong international institutions, and we join our common journey with purpose to produce new structures of knowledge by bringing art and science closer together.

For the Studiotopia residency programme, Cluj Cultural Centre has invited two artists to join the project: Alexandra Pirici and Ciprian Mureșan. Alexandra Pirici is a Romanian artist and choreographer whose performances and installations explore history and invisible structures of power, in both gallery and public spaces. Ciprian Mureșan lives and works in Cluj, Romania. In his works, he explores, salvages and re-contextualizes historical, social and cultural references to unveil the complexity of everyday life and the conditions for viewing history.

Alexandra Pirici (RO), Ciprian Mureșan (RO)

Plague Column #6, Ciprian Mureșan, © Dirk Pauwels

Aggregate, Alexandra Pirici, © Andrei Dinu

GARDEN PROFILE

FORMATS
○ Exhibition
● Lecture/Conference/Talk
○ Workshop
○ Journey
○ Performance/Concert/Event
○ Film/Animation

COMMUNICATION STRATEGIES
○ Social Media
● Online participatory tools
○ Participatory virtual environments
○ On-demand content
○ Experimental tools
○ Streaming

This Garden is part of the STUDIOTOPIA programme.

DAEJEON

Daejeon Museum of Art (KR)
Daejeon Biennale Garden

2020 Daejeon Biennale brings together works that harness advanced AI technologies in pursuit of an expanded field of artistic expression. A range of displayed works, in which elements of art and science exist in fusion, will present multidisciplinary approaches to AI, as they take their sources from various fields such as literature, cinema, data science, etc. Simultaneously, the body of work will be a reminder of both the functions and malfunctions of deep-learning algorithms, examining the double-edged sword of AI technologies. Works focused on integrated cognition through AI technology suggest possibilities for extending human sensation through technology. Even heading towards the 22nd century, we don't yet have a clear formulation or definition of the human mind. Current AI technologies centre around human visual perception and hearing, and there is a need to develop higher cognition technologies for linguistic and circumstantial judgments as distinguished from those of animals. In this respect, the theme of AI technology is not about discussing the difference between humans and AI or suggesting AI as a replacement for the artist. This exhibition strives to foster discussion about the attitudes of current artistic practice in these new media environments, on how humans are interacting with technology. Presented works seek out possible common spaces between art, which explores things that deviate from economic logic, and AI technology, which is always concerned with social utility. Ultimately, the exhibition will examine the areas where the two overlap.

SUN Seunghye (Director of DMA), KIM Juweon (Chief curator of DMA), KIM Minki (Curator), HONG Yeseul (Curator), LEE Bo Bae (Curator), Alice WOO (Curator), LEE Suyeon (Educator), Anna BINN (Exhibition Coordinator)

Participating Artists: Quayola (IT), Hito Steyerl (DE), Zach Blas (TR), Jonas Lund (SE), Theresa Reimann-Dubbers (DE), Albert Barqué-Duran (ES), Mario Klingemann (DE), Marc Marzenit (ES), YEOM JIhye (KR), PARK Kyungkun (KR), YANG Minha (KR), KIM Hyungjoong (KR), PARK earl (KR), LEE Joohaeng (KR), SHIN seungbaek & KIM Yonghoon (KR), TEAMvoid (KR), KAIST Interactive Media Lab (KR)

© YEOM Jihye

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Experimental tools
- ○ Streaming

ARS ELECTRONICA GARDEN
DENVER

The Clinic for Open Source Arts (COSA) (US)
COSA Connectors

COSA Connectors is a new series of videos exploring and showcasing the many free/Libre open source tools (FLOSS) used by artists and other creatives. Each 2-3 minute video takes a quick look at a tool, sharing what it can do and talking about who might find it useful. The particular tools are curated and toured by an energetic group of people (Connectors) working in the digital field and will span many different practices. The goal is to help people find often-underutilized tools that give anyone with a computer and the internet new ways to express themselves at no cost. While many such tools are created, most are never promoted or shared beyond small groups, so these "commercials" will help build new communities around them. With Connectors coming from multiple age groups, genders, sexual identities, and racial backgrounds, we will forefront that these tools are for everyone. The videos will reside in several online spaces including YouTube where they are tagged and link to the tool and any associated information. Ars Electronica Festival will be the premiere of *COSA Connectors*, with a daily rollout of the videos grouped into topical playlists and culminating in a livestream conversation with the Connectors discussing their favorite tools and taking Live Chat questions about the series as well as suggestions for future videos.

© Michael Salter

© Chris Coleman

GARDEN PROFILE

FORMATS
- ○ Exhibition
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- ○ Film/Animation

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- ● Streaming

DRESDEN

Deutsches Hygiene-Museum Dresden (DE)

Future Foods.
What Will We Eat Tomorrow?
The Past, the Present and the Future of Food (in Dresden and beyond)

Looking for the perfect picnic spot at this year's Ars Electronica Festival? At the garden of Deutsches Hygiene-Museum, German-Speaking visitors will find great spots where food brings people together. The picnic to which you are all invited cannot be eaten, but it does illustrate the connections and contradictions of the visions of food that are currently under discussion for tomorrow's world. Whether you want to watch historic educational films about dietary sugges-tions in the 1970s, discuss live with local pol-iticians, farmers and activists, or take a virtual stroll through the *Future Foods. What Will We Eat Tomorrow?* exhibition—there's everything for gourmets who like their bites served fresh. Get your picnic blanket ready to try out this great spot to discuss: what future would be palatable to you?

Partner of the Educational Program: Commerzbank Foundation

Tableware as Sensorial Stimuli, Candy Volume spoon (2012) © Jinhyun Jeon

Sandwich, 2014 © Izumi Miyazaki

GARDEN PROFILE

FORMATS
- ● Exhibition
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- ○ Film/Animation

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ARS ELECTRONICA GARDEN
DUBLIN/INT

Science Gallery Network (Int.—Dublin/Venice/Melbourne/London/Bengaluru/Detroit)
Igniting Creativity and Discovery where Science and Art Collide

How will virtual reality impact therapy? Where is the cloud and who controls it? How could biodesign improve or destroy our lives? What can stick insects teach AI about dance? How can art and science collaboration inspire climate activism? With 95% of the universe a mystery, what role do artists and scientists have in unravelling and understanding the unknown? The Science Gallery Garden at the Ars Electronica Festival will showcase the best of the world's only university network dedicated to public engagement with science and art. The Garden will explore trust, technology, global challenges, arts innovation and new forms of digital storytelling, featuring interactive workshops, experimental audio and visual experiences, livestreamed events and a specially-curated digital archive. Explore Dublin's tech infrastructure through a virtual walking tour or experience a VR therapy session; visit exhibitions floating in digital space and discuss cultural transformation and new ways of learning. Take a behind-the-scenes look at how show-stopping arts and science exhibits come together. Read, listen and watch content from our global youth community, or just stop by to take a break from passive consumption and get your hands dirty at one of our live workshops.

Science Gallery is the world's only university network dedicated to public engagement with science and art. The Science Gallery Network consists of leading universities united around a singular mission: to ignite creativity and discovery where science and art collide. Science Gallery International is the non-profit, charitable organization catalyzing the growth of the network, providing services, tools and resources required to power and expand this unique global collaboration, which now has seven members across four continents: founding institution Trinity College Dublin (IE); King's College London (UK); The University of Melbourne (AU); the Indian Institute of Science, Srishti School of Art Design and Technology, The National Centre for Biological Sciences (IN); Ca' Foscari University of Venice (IT); Michigan State University (US); Erasmus University Medical Center (NL) and Emory University (US).

Courtesy of Science Gallery Network

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ○ Lecture/Conference/Talk
- ● Workshop
- ● Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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This Garden is part of the STUDIOTOPIA, OSHub, SySTEM 2020, spaceEU, AILab and STEAM programme.

DUBROVNIK/ZAGREB

KONTEJNER | bureau of contemporary art praxis (HR)
Quarantine

Over the last few years, the EMAP/EMARE network of media arts organizations have produced a multitude of works dealing with life-science and cybernetics that examine the fragile ecological equilibrium of life on Earth. A few of these artists find inspiration from scientific discoveries like archaea, a group of unicellular micro-organisms believed to be the oldest form of life on Earth. Other sources of inspiration include the impact of pharmaceuticals on life in the water and the sonic vision of bats. These artistic explorations envision future evolution in magical and often transgressive ways.

Through topics like pollution, interspecies communication, climate change, the "post-human" body and the Anthropocene, the KONTEJNER Garden project underlines the need for new values and morals. The project artists are not complacent or ignoring life, they are creating their own visionary narratives building on discourses of unity rather than division and embracing concepts like "human" and "nature".

In the times of COVID-19, KONTEJNER Garden will take place in a beautiful renaissance building, formerly a quarantine pier in the old Republic of Ragusa that protected the city from plague and cholera.

Organizer: KONTEJNER | bureau of contemporary art praxis
Curators: Olga Majcen Linn & Tereza Teklić | KONTEJNER
Set-up design: William Linn
Artists: Robertina Šebjanić (SI), Gjino Šutić (HR) — aqua_forensic, Anna Dumitriu, Alex May (UK) — Archaeabot, Tiziano Derme, Daniela Mitterberger (AT) — The Eye of the Other, Tavvi Suisalu (EE) — Waiting for the light, Quimera Rosa (FR/AR/ES) — Trans*Plant: an OncoMouse™ journey, Kat Austin (UK/DE) — Stanger to the Trees, Luana Lojić (HR) — What is Sound: Alpha Blending
Partner organisations: Universal Research Institute UR, Dubrovnik; Art Workshop Lazareti, Dubrovnik
The exhibition is organized as part of EMAP (European Media Art Platform).
Supported by: Creative Europe Programme of the European Union, Ministry of Culture of the Republic of Croatia, City of Zagreb, Government of the Republic of Croatia — Office for Cooperation with NGOs

ANNA DUMITRIU AND ALEX MAY © Vanessa Graf (installation view at Ars Electronica, 2018)

GARDEN PROFILE

FORMATS
- ● Exhibition
- ○ Lecture/Conference/Talk
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- ● Performance/Concert/Event
- ○ Film/Animation

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- ● Streaming

This Garden is part of the EMAP programme.

ARS ELECTRONICA GARDEN
EINDHOVEN

MU Hybrid Art House (NL)
Worlding Worlds

In the beginning… no, let's not go there. People have always invented creation myths to account for the world as they knew it. You could call it the ultimate form of storytelling. Today, world-ing happens everywhere. From *Game of Thrones* to post-colonial practices and from VR to algo-rithm-driven animation, different worlds offer alternate storylines, scenarios and solutions, whether they happen in the past, the future or in a galaxy far, far away.

The utopian, queer, dystopian, germinating, irreconcilable worlds that MU opened up in the exhibition *Worlding Worlds* address the present pandemic situation even more poignantly than we envisioned when we started putting the exhi-bition together. *Worlding Worlds* brings together 13 worldbuilding projects by 13 international art-ists. They challenge dominant views, opposing them with unexpected options and projecting the space that may be hard to find in society as it was/is/will be. Worlds are worlding somewhere out there in virtual reality, or in real life, tangible and smellable. When we populate them with our presence, bring them alive with commitment, something is (un)bound to happen.

Participating artists
Ainslee Robson
Andrew Thomas Huang
Baum Leahy
David OReilly
Ian Cheng
Joanie Lemercier
Kordae Jatafa Henry
Lady Dangfua
Liam Young
Mehraneh Atashi
Stephane Borel
Soft Bodies (Paula Strunden & John Cruwys)
Viviane Komati
Curator: Angelique Spaninks

Kordae Jatafa Henry Earth Mother Sky Father © MU Hanneke Wetzer

GARDEN PROFILE

FORMATS
- ● Exhibition
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ESCH-SUR-ALZETTE

European Capital of Culture Esch2022 (LU)

A glimpse into the cultural capital program

Esch2022 — European Capital of Culture presents an interactive multimedia experience bringing together users in Linz and Luxembourg and those online in an opportunity to explore the past and present of Belval, a former steel production site turned into a center of contemporary experimentation for urban, economic and cultural development. This installation will connect users across real and virtual spaces in an immersive experience featuring the work of visual artist Mary-Audrey Ramirez. Translating the fantasy worlds of gaming culture into artistic explorations, Mary-Audrey Ramirez constructs a universe of soft sculpture creatures, an animal kingdom reflecting our own human needs, projections and desires. As part of the journey through Belval, her installations will appear as disruptive interludes contributing to further blurring the boundaries between fiction and reality, the physical and the digital space.

Esch2022 European Capital of Culture
Le Fonds Belval

Mary-Audrey Ramirez, © Simon Vogel

Belval, © Emile Hangen

GARDEN PROFILE

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- ● Exhibition
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ARS ELECTRONICA GARDEN
ESPOO/HELSINKI

Aalto University (FI)
Uncertain Practices

Spring 2020 marked a period of enhanced uncertainty all around the world with the COVID-19 pandemic forcing societies into lockdown. The situation brought up societal and governance challenges that were further internalized into individuals' thinking and their relationships as communities and with the world at large. Being uncertain also requires that one be able to cope with doubt, something 2020 took to unusual lengths.

However, one can also claim that uncertainty is connected to speculative and experimental art practices. Unpredictable and contradictory thought processes often breed new perspectives and ideas in creative practice. In comparison to developments in science and technology that typically aim to overcome uncertainty by proving a hypothesis either right or wrong, or some design-based approaches that aim to find solutions to predefined problems, experimental art may have uncertainty itself as its subject matter. Its aim is not necessarily to find a solution to a problem, but to speculate about its multiple potentialities and perspectives.

The garden presents three artists within the framework of uncertainty, including studio visits, demonstrations, talks and a musical performance. The presentations by Koray Tahiroğlu, Laura Beloff and Andy Best will be streamed and followed by live sessions for further dialogue with the audience. The garden events are produced by Aalto Studios at Aalto University.

Koray Tahiroğlu (FI/TR), Laura Beloff (FI), Andy Best (FI/UK)
Marcus Korhonen, Bjarke Aalto
Aalto University — School of Arts, Design and Architecture

Al-terity, © Koray Tahiroglu

Liquid Matter, © Laura Beloff

GARDEN PROFILE

FORMATS
- ○ Exhibition
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ESPOO/HELSINKI

Aalto University (FI)
Chronicles of an Art and Science Collaboration

This audiovisual hybrid art work brings together the self-reflections of three scientists who participated in an art and science collaboration dealing with the use of bio-cellulose for art and design purposes. Three days before the Covid-19 lockdown, the Systems of Representations research group carried out semi-structured interview sessions with the group at their laboratory facilities in Aalto University. In the anecdotal storytelling that ensues, professor Orlando Rojas and doctoral students Janika Lehtonen and Luiz Greca talk about their childhood, what inspired them to follow careers in science and how the making of a contribution to sustainability and the good of humankind sustains their work objectives. Their narratives are augmented with a combination of illustrations and still photographs related to the topics that emerged during the interviews, as well as scientific images created by the scientists using an electron microscope as part of their work. The media used includes an interactive panorama and video posted online, followed by a live (online) discussion with the participants.

Electron microscope, © Luiz Greca and Janika Lehtonen

Lily Díaz-Kommonen—interviews, research, video & editing, Andrea Mancianti—sound recording, Orlando Rojas—scientist, Janika Lehtonen—scientist Luiz Greca—scientist

GARDEN PROFILE

FORMATS
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- ○ Experimental tools
- ● Streaming

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ARS ELECTRONICA GARDEN
ESPOO/HELSINKI

Äänen Lumo (FI), Aalto University (FI), quietSpeakers (FI)

remote/displaced

remote/displaced allows for an immersive exploration of a virtualized physical space: Öljysäiliö 468, a vast, decommissioned and repurposed oil tank in East Helsinki.

Due to its shape and materials, its acoustics are extremely peculiar, with long reverberation times, shimmering echoes and immersive radiating patterns. In addition, it is an almost magical site for a modern sonic ritual due to its status as a relic of fossil-fuel culture, its position by the shore, and its nature, in-between a closed industrial space not meant for humans and a shell open to the surrounding land- and soundscapes, that constantly filter and reverberate in its open cavity.

The project takes the shape of a small collection of brief immersive audio-visual visits to this special remote place, exploring ways to listen to the encounter between sound, technology, space and landscape, as it emerges like a precarious ecosystem, where the boundaries between natural and artificial are constantly renegotiated and deformed by technology.

In between physical and virtual space, the brass instruments, an array of recycled sonic devices, the light, the wind and the sea waves, filtering through the holes on the metallic reverberant surfaces, transform one another.

The audience can access the various short experiences using a wide array of technologies, from VR goggles, to mobile phones or personal computers, both remotely and in situ during the festival.

quietSpeaker (Andrea Mancianti and Roberto Fusco)

© Roberto Fusco

© Andrea Mancianti

GARDEN PROFILE

FORMATS
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ARS ELECTRONICA GARDEN
GALWAY

Aerial/Sparks and Galway 2020 European Capital of Culture (IE)

Aerial/Sparks :: Reports on waves

Our garden concept makes reference to John Scott Russell's investigations on waves and its effects on ship constructions. Scott Russell's discovery of the wave of translation becomes a thematic link to the nature of waves both watery and sonic and how they impact our connections to marine nature, distance, technology and empathy. *Aerial/Sparks* started its journey by exploring the potential of radio communication to reimagine our relationship with the ocean. Commissioning artists created work from time spent on the Irish research vessel *The RV Celtic Explorer*. Each work explores relations between people and places, including the visible and invisible connectors of ocean and landscape. These sonic presentations also ask us how sound and radio communication might trigger a deeper sense of empathy for our environments and ourselves. As we move into a future of uncertain intimacy, how can we grow meaningful connections at a distance? Aerial/Sparks is a sonic journey that explores the potential of radio communication to reimagine our relationship with the ocean.

Created by artist Louise Manifold (IE) for Galway's European Capital of Culture programme, Aerial/Sparks is an interdisciplinary art collaboration with the Marine Institute exploring radio connectivity and its relationship to ocean space. Participating artists include Ailís Ní Ríain (IE), Carol Anne Connolly (IE), David Stalling (DE), Kennedy Browne (IE), Kevin Barry (IE), Magz Hall (UK) and Robertina Šebjanič (SI). Aerial/Sparks is funded by Galway 2020, the Arts Council of Ireland Project Awards and the Marine Institute.

Partner Credits
Galway 2020 European Capital of Culture
Marine Institute Ireland
Commissioners of Irish Lights
Áras Éanna Arts Centre, Inis Oírr

Aerial/Sparks, Weather Bouy, © Louise Manifold

GARDEN PROFILE

FORMATS
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ARS ELECTRONICA GARDEN
GDAŃSK

ŁAŹNIA Contemporary Art Centre (PL)

Sensory Orders

The Ars Electronica Garden Gdańsk, hosted by ŁAŹNIA Contemporary Art Centre, features *Sensory Orders,* a project examining the different orders of sensemaking taking place under our (current) conditions of extreme precariousness and uncertainty.

The term *orders* comes from economics and political science, and describes how objects, ideologies or thought patterns are organized and structured. According to the economist and political philosopher Friedrich Hayek (whom we paraphrase our title from), these orders are "not made by anybody but form themselves."

Twenty-five international artists, researchers/ scientists, designers, architects and scholars collectively investigate how the symbolic order of language and culture, the technological order of machines and the organic order of human bodies and natural entities are intertwined with, sense and affect each other. Where are we as humans amidst of these orders, some of which we cannot perceive or know but which have major effects on our lives?

Adjunct to our investigations in *Sensory Orders* are episodes of Filip Ignatowicz's *#artUNBOXING* project. These video performances, created specifically for YouTube and inspired by the unboxing videos that populate the platform, are offered up as refreshments. *artUNBOXING* is a part of the artist's long-term project of exploring the boundaries between art and product, consumption and culture. He attempts to spark a conversation on the situation of art in consumer societies.

Curators: Chris Salter and Erik Adigard
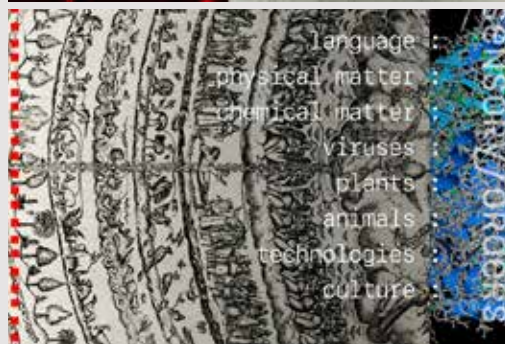
© Erik Adigard

© Erik Adigard

GARDEN PROFILE

FORMATS
- ● Exhibition
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- ○ Streaming

This Garden is part of the STUDIOTOPIA programme.

Laboral Centro de Arte y Creación Industrial (ES)

Future Life.
Interferences, Alterations, Changes.

Our present time, in which everything is connected to everything else, is characterized by the augmented alteration of bodies and identities, the environment, the economy and even the concept of truth. This increasingly vulnerable and sensitive network of relationships and interdependences means that we are living in an era of constant uncertainty and change. All the works related to Future Life engage with these systemic disturbances in the established order. They address the sustainability of the current permeable framework for a social and cultural fabric, which is more and more damaged, torn or in a fragile balance at its breaking point.

The artists in this exhibition work with blood and chlorophyll to investigate the connections between human and plant life. They use microbial cultures, robotic clams and sensors to demonstrate the contamination of the oceans; or apply AI algorithms so that something as innocent as a flower can visualize financial speculation. They also engage with the new icons, practices and virtual devices that define the increasingly polarized and radicalized scenarios of online social and cultural ecosystems.

The exhibition and residency program are part of the European Media Art Platform, financed by Creative Europe Program. Led by Werkleitz Gesellschaft (Halle), the following institutions are part of the platform: Ars Electronica (Linz); Bandits-Mages/Antre-Peaux (Bourges), FACT (Liverpool); Impakt (Utrecht); Kontejner (Zagreb); LABoral Centro de Arte (Gijón); M-cult (Helsinki); Onassis Stegi (Athens); RIXC (Riga); WRO Center for Media Art Foundation (Wrocław). Artists: Marco Barotti (IT), Disnovation.org (FR), Quimera Rosa (AR/ES/FR), Anna Ridler (UK), Robertina Sebjanic (SI), Gjino Sutic (HR), Stefan Laxness (UK), María Castellanos & Alberto Valverde (ES)
Curated by: Karin Ohlenschläger

Clams, Marco Barotti (IT)

GARDEN PROFILE

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COMMUNICATION STRATEGIES
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**This Garden is part of the
EMAP, AI LAB and STUDIOTOPIA programme.**

ARS ELECTRONICA GARDEN
GRANADA

Parque de las Ciencias (ES)
Pendulum Garden

Wave Pendulum

Since the Parque de las Ciencias museum opened in May of 1995, science and art always have always gone hand in hand. This link has been present in all the contents and activities organized to emphasize that knowledge is unique and belongs to our culture as humans. There are no boundaries between science, technology, arts or humanities. This year, 2020, we celebrate the 25th anniversary of the Parque de las Ciencias and we wanted to celebrate it connecting science and visual art and at the same time, disseminating the 17 Sustainable Development Goals (SDG). To this end, we designed the artistic installation *Wave Pendulum.*

The wave pendulum uses the laws of simple pendulum motion to create a display where many pendulums of different lengths start swinging at the same time. As they move in and out of sync, the pendulums create a sequence of cycling visual wave patterns. Through this interactive artwork, people can understand how the harmonic motion of the waves can be a source of inspiration and that beauty can be created through the laws of physics. Each of the 17 pendulums of different lengths has a color which represents one of the 17 SDG. This aims to make society aware of the importance of achieving them by 2030.

In this way, science and art come together to promote the importance of acting globally to achieve equality among people, protect the planet and ensure prosperity as part of the new sustainable development agenda.

Parque de las ciencias

GARDEN PROFILE

FORMATS
○ Exhibition
○ Lecture/Conference/Talk
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This Garden is part of the spaceEU Partner programme.

GRENOBLE

Komplex KapharnaüM in residency at Hexagone / Atelier Arts Sciences (FR)

Energy Autonomy — Renewable Energy — Mobility

KompleX KapharnaüM (KxKm) is a French team comprised of video makers, musicians, technicians, writers, performers and makers that performs in public space. The town is their playground, their source of inspiration and their stage. KxKm attempts to make public space scenic and experiments with different ways of occupation. It provokes encounters, blurs borders and re-routes special areas. By presenting the spectator with choices, *Migration — Sunshine Architecture* explores the idea of energy autonomy while questioning our apparent ease of access to it. To reconsider our relationship with energy and its consumption, it is interesting to present energy as a limited, thereby precious, resource. This exercise is not about casting blame, but about raising awareness of energy consumption. If energy is limited, what should we use it for? The installation incorporates flexible solar panels, which can be spread throughout the city according to its changeable energy needs, to make the expansion of various activities and their energy consumption physically visible.

Migration — une architecture au soleil, © Pierre Jayet

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ○ Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ○ Streaming

This Garden is part of the AI LAB programme.

ARS ELECTRONICA GARDEN
HELSINGØR

The Culture Yard (DK)
CLICK Garden

The predominant vegetation in the CLICK Garden are the existential and ethical dilemmas that arise when humans are confronted with artificial intelligence.

Works produced by The Culture Yard, MindFuture Foundation, Kapelica Gallery, Quo Artis and memoryMechanics include everything from immersive experiences in the 4D Box hologram stage with a live performer and AI interacting with audiences to online artist talks and activities, e.g., a Covid-19 AI battle between Trump and WHO, where two politically biased AIs will challenge each other and the audience about the "right" interpretation of "reality".

The AI stage-performance *SH4D0W* is an immersive 3D production, premiering January 2021. Key elements from the AI performance will be presented in an interactive online experience. Inspired by H.C. Andersen's fairytale *The Shadow* it thematizes the shadow of man's struggle to find himself in a digital world by focusing upon the digital seduction enabled by human-like AI. It is a journey into digital consciousness, where the possibility of personal self-understanding fights against the computer-driven logic of data capitalism. The artwork *!brute_force* by artist Maja Smrekar, is based on artistic research on a platform for humans, dogs, and AI. Finally,

collectiveMemories is a virtual version of the physical piece *memoryMechanics*, also premiering in January 2021.

Production: The Culture Yard / CLICK
Director: Mikael Fock
AI artist: Cecilie Waagner Falkenstrøm
Visual artist: Carl Emil Carlsen / Sixth Sensor
Script: Mathias Raaby Ravn
Tech: Nicolai von Rosen
Sound design: Yann Coppier
Perfomer: Anne Laybourn

Thanks to: AI LAB, The Danish Art Council, Bikubenfonden, Helsingør Kommune

collectiveMemories is presented by exocollective (Maja Fagerberg Ranten, Mads Høbye and Troels Andreasen) in collaboration with I remember (Lise Aagaard Knudsen, Karen Eide Bøen)
Some of the projects are presented within the European ARTificial intelligence Lab, which is co-funded by the Creative Europe Programme of the European Union.

The Culture Yard

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ● Streaming

This Garden is part of the AI LAB programme.

HONG KONG

School of Creative Media, City University of Hong Kong (HK)
City in Fusion

Hong Kong lies at the junction of historical, cultural, and political tectonic plates. These shifting forces trigger a burst of creativity. SCM faculty and artists realize new perspectives on this ever-changing landscape.

Eight programs — linking life, art, science, and technology — work like magnifying glasses, distorting lenses and time telescopes through which to re-think the world we live in.

Hong Kong Escape Views, by MoBen. Haunting the picturesque 360 panoramas of Hong Kong, characters in white protective suits are striving to install CCTV cameras. The virus is in the eye of the beholder.

DïaloG, by M. Benayoun and Refik Anadol, is a MindSpaces project. As new immigrants, artworks are aliens that don't understand each other. From Los Angeles and Hong Kong, we observe their behavior, made of artificial consciousness and memory.

HK media art shows: *WYSIWYG* is a retrospective of Jeffrey Shaw's classic and new artworks, while Tamás Waliczky's *Imaginary Cameras* revisits technologies in a non-linear history of the moving image. *Leonardo da Vinci: Art & Science. Then & Now* is a tribute to Leonardo, incorporating original drawings and contemporary artworks that extend his legacy. *Metamorphosis or Confrontation*, by Tobias Klein, shows his most recent digital craftsmanship. *Value of Values*, by Benayoun, Mendoza and Klein, is a transactional art project on the speculation of value, from BCI to blockchain. *On the Road: Young Media Artists in China*, presents 50 installations by 35 artists. In *VoV Reification Training for Budding Brain Workers*, workshop attendees are invited to create their VoV through neurodesign, to then propose a 'reification' of their 3D model as an artwork. With an introduction by the Dean, *Art in Labs* will find SCM faculty staging their latest projects, followed by interviews to *Media Artists in Hong. Why and How Artworks Feel?,* a seminar with key contributors to MindSpaces EU and HK. Last but not least, the *Wine Tasting Party* will close the event, with all Garden participants bringing their best wine for a friendly remote-sensory experience.

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
JAKARTA

Media Art Globale (MAG) by Connected Art Platform (CAP) (ID)
PRISMA GARDEN

Following the success of *Media Art Globale* Festival 2019, Mona Liem, the curator-founder of Connected Art Platform brings Prisma Garden to Ars Electronica 2020.

Prisma Garden showcases five distinct Indonesian artists whose works depict their restlessness and hope around the current situation, and sets the expectation for spectators to apply the experience and understanding they derive from the artworks.

In the Name of the Leaf, by Angki Purbandono, speaks to how diversity of human characters can be reflected on leaves, an inspiration struck upon while spending time in Indonesian prison, because of cannabis. Purbarndono was "saved" by art, and created the Prison Art Program.

Rubi Roesli is an architect whose work reflects how he feels about the current state of urban spaces. On a similar note, Naufal Abshar also projects his hope for nature's return to the city's concrete jungle through his paintings.

A piece by Motionbeast takes us on a tour of an expansive and beautiful tea plantation in West Java, telling the story of one of Indonesia's best-known natural assets and its incredible journey from mountain to coffee tables in every corner of the world. Notanlab, representing the digitally savvy Millennials and Zoomers, introduces us to a wide range of Indonesian flora. The idea is for spectators to gain personal insights about their character from this tailored interactive experience.

Connected Art Platform (CAP), Media Art Globale (MAG), Prison Art Programs (PAPs), Angki Purbandono (ID), Rubi Roesli-Biroe (ID), Motionbeast (ID), Naufal Abshar (ID), Notanlab (ID) and Viro.

Prisma Garden, Naufal & PAPs INA

GARDEN PROFILE

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Musrara, the Naggar School of Art and Society (IL)
Finding Amir
From Jerusalem to the Judaea Desert, Israel

A Desert Search for the Lost Member of Musrara's Sonic Art Research Group

"There has to be a Matrix because 'things are not right, opportunities are missed, something goes wrong all the time' [...] the Matrix that obfuscates the 'true' reality that is behind it all. Consequently, the problem with the film is that [...] it supposes another 'real' reality behind our everyday reality sustained by the Matrix."
("The Matrix," Slavoj Žižek)

Over the past year the Musrara Sonic Art Research Group has been researching different techniques of representing sound and music in 3D spaces, both physical and virtual, while engaging in the artistic, philosophical and technical questions that arise from this practice. The group started work on an Ambisonic based studio and performance space for spatial composition to serve local artists, but then, in early March, they had to stop all activities and disperse to their homes due to Covid-19. As the country was going into quarantine, one member of the group, Amir Meir, decided to spend his isolation period in one of the many caves in the Judean Desert near Jerusalem, the very caves that were inhabited by various isolated ascetic cults, thousands of years ago. Amir set off and cut all communication since. Now that the restrictions have been eased, other members of the group have decided to travel to the desert, find Amir and look into the connection between his insights from this experience and the field of 3D sound. The trip is documented in a short film enhanced by binaural audio recordings and compositions. With the aid of space and sound illusions practices, the film *Finding Amir* With the aid of space and sound illusions practices, we will try to touch on the in-depth questions about the imagined realities that lie behind the walls of digital and symbolic representation.

Musrara, the Naggar School of Art and Society.
Lior Pinsky, Eran Sachs, Amir Meir, Eyal Biton, Yogev Freilichman, Amos Peled, Nevo Revivo, Dana Tkatch (IL).
Protagonists / artists: Amir Meir (IL), Batel Dotan (IL), Lior Pinsky (IL) Eyal Biton (IL), Eran Sachs (IL), Yogev Freilichman (IL), Dana Tkatch (IL)

Finding Amir, © Bat El Dotan

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
JOHANNESBURG

Fak'ugesi African Digital Innovation Festival, Johannesburg & Pan-African Creative Exchange (PACE), Bloemfontein (ZA)

Fak'ugesi Pan-African Garden

Lockdowns have forced communities to go online to both create and access art. This has led to new developments for African artists in a highly networked, global environment. However, the divide between those who have access to data and technology and those who don't has hindered many and become a new barrier.

Fak'ugesi Pan-African Garden is a collaboration of partners, notably Vrystaat Arts Festival, the University of the Free State's Program for Innovation in Artform Development (PIAD) and Fak'ugesi Festival. Aligning with aims to power up Africa's digital creative resolution, ignite imaginations and hardwire local talent, it will include:

Virtual Black Out: Experiments in the Future of Form, developed for the National Arts Festival in collaboration with POPArt & Fak'ugesi Festival. Virtual Black Out takes a step into digital "space" making. It engages African scenographers and digital artists to rethink space, location and time for new digital theatre making. Five pieces developed in lockdown over two weeks.

Pan-African Telematic Art Project (PATAP) a new initiative of the Vrystaat Arts Festival through the Pan-African Creative Exchange (PACE), in partnership with Fak'ugesi Festival and the University of the Free State's Program for Innovation in Artform Development (PIAD). It offers funding to artists on the African continent to make interactive media on issues of the continent.

Fak'ugesi Digital Africa Curator Focus, in 2020 Fak'ugesi Festival aims to develop curators, producers and advocates of African digital and technology arts. Following an African curator bootcamp, commissions focusing on digital work will take form. Join curators as they plan and develop.

Vrystaat Arts Festival, Pan-African Creative Exchange (PACE), Fak'ugesi African Digital Innovation Festival, National Arts Festival (South Africa), Tshimologong Innovation Precinct, University of the Witwatersrand School of Arts, University of the Free State's Program for Innovation in Artform Development (PIAD), Embassy of the Netherlands, The Andrew W. Mellon Foundation, National Afrikaans Theatre Initiative.

Refuture, Keith Armstrong, Vrystaat Arts Festival 2017, © Images Flair

GARDEN PROFILE

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- ● Film/Animation

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LEIDEN

Leiden University (NL)
The Step into Space Garden

spaceEU is a European-funded project that fosters a young, creative and inclusive European space community. spaceEU implements an exciting space outreach and education program to spark the interest of young people in STEAM (Science, Technology, Engineering, Arts and Math), and to encourage them to consider space-related careers. The project inspires and broadens young minds, develops a sense of European and global citizenship, and through our shared human relationship with space, fosters long-term partnerships between people from different countries and cultural backgrounds. spaceEU is working on the establishment of a Knowledge Innovation Community (KIC) in the field of space.

The Step into Space Garden is a journey of discovery through the story of space and your part in it. *The Step into Space Garden* brings together space sciences and artists, through exhibitions and participatory activities with a focus on projects by and for youth.

© spaceEU project

© Liselotte Rambonnet

GARDEN PROFILE

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- ○ Streaming

This Garden is part of the spaceEU programme.

ARS ELECTRONICA GARDEN
LIEPĀJA

MPLab — Liepāja University Art Research Laboratory (LV)
Planting a Resort for Mental Ecology

People of Liepāja know very well that a garden is essential for keeping the status quo — without planting a park along the coast, the little seaside town would be consumed by sand, wind and water. The roots of trees keep the structure of the dunes stable, and people of Liepāja can retreat from the everyday struggles and storms in the safe, consistent calm of the garden environment. *Planting a Resort for Mental Ecology* is a response to the current overwhelming political, environmental and economic uncertainty of today. Residing in the coastal resort town of Liepāja, the artists and researchers of MPLab are exploring the fragile structure of mental ecology (Guattari 1989) and developing techno-ecological systems and strategies for well-being during the times of change. In the web-based exhibition online visitors will be able to explore physical and virtual gardens planted for self-sustainability, mental exercise and retreat.

Liepāja University Art Research Laboratory MPLab (LV)
ASTE. Art, Science, Technology, Education (LV)
Curator: Anna Priedola
Artists: Maija Demitere (LV), Krista Dintere (LV), Rogier Jupijn (NL), Diana Lelis (LV), Tija Plāce (LV), Andrejs Poikāns (LV), Andra Strautiņa (LV), Līga Vēliņa (LV), Ieva Vīksne (LV), Paula Vītola (LV), Spāre Vitola (LV), Milda Ziemane (LV) etc.
Design: Uldis Hasners, Kaspars Jaudzems

MPLab garden, © Liga Velina

MPLab garden, © Artūrs Kalvāns

GARDEN PROFILE

FORMATS
● Exhibition
○ Lecture/Conference/Talk
○ Workshop
○ Journey
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COMMUNICATION STRATEGIES
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LIMA

Museo de Arte de Lima — MALI, Alta Tecnología Andina — ATA (PE)
Configurations around the Amazon

The Peruvian Garden is an ecosystem structured to bring together artistic creators and social scientists whose projects propose a look at the Amazon, a historically relegated geographical and social space that occupies a vast portion of the Peruvian territory. The Amazon region is a crucial site for debates central to contemporary life: from the fight for the rights of indigenous peoples and the preservation of their ancestral knowledge to the conservation of a vital natural environment for global survival.

Artists Olinda Silvano, Lastenia Canayo (Pecón Quena) and Elena Valera (Bäwan Jisbë), migrants and descendants of the native Shipibo-Konibos, reflect on life in the urban settlement of Cantagallo, how they preserve collective Amazonian memory and the risk of COVID-19 contagion while living without access to essential resources like sewage, running water, and electric power.

Nancy La Rosa's work approaches the socio-environmental conflicts derived from the extraction of common goods in Peru and the power relations implied in traditional representations of the Amazon. Beno Juarez's Floating Fab Lab Amazonas project, roaming digital manufacturing laboratories, seeks to develop new technologies to solve the main challenges of the world: social inclusion and climate change. A selection of documentaries and video artworks that collect a detailed record of life and events in the Amazon will show the dynamics between modernity, tradition and the customs of the region.

Co-curated by Almendra Otta and Sairah Espinoza.

Installation with triple multiple projection of slides in loop, © Edi Hirose

GARDEN PROFILE

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○ Exhibition
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ARS ELECTRONICA GARDEN
LINZ/VALENCIA/BERLIN

Re-FREAM CONSORTIUM (INT)
Fashion.Technology.Sustainability.

Fashion is an ongoing development process, reflecting the mutable zeitgeist of a complex society; it is the art and the related design discipline that most effectively transmit the languages and messages of our contemporary culture. Fashion can thus also be a fundamental attitude of any human to act on the surrounding reality in order to shape it and engage in "change-making."
The research project *Re-FREAM* is exploring the interaction between the domains of Fashion, Design, Science, Craft and Technology, promoting a space for co-creation and research, where experimental projects will be connecting artists with scientists and technologists for better human-centered and sustainable solutions.
The *Re-FREAM Garden* shows the results of 10 co-creation projects, illustrating the potential of combining art with technology, crafting and sciences. The *Re-FREAM Garden* also looks at fashion from an uncomfortable perspective and opens up new spheres for sustainability and diversity with various talks and positions by artists.

Re-FREAM Partners:
Creative Region Linz & Upper Austria, WEAR IT,
AITEX Textile Research Institute, Profactor,
Fraunhofer IZM, IED Istituto Europeo di Design,
FAT Fashion & Technology, Stratasys,
Empa Materials Science and Technology, Haratech
Plastic Engineering & Solutions, Care Applications, arca

Participating artists:
Yokai Studios GmbH, Elisabeth Jayot, Fabio Molinas, Youyang Song, Jef Montes, Ganit Goldstein, Giulia Tomasello, witsense team, Julia Koerner, Jessica Smarsch
Re-FREAM is funded by the European Union's Horizon 2020 research and innovation programme in the framework ofthe S+T+ARTS programme.

© Michael Tzur

Jessica-Smarsch: Constructing Connectivity

GARDEN PROFILE

FORMATS
- ● Exhibition
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- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ○ Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

This Garden is part of the STARTS programme.

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LISBON

Pavilhão do Conhecimento — Ciência Viva (PT)
Pavilion of Knowledge Garden

Located in Lisbon, by the Tagus River, *Pavilion of Knowledge — Centro Ciência Viva* is an interactive science and technology museum. Since we first opened doors in 1999, we aim to inspire and mobilize those who visit us by exploring the world through science and technology. In addition to offering exciting, high-quality exhibitions in a wide variety of topics, we develop professional programs for educators and educational activities that spark curiosity, creativity and critical thinking among our visitors, develop their foundational skills and contribute towards the empowerment of citizenship based on scientific knowledge.

Ars Electronica Garden Lisbon will take us on a virtual tour of the *Pavilion of Knowledge* exhibits. Rui Agostinho, professor in the University of Lisbon's Department of Science, will explain how we can deduce the chemical composition of stars from their light. Together with Ana Noronha, he will co-host a live virtual presentation at the Ars Electronica Lisbon Garden, sparking curiosity and answering questions about the information hidden in starlight.

Ars Electronica Garden Lisbon with also welcome Sarah Petkus's *Noodle Feet*, which will build the bridge to the *spaceEU Garden*.

The *spaceEU Toolkit,* a ready-to-use digital collection of space-centered activities and one outcome of the European Union funded astronomy education project *spaceEU*, will be launched simultaneously at *spaceEU Garden* and at *Ars Electronica Lisbon Garden*.

Rui Agostinho, Faculdade de Ciências da Universidade de Lisboa (FCUL) and Instituto de Astrofísica e Ciências do Espaço (IA)

Ars Electronica Lisbon Garden, © Rui Leal

GARDEN PROFILE

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- ● Exhibition
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COMMUNICATION STRATEGIES
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- ○ Experimental tools
- ● Streaming

This Garden is part of the spaceEU programme.

ARS ELECTRONICA GARDEN
LISBON

FEMeeting (PT), Cultivamos Cultura (PT), Ionian University (GR), The Sanctuary for Independent Media (US), Leonardo/OLATS (FR)

FEMeeting 2020 Garden
Women in Art, Science and Technology

An additional conference space for the international community, *FEMeeting: Women in Art, Science and Technology* has been created in *MozillaHubs: FEMeeting 2020 Garden*. Inspired by the 2018 and 2019 conferences in Portugal and the structure of *FEMeeting WEB 2020,* the digital architecture of this new venue reflects the wide range of interests and experiences of *FEMeeting* members. Launched in 2017, *FEMeeting: Women in Art, Science and Technology* was driven by the desire to develop and promote more direct collaboration between individuals who identify as women, independently of their sex. It was orchestrated by Portuguese artist Marta de Menezes and scholar Dalila Honorato, upon realizing that women in the fields of Art and Science have an unquestionable presence worldwide. Among the project's distinguishable objectives are: (a) a strong personal support through instant internet communication between women doing research (in the broadest sense of the term) in art, science and technology (b) and the encouragement towards the formation of local nodes to support research and artistic creation in a way that enables a wide network of direct communication and trust-building among them.

FEMeeting 2020 Garden is supported by Cultivamos Cultura.

FEMeeting
Marta de Menezes, Cultivamos Cultura (PT)
Dalila Honorato, Ionian University (GR)
Kathy High, NATURE Lab, a project of The Sanctuary of Independent Media, and Rensselaer Polytechnic Institute, Troy NY (US)
Branda Miller, The Sanctuary for Independent Media and Rensselaer Polytechnic Institute, Troy NY (US)
Annick Bureaud, Leonardo/OLATS (FR)
Pavel Tavares, Cultivamos Cultura (PT)
Claudia Figueiredo, Cultivamos Cultura (PT)
Ricardo Guerreiro Campos, Cultivamos Cultura (PT)
Diana Aires, Cultivamos Cultura (PT)

FE Meeting 2018, © Regine Rapp

GARDEN PROFILE

FORMATS
○ Exhibition
● Lecture/Conference/Talk
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LIVERPOOL

FACT (UK)
The Living Planet

The multiple crises that have dominated this year have laid bare grave social inequalities and the fragility of our relationship with the natural world. The desire to come together in collective response to the climate crisis and racial injustice has been frustrated by the equally pressing need to isolate and contain a disease that is disproportionate in its effects on the most vulnerable in society. How, in this time of separation and increasing alienation from one another, can we use readily available technologies to augment our perception of ourselves and our realities, and to connect with others (both human and non-human) in ways that are sensorial and empathic? Can we unlearn the physical limitations of our identities to exist in other speculative forms that transform and transpose us to the collective bodies we wish to be with?

Expanding on FACT's year-long exploration of *The Living Planet*, Ars Electronica Garden Liverpool will feature livestream performances, artist conversations, an online interactive fiction game where users can explore a visual and textual world created from a conversation between two artists, and exhibition tours from the perspective of non-human species.
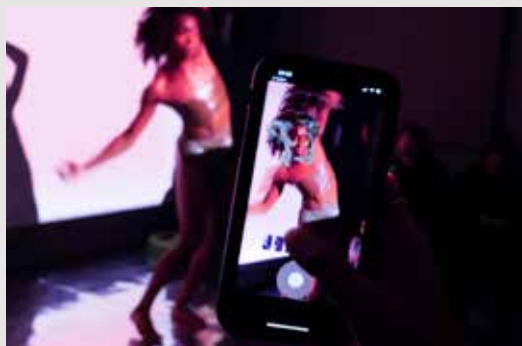
Sakeema Crook + Keiken, Mind, Body and Screen 2019—Created for Jerwood Collaborate!, supported by Jerwood Arts and Arts Council England. Solo dance by Sakeema.

GARDEN PROFILE

FORMATS
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- ○ Experimental tools
- ● Streaming

This Garden is part of the EMAP programme.

ARS ELECTRONICA GARDEN
LONDON

Open Cell (UK)
CONTAIN
Mobile COVID19 Emergency Testing Facilities

CONTAIN a decentralized and open-source approach for testing COVID19. OpenCell has developed mobile COVID19 testing labs that can be placed at any location needed. Each container is equipped with 5 liquid handling robots and 2 qPCR machines and can provide results in as little as 5 hours. A single lab can be run by a single operator and can process 2,400 tests a day.

The testing involves a procedure called reverse transcription-quantitative polymerase chain reaction (RT-qPCR). In short, it involves extracting viral RNA from a sample and amplifying it to a measurable level so that it is possible to see whether a person is infected with COVID-19. What differentiates OpenCell's labs is the automated RNA extraction protocol using a magnetic-bead method which insulates Open-Cell from some of the global demand on RNA extraction kits. Another main benefit of Open-Cell's project is that it is open-source. Over 150 volunteers worldwide contributed towards the challenges involved in developing testing capacity. The blueprints and protocols are available to everyone in form of a living document allowing people across the world to contribute and reproduce the project.

OpenCell London: Helene Steiner, Kenneth T. Walker, Matthew Donora, Thomas Meany
Worldwide contributors: Anthony Thomas, Manoj Nathwani, Alexander James Philips, Krishma Ramgoolam, Kjara S. Pilch, Phil Oberacker, Tomasz Piotr Jurkowski, Rares Marius Gosman, Aubin Fleiss, Alex Perkins, Neil MacKenzie, Davide Danovi

© Open Cell

© Open Cell

GARDEN PROFILE

FORMATS
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ARS ELECTRONICA GARDEN
LONDON

Media and Arts Technology Centre for Doctoral Training at Queen Mary University of London (UK)

The Garden of Forking Paths

The Garden of Forking Paths showcases seven interactive artworks, demos and performances, all the product of current PhD research into Media and Arts Technology. Working with sound, image, text, materials, and structure, each artist explores aspects of how we think, sense and act when physical and digital worlds collide. Encounter an oversized musical instrument, converse with a chatbot about the future of interactive art, draw with sound, and see life through the eyes of an Alzheimer's patient. The online exhibition takes its name from a short story written by Jorges Luis Borges in 1941 that is often cited as inspiration for hypertext documents such as web pages that are interconnected and instantly accessed by hyperlinks. *The Garden of Forking Paths* represents the process of research: following the threads of existing thought, forking from existing lines of development and creating new pathways between disciplines. We invite you to follow these paths and explore our digital garden. The exhibiting artists are part of the EPSRC+AHRC Media and Arts Technology Centre for Doctoral Training at Queen Mary University of London, UK, which provides a bridge between academic research, digital technologies, and creative industries.

Organisation Team: Prof. Nick Bryan-Kinns, Professor of Interaction Design; Jonathan Winfield, Manager for Centre for Doctoral Training in Media and Arts Technology; Louise Bryce, PhD student; Sebastian Löbbers, PhD student; Nicole Robson, PhD student; Francesco Soave, PhD student; Jianing Zheng, PhD student
Supported by the EPSRC and AHRC Centre for Doctoral Training in Media and Arts Technology (EP/L01632X/1)
In collaboration with Imperial College London, and the RCA Textiles Futures Project 2020, the Royal College of Art, UK: Jiaxi Li, Loy Chan, Siying Chen, Fang-Yi Chu (Janie), Feiyang Zhang

Shivani Hassard & Angela McArthur & Vanessa Pope, Sundowning, © Shivani Hassard

GARDEN PROFILE

FORMATS
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- ○ Workshop
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ARS ELECTRONICA GARDEN
LONDON

The Bartlett School of Architecture, University College London (UK)

The London Garden of Heterotopias
Towards worlds and technologies of care

In *Technology and the Lifeworld: from garden to earth* Don Ihde discusses how life in a mythical Garden of Eden would not be human life without technology. Things and artifacts make life and form an integral part of the ontological trinity of *human-technology-world*. 2020 has seen turbulences across the world at a magnitude and in varieties that humankind has seldom encountered. We are faced with unprecedented challenges in an entangled ecological emergency. To address climate, health, injustice and inequality, we must radically and immediately take action to preserve the planet's very existence.

Technology and the arts play an integral part and hold potential to engender change towards manifold heterotopias. This year, the Bartlett School of Architecture, along with its partners, centers its contribution to Ars Electronica around arts and technologies of care and grace in a *Garden of Heterotopias*. Our garden is a possibility space for radical thinking and practice, aiming to create an environment of inclusion and inspection.

The Bartlett School of Architecture, Alexander Whitley Dance Company, Jason Bruges Studio and guests

© Richard Stonehouse

© Ash Knotek

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LONDON

Digital Anthropology Lab, London College of Fashion, University of the Arts (UK)
Draping Interfaces

Draping Interfaces is an immersive physical/virtual installation that investigates the worlds that can appear when we mask or drape the physical with the virtual. How do images change when we zoom in and adjust our focus? What happens when we set the camera in a particular position? For the duration of Ars Electronica/Kepler's Gardens, the LCF installation will comprise a small number of miniature 50cm2 rooms, each with a multidirectional camera installed. The audience will be asked to remotely explore these rooms by moving the cameras around. Each room will appear magnified in a manner that takes influence from early cinema special effects animation. The remote virtual experience will use augmented reality to enhance the view, which will be submerged in spectacular visuals and engaging narrative.

Curators: Maria Dada, Ragnar Hrafnkelsson
Students: Diane Wallinger, Ruisheng Wang, Chongran Lu, Zhiyao Lu, Svetlana Ovsyannikova, Marie Schaller, Xinyi Huang, Lijin Zheng, Yafei Liu, Qingyuan Chang
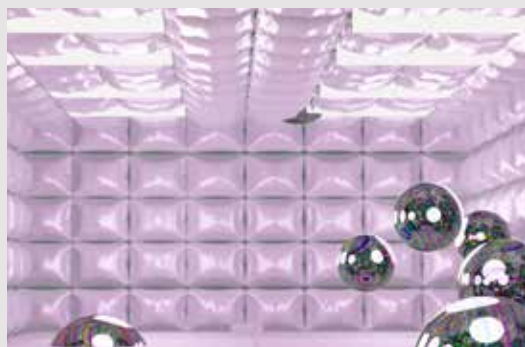
© Marie Schaller
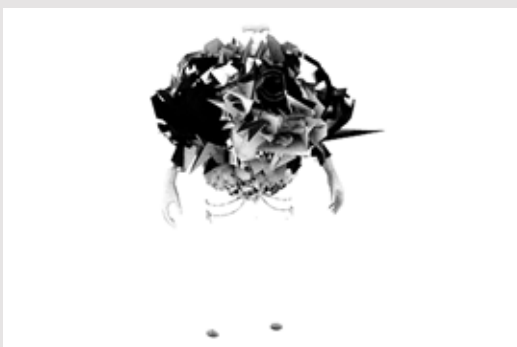
© Lijin Zhengr

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
LONDON

MA Interaction Design Communication at the London College of Communication, University of the Arts London (UK)

Transformation & Transmission

This online exhibition showcases 23 new works of interaction design from students of the MA Interaction Design Communication at the London College of Communication UAL. These works were all produced during the lockdown of March-May 2020, and demonstrate the shift from physical to digital practice demanded by this crisis, and the anxieties and uncertainties that the present and future held.

During the lockdown, each student in this entirely international cohort had to either fly home suddenly, or shelter in place somewhere that was still strange and somewhat unknown to many of them. They were disconnected from each other—and from the community of practice they had been building throughout the year.

The projects in this garden cover a range of topics, styles, and approaches; from games, to interactive films, to machine-learning-enabled websites. What binds them together is that they are all documents of the shift from physical to digital interaction that was demanded of students who suddenly had to work remotely. However, under the surface of each work is evidence of the particular global anxieties and uncertainties that these artists and designers were working with, creating a compelling historical record of this unique moment in time.

These projects were made with support from the London College of Communication, University of the Arts London. Artists: Zhuqing Xiao (CH), Zhixing Wang (CH), Xizi Pan (CH), Wei Zhang (CH), Ruoxi Ren (CH), Shuai Ma (CH), Mariana Marangoni (BZ), Junxian Wang (CH), Xingyu Tan (CH), Chujia Shen (CH), Meitong Yan (CH), Ziyi Wu (CH), Jiawen Zhao (CH), Yu Zhang (CH), Lihua Pan (CH), Jun Jiang (CH), Qing Yu (CH), Anna Sycheva (RU), Jingyuan Huang (CH), Tianjiao Shao (CH), Jiequn Xu (CH), Yihan Zhou (CH), Xinda Xu (CH)

The Deluge of Stranded Data, © Wei Zhang   Whispering Kiss, © Shuai Ma

GARDEN PROFILE

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Behnaz Farahi (US/IR)
Returning the Gaze

Returning the Gaze is an interactive 3D online exhibition that can be viewed on a web browser. It addresses the notion of the 'gaze' and 'masquerade'. It displays a series of art projects along with videos of panel discussions with leading voices.

This online exhibition consists of a series of rooms in which the viewer can move in a linear fashion from one room to another. The viewer is able to change his/her location using shortcuts indicated in the bottom of the page. This platform also includes links to online live and pre-recorded discussions related to the topic.

One of the rooms displays *Loro (Them),* the latest production by Krzystof Wodiczko, with interactive drones that hover in space alongside video documentation of it. This work is particularly relevant, as it uses 'eyes' projected onto drones to amplify the perspectives of migrants, political refugees and marginalized citizens, and illustrate the complexity of their lives in today's globalized society. Another hall displays my latest work, *Can the Subaltern Speak?* which is inspired by the historical masks worn by women from southern Iran. These masks were developed during Portuguese colonial rule, as a way of protecting the wearer from the gaze of slave masters looking for pretty women. This project is a commentary on how women might be able to develop their own language to communicate secret messages by using AI-controlled blinking eyelashes.

This hall also displays series of masks featuring 3D designs developed by designers from Iran, Mexico and the United States during the Digital Futures World Workshop. Viewers are able to interact with each mask and learn from their stories, while the interaction design of the room attempts to unnerve them by giving them the illusion and feeling of being watched by the masks.

Art projects: Krzystof Wodiczko (Harvard GSD), Behnaz Farahi (CSULB, USC), Memo Akten (UCSD), Lauren Lu McCarthy (UCLA)
Organizers: Behnaz Farahi (Curator), Julian Ceipek (Exhibitions/Software Consultant)

Can the Subaltern Speak, © Behnaz Farahi

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ARS ELECTRONICA GARDEN
LOS ANGELES

UCLA ArtSci Center (US)
Telluric Vibrations

The UCLA ArtSci Center presents *Telluric Vibrations:* a festival with an exhibition, workshops and symposium based at the UCLA Mildred E. Mathias Botanical Gardens, and on virtual venues like Mozilla Hubs, Zoom and YouTube. *Tellurian Vibrations* nurtures ideologies both above and below ground. Using the model of a plant growing both upward into the atmosphere and downward into the soil, this festival simultaneously cultivates the Earth and the Ether — conceptually and physically — grounding technology. This festival is about expansive network ecologies, creating nodes for interaction that bridge gaps between species, technology, and cultures. We are imagining new and novel ways of living and joining together on this unknown planetary journey. The exhibition will feature work by the ArtSci Collective, an intergenerational of current students, recent graduates and renowned practicing artists. Each activity and artwork is generated around the Ecology of Earth and Ether, the "real" and "virtual," and looks closely at their imbrications. Site specific installations and performances, designed to be presented online using live video and AR, will be showcased at the Botanical Gardens. The garden will not function as a backdrop, but as an integrated, collaborative environment. The symposium, keynote lectures and panels featuring scholars, artists and scientists will extend the network, further fostering diverse education and community.

Victoria Vesna, Director, UCLA Art Sci Center, Professor, Department of Design Media Arts, UCLA ArtSci Center, UCLA ArtSci Collective, California NanoSystems Institute

Vesna Alien Stardust Signal to Noise 2020

Maru Garcia, Re-media+ion

GARDEN PROFILE

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LVIV

Center for Urban History of East-Central Europe (UA)
Future from the past: imaginations on the margins

The Lviv region (former Austrian Galicia), which is currently located in the very western part of Ukraine, for a long time belonged to various states and empires. In the 20th century it had a dramatic history, being a part of the Habsburg Empire, the interwar Polish republic, the Soviet Union, and finally Ukraine. It suffered a massive loss of the local Jewish population, while Ukrainians and Poles were resettled and Sovietized. Lviv (former Lwow or Lemberg) was turned into a big Soviet industrial town, and many people from the region moved to the city to build a socialist urban modernity. Thus, the population of the region changed, and the number of those involved in agriculture decreased from 5 million people in 1939 to 800 thousand in the late 1960s. Becoming urbanites meant receiving flats and employment in the city, while villages were left over for the elderly people. At the same time, during the Cold War, Soviets built immense infrastructural objects around these decaying villages, which aimed at defence and space research. This relation between decaying villages/nature in the Lviv region and objects of Soviet space research, which themselves are reminiscent of archaeological sites, triggered our ideas for the garden. Ironically, the Soviet empire that ruled the region

attempted to build a universal socialist future, and important objects of this *future from the past* remain in conjunction with the neglect of current rural life.

- Center for Urban History (Lviv, Ukraine), Bohdan Shumylovych, Oles Makhanets, Taras Nazaruk, Viktoria Panas, Mariana Mazurak (all UA)
- Lviv Astronomical Observatory (narrator Dr. Stepan Apunevych)
- The Center for Space Research and Communication (part of the State Space Agency of Ukraine)
- Films: Orest Bachmaha, Viktor Kyzyma, Oleh Chornyi, Hennadiy Khmaruk, Oleksiy Mikriukov

Screening film in a village, © bohdan

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ARS ELECTRONICA GARDEN
MELBOURNE

Experimenta (AU)
The Experimenta Garden
A Drone Opera (2015—2020)

The ideas behind *A Drone Opera* formed in 2014, when artist Matthew Sleeth saw footage of US drone strikes in the Middle East circulating online. This coincided with his participation in a fleeting community of underground drone racers, meeting in deserted Melbourne suburban shopping centre carparks. From these starting points, a project was conceived to explore society's drift towards the acceptance of total surveillance, an increased presence of military systems in non-military settings, and our fear and fetishization of new technologies. As producing partner, Experimenta and Artistic Director Jonathan Parsons have collaborated with Matthew to develop and present a performance, a film, and an installation over a five-year period. This iterative model traversed different presentation conventions and audiences, using hybrid practices that incorporate drone operators, opera singers, moving image, laser light and sound. At the heart of the work is an artist's exploration into the growing interdependence between the analogue and digital worlds. Since the initial 2015 performance presentation, the work's key themes have come into sharp relief. "Our hubris with technology; constant government surveillance; and the idea that we are often distracted by the bright shiny lights, and are worried about the wrong things" (Sleeth 2015) have been further accelerated by this global pandemic.

A Drone Opera / by Matthew Sleeth

Producer: Kate Richards / Executive producer: Jonathan Parsons / Writers: Matthew Sleeth, Kate Richards / Composer and librettist: Susan Frykberg / Laser Set Designer: Robin Fox / Sound Designer: Philip Samartzis / Lighting Designer: Bosco Shaw / Cinematographer: David McKinnar

Soprano: Judith Dodsworth / Countertenor: Hamish Gould / Bass-Baritone: Paul Hughes

Commissioned by Experimenta, Australia's preeminent media arts organisation

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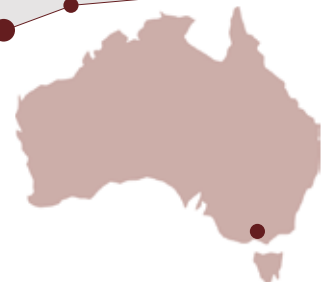
MELBOURNE

Melbourne School of Design (MSD), The University of Melbourne (AU)
Past and Future Utopia

Located on the indigenous land of the Dja Dja Wurrung, in rural Victoria, Australia, the two projects present descriptions, stories and experiences from pre-settlement, colonial and utopian post-colonial perspectives. Both projects are intertwined and establish a relationship to a rural site in country Victoria to rethink its roles, use and meaning. The projects imagine the site's connections with the past, its potential future, and open up a set of questions: Can we relate to and learn from the pre-colonial history of first peoples' relation to Country? Can we critique and reflect on the European colonization of the longest continuing culture in the world? Can we imagine a post-colonial future that overcomes the neoliberal concept of land as commodity? Could a reintroduction of an indigenous biodiversity, a return to local food production, a rethinking of community and its legal frameworks, be a utopian response to the challenges we face? Will a return to a holistic understanding of Country allow us to develop a deeper understanding of it that results in a sustainable response to climate change, develops an alternative to the logic of continuous growth, and reflects on the extinction of species and the industrialization of food production? We invite our audience to emerge themselves in Virtual Reality worlds of past and future utopias.

Project developed by Dr. Rochus Urban Hinkel, in collaboration with NExT Lab, MSD, The University of Melbourne (AU); Uwe Rieger, The University of Auckland (NZ);

Voices of Country / Artists: Dr. Rochus Urban Hinkel (AU); in collaboration with MSD, NExT Lab, Melissa Iraheta and Tony Yu; Tony Yu, Lia Bach, and Michael Fragstein, Büro Achter April; and Dr. Hélène Frichot.
A Utopian Post-Colonial Future — Victoria, Australia 2027 / Artists: Students of the Master of Architecture, Melbourne School of Design, The University of Melbourne, led by Dr. Rochus Urban Hinkel (AU); in collaboration with Uwe Rieger (NZ) arc/sec Lab, The University of Auckland; with support by the NExT Lab, Melissa Iraheta and Tony Yu, Tom Frauenfelder, (AU); Büro Achter April, (DE); Brett Leavy, Virtual Songlines, (AU).

An Utopian Post-Colonial Future — Victoria, Australia 2027

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ARS ELECTRONICA GARDEN
MELBOURNE

Studio Matthew Gardiner (AU)
Beside the Nibelungen bridge & Oribokit: Gardening for Robots

Matthew Gardiner (AU)
Neben der Nibelungenbrucke/
Beside the Nibelungen bridge
Wherever you are today and whenever you may have sat or stood somewhere, late late late at night, in Linz, this work is for you, this work invites you use our AR gadgets to place a Wurststand (sausage stand) in your town, or place a Leberkäs Semmel or some other Austrian delicacy on your plate at home. Share a post and write a short memory of a day (or night) at an Ars Electronica Festival.

Matthew Gardiner (AU) , Ars Electronica Futurelab
Oribokit: Gardening for Robots
Oribokit: Gardening for Robots introduces a new artscience kit by Ars Electronica Futurelab artist & researcher Matthew Gardiner. The kit allows you to start your own robotic origami garden at home. Partipants in the oribokit™ workshops are guided to fold, assemble and start their own oribotic garden. In the event of lockdown, workshops will be conducted online.

Matthew Gardiner pioneered the convergence of origami, folding and robotics through his generations of Oribotics. His artworks portray an altered future where folding forms the fundamental fabric of life, and his artistic process explores Folding as Code for Matter, creating works that exhibit material intelligence. Oribokit™ is a democratic artwork, designed to open his field of expertise to a general audience through an art-kit medium. Beside the Nibelungen Bridge, similar to Gardiner's Synthetic Memetic piece from 2013, deals with a complex social topic by practicing critical humor. Gardiner is currently the key researcher in Robotic Origami at the Ars Electronica Futurelab.

Matthew Gardiner. Workshops hosted by Experimenta.

das ist wurst alt, ©Matthew Gardiner

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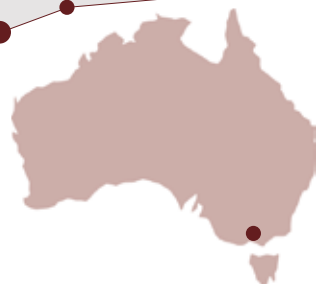
MILAN

MEET Digital Culture Center (IT)
Hybridizing life experiences

The MEET Garden in Milan explores the interconnections between Nature, Technology and Humanity. It will dig into the hybridization between physical and virtual experiences, to the point of advocating a "bio-based society." MEET's garden will also explore the production and emerging use of VR and XR in the performing arts.

Meet the Media Guru with William Myers

Meet the Media Guru is a lecture held by William Myers at MEET's headquarters in Milan. The event will be live-streamed and a video will be recorded for on-demand viewing. The 30-minute talk and 10min Q&A session will also take place on-site for an invitation-only audience at MEET's immersive room. The Meet the Media Guru format has a focus on audience engagement and interaction through different tools such as live polling platforms, a social newsroom and a multi-layered strategy of promotion and social cast to bring people together and disseminate ideas.

Dance the distance

Dance the distance is a 30 minutes live-guided tour through a virtual dance studio. A hybrid format of vocal and virtual interaction through VR dance. The experience will involve 20 onsite participants at MEET 's immersive room (dancers, choreographers, VR designers, students, artistic researchers, artist, artistic directors) + 20 virtual participants connected via Mozilla Hub.

Curator: Grazia Mattei

Meet the media guru with Myers, © MEET

Meet the media guru with Myers, © William Myers

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This Garden is part of the STARTS

ARS ELECTRONICA GARDEN
MONTREAL

PHI (CA)
Emergence & Convergence

Emergence & Convergence brings together works that contemplate the space between the self, digital technology, the built environment, and the natural world. It focuses on the effects of confinement on our collective consciousness. How has this experience of hardship forced us to re-assess our values and priorities as a global community? How has it contributed to a renewed connection with nature? The works in this exhibition propose complex explorations of a future in which the fusion of nature and technology could become a new ecology.

Alifeinflowers, © Myriam Ménard

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ISEA2020 (CA)
Why Sentience?

Since last August when we established the ISEA2020 theme of *Why Sentience?*, life on Earth has been dramatically transformed. Our belief in concepts like proximity, justice, equality, indeed, the very concept of the future itself, has been radically uprooted. As cultural organizations worldwide scramble to adapt, the ISEA2020 team has decided to reimagine the event for the anytime/anyplace zone of digital space and to transform it into an online experience. But we have also realized that there is no need to adjust the theme to make it more "responsive" to our current conditions. Despite their almost cataclysmic impact on the political-economic-social-cultural-ecological fabric of the world, the triumvirate forces of the coronavirus pandemic, its disastrous economic consequences, as well as systemic racial injustice have now acutely amplified ISEA2020s question: *Why Sentience?* These conditions sharpen the need to stop, pause and re-examine what it means to be sentient, "the ability to feel or perceive." They help us reformulate our notions of what the world is with us and beyond us. They give us a front seat perspective on the corporeal and ecological entanglements between power and knowledge, animals and humans, machines and environment, oppression and liberation. They pointedly demonstrate that difference — social-economic-cultural — resonates through the sentient world. The virus — a 120-160 nm in diameter entity that is invisible to our human senses and considered neither living nor dead but ontologically somewhere in between — is thus perversely a great teacher and provides us lessons on how the modern splitting up of the sentient and inanimate worlds increasingly makes no sense.

ISEA's mission aims to foster interdisciplinary academic discourse and exchange among culturally diverse organizations and individuals working with art, science and technology. As we write, ISEA2020 should have already passed into history. The new digital space of ISEA2020 will link the local community in Montreal with the international one beyond so that we can collectively rethink the form of such an event. The new platform will also allow us to examine close up these new and, at the same time, ongoing historical set of conditions; conditions that demand a response if we are to live in the coming (post)-pandemic world.

Text: Christine Ross — McGill University (CA), Christopher Salter — Concordia University/Hexagram (CA). Organiser: Montreal Digital Spring (Printemps numérique).

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ARS ELECTRONICA GARDEN
MOSCOW

HSE ART AND DESIGN SCHOOL (RU)
HSE Garden Pavilion

HSE Garden Pavilion includes 3 different sections, created by 3 HSE University Departments: Modern art, Sound art & Sound design, Animation.

It all begins with *Get Out*, a 3D game by Elena Vlasova. The world of *Get out* happily greets us at its gates, promising a journey through a utopian, positive space. However, as we interact with its inhabitants, the story turns to be different. In the world of "Get Out," nature refuses to be vulnerable and actively defends itself with a surrealistic mix of natural objects and Internet artifacts.

The trip through *HSE Garden Pavilion* continues with the *Non-Player Piano* sound performance, created in collaboration with Mubert AI App. *Non-Player Piano* will be performed on a Moscow River landscape and include live music improvisations with the implementation of neural network "trained" to analyze a surrounding context, such as weather, time of day, location, speed and type of movement and even the emotions of a performer.

HSE Animation department represents works of young female directors. The authors created their gardens in a very diverse way: from a remake of a classical Russian fairytale in a setting of environmental disaster by Polina Nevozhay to an intimate story about a mysterious digital garden by Varvara Fomicheva.

Those 3 sections, all dedicated to issues of modern environments, both online and offline, represent works of students of HSE art and design school, the leading Russian university.

Artists: Elena Vlasova (RU), Varvara Fomicheva (RU), Daria Ivanova (RU), Nastya Panina (RU), Maria Maximova (RU), Elena Charobay (RU), Stas Sharifullin (RU), Andriesh Gandrabur (RU), Alexey Ryumin (RU), Irina Ineshina (RU)

© HSE ART AND DESIGN SCHOOL

© HSE ART AND DESIGN SCHOOL

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MOSCOW

Helena Nikonole (RU), Olga Vad (RU)

Datasets vs Mindsets
Post-Soviet Explorations of the Digital Control Society

A huge part of the processes around us are digitized, becoming datasets that can be analyzed by a variety of dynamic algorithms which don't only recognize and process incoming information, but also identify and predict patterns in its changes at speeds and scales inaccessible to human perception. Digitization ranks among the most important national prerogatives of many post-Soviet countries. In its own way,the local context transforms the understanding and implementation of digital tools. These algorithms, often based on machine learning, have a number of limitations, and the so-called biases—which they learned from the data on which they were trained—form feedback loops that influence what takes place in the physical world, and create opportunities for various forms of so-called algorithmic control. This project is dedicated to the artistic exploration of the boundaries between digital and physical spaces, and the spectrum of phenomena and consequences of the implementations of algorithmic regulation and control tools in the post-Soviet context. The project aims to present several generations of new media artists from post-Soviet countries in the international context. It includes an exhibition, a one-day conference and a one-day performance program using innovative forms of representation and interaction between online and offline formats, such as new approaches to webcasting and experimental web-interfaces, which create brand-new user experiences for online visitors.

Curators: Helena Nikonole and Olga Vad
Exhibition participants: Anastasia Alekhina, Medina Bazargali, Aristarkh Chernyshev, Ellina Genadievna, Daria Goffman, Uliana Golub, Valentin Fetisov, Egor Kraft, Evgeny Kruglov, Anvar Musrepov, Kate Pryanik, Sasha Serechenko, Vita Shakhnovich, Andrey Smirnov, Ekaterina Trubina, Where Dogs Run, ::vtol::.
Conference speakers: Dmitry Bulatov, Lev Manovich, Alla Mitrofanova Helena Nikonole, Daria Parkhomenko, Yanina Prudenko, Alexey Shulgin, Vadim Smakhtin, Olga Vad
Performance program: Julia Borovaya, Katarina Melik-Ovsepian, Maria Molokova, Nikita Prudnikov, Anastasia Tolchneva, Tundra, Kira Weinshtein, ::vtol::.
Special thanks to Electromuseum (Moscow) and to Aristarkh Chernyshev and Inna Astafieva

Babushka in Space, Uli Golub (UA)

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ● Participatory virtual environments
- ● On-demand content
- ● Experimental tools
- ● Streaming

ARS ELECTRONICA GARDEN
NANTES

le lieu unique (FR)
The Woman-Machine

The Woman-Machine is a two-day event on the main stage of le lieu unique. In response to La Mettrie (and Kraftwerk) le lieu unique invites artists, scientists and performers to discuss the relationship between AIs and gender, robots and feminism, machine learning and the world after the pandemic. There will be a 2-day event with talks and performances. Speakers include Oulimata Gueye on afrocyberfeminism, Sophie Sakka on therapeutic robots and autism, Vanessa Nurock on AI and ethics, among others. Performers will be Golem Mécanique and Félicia Atkinson.

This project is funded within the framework of the European ARTificial Intelligence Lab, which is co-funded by the Creative Europe Programme of the European Union.

le lieu unique, Félicia Atkinson, © Shelter

le lieu unique, Sophie Sakka

GARDEN PROFILE

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This Garden is part of the AI LAB programme.

ARS ELECTRONICA GARDEN
NEWCASTLE

University of Newcastle (AU), FASTLab (AU), Art Thinking Australia (AU)

Novocastrian 2050: Ecosystem Reboot.

A feature of the inaugural BIOMES art-science exhibition in Newcastle, Australia.

Ars Electronica Newcastle Garden is a feature happening at the centre of the inaugural *BIOMES* Exhibition in Newcastle, Australia. In September 2020, the site of Newcastle's Old Train Station will be hosting *BIOMES*, a series of installations, workshops, performances and presentations as part of Australian National Biodiversity month. Between September 9 and 13, *BIOMES* will focus on the overarching theme of Ecology that spans both the natural and artificial world. The unique perspectives from Australia's largest regional coastal community combined with the many international flavours from across globe will inspire a new discourse for the future. *BIOMES* is an art science collaboration between the University of Newcastle's Faculty of Science and the Faculty of Education and Arts. Its objective is to provide an engaging and immersive experience to empower the local community to take their own action and to see their region as a living, sustainable and diverse community. *BIOMES* addresses the human issues causing today's climate emergency by celebrating stories that bring biodiversity back from the brink of extinction. Drawing on the ethos from Ars Electronica, *BIOMES* uses Art Thinking to inspire and create a new "Handlungsraum" (space for action) accessible to all citizens past, present and future. A team of experts from the FASTLab (Centre of Applied Chaos) created a virtual 360 garden as a way to bring the remote audience into this unique happening.

Biomes was created and led by the University of Newcastle's School of Environmental and Life Sciences in partnership with the School of Creative Industries', FASTLab and the School of Psychology. University of Newcastle and Ars Electronica Futurelab Alumni Kristefan Minski (Art Thinking Australia) joined the collaboration as both consultant and participating artist.

Virtual Garden Prototyping, FASTLab 360, © Kristefan Minski

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
NICOSIA

RISE ITICA (CY)
WADS (↑ ← → ↓)

WADS speaks of plurality and plentifulness, of conjoining principles, disciplines and possibilities. As a virtual space compiled of local artists, it sets out to explore the potential of digital hubs as grounds of artistic and technological co-creation. It imagines a garden of commoning where artists pollinate the digital by employing a technique derived from gardening: namely, grafting.

Aware of the effects of such techniques over nature, some of the qualities found in grafting — rarely witnessed elsewhere — play a central role in *WADS*. Gardening in the digital, a form of immaterial labour, allows artists to cultivate and critically reinterpret their practice for the web. Grafting entails delicate care and a commitment to longevity. Each chimeric mien explores the feedback between the virtual and the physical, locale and átopos, politics and the paradox of a labour that grows by consumption. The collectively grafted landscape invites visitors to indulge in each experience separately and in respect to one another.

These interconnected ecologies contribute to 'unnatural' mergings, propagating and spreading an alternate digital common. A nice framework for worldbuilding. One to grow, to work, to flourish and to wither in.

Curatorial team: Demetris Shammas, Myrto Aristidou, Emiddio Vasquez Hadjilyra, Constantinos Miltiadis.
Artists: Anastasia Dolitsay, Angeliki Koutsodimitropoulou, Despina Rangou, Doros Polydorou, Elena Savvidou, Faysal Mroueh, Ibrahim Ince, Irini Khenkin, Kleanthis Rousos, Lina Protopapa, Maria Andreou, Marietta Mavrokordatou, Marina Ashioti, Marina Kassianidou, Marinos Koutsomichalis, Nico Stephou, Panagiotis Mina, Pandelis Diamantides, Peter Eramian, Raissa Angeli, Stelios Ilchouk.
The RISE ITICA WADS garden is supported by the Austrian Embassy Nicosia.

Hawaii prus, © Panagiotis Mina, Raissa Angeli

GARDEN PROFILE

FORMATS
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OSLOFJORD

Art in Society Research Group and FeLT project, Oslo Metropolitan University (NO) in collaboration with SENT (NO)

Oslofjord Ecologies Blue Field Trip

The Oslofjord Garden is wet and blue, a video essay that travels the fjord, encompassing site specific footage as well as artists' contributions, archival material and conversations with artists and scientists. The Oslofjord runs from the Skagerak sea north of Denmark through narrow straits and sometimes shallow waters towards Norway's most densely populated area of Viken (the Bay) and the city of Oslo. It shows the landscapes of the inner parts above and beneath the surface, as well as exchanges with people and encounters with marine species. Mostly overlooked by tourists who want to experience Norwegian fjords, the Oslofjord contains ecological connections and challenges that are specific and tangible, as well as cultural practices and interactions with the environment and its populations. The Oslofjord is nature, economy, biology, materiality, culture and history as well as future plans and challenges. This work is based on contributions to the Oslofjord Ecologies artistic research platform and the newly published book, *Oslofjord Ecologies. Artistic Research on Environmental and Social Sustainability.*

Kristin Bergaust, concept, cameras and directionAlexis Parra Pucho, production assistanceOslofjord Ecologies Travel ws facilitated by the research project FeLT (Futures of Living Technologies), OsloMet and SENT initiative (site, ecology, nature, technology).


© Kristin Bergaus

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
PARIS

Google Arts & Culture Lab (FR)
Heartbeat of the Earth

Art has always been a medium to convey complex subjects and address the challenges we face. For many of us, the term "climate data" conjures up images of complicated graphs and charts, but artists are explaining it through a new lens. On World Environment Day, the United Nations Framework Convention on Climate Change (UNFCCC) and the Google Arts & Culture Lab residency program announced *Heartbeat of the Earth,* a series of experimental artworks inspired by climate data.

Five artists — Fabian Oefner, Cristina Tarquini, Laurie Frick, Pekka Niittyvirta, Timo Aho — used key findings from a landmark UN IPCC report and data from scientific institutions, including the National Oceanic and Atmospheric Administration (NOAA) and the World Meteorological Organization, to create four interactive art pieces about our climate. They've addressed the topics of declining ocean life, food consumption, melting glaciers and rising sea levels.

We hope *Heartbeat of the Earth* helps everyone learn more about the complex issues we'll encounter due to a changing climate and enable communication to explore possible pathways and solutions.

Google Arts & Culture
Fabian Oefner (CH), Cristina Tarquini (IT),
Laurie Frick (US), Pekka Niittyvirta (FN), Timo Aho (FN)
UNFCCC

Google Arts & Culture, Heartbeat of the Earth

Acidifying Ocean, Cristina Tarquini

GARDEN PROFILE

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Leonardo/Olats (FR), Quo Artis (ES), Cultivamos Cultura (PT)

The Traveling Plant Garden
The Veridical Travel Around the World of a True Imaginary Plant

The Traveling Plant project will trace the voyage of a plant — real, artificial or fictive — around the world, as she tells her story and the stories of other plants and creatures (human and non-humans) she encounters. It is the umbrella title for a series of artworks and events held around the world at different places and times, under the direction of local participating organizations and international curators.

The travel is structured around a common basis and rules with common outputs, though each participating organization is free to interpret the project, choose the artist(s) and the format of the event(s) it sees fit. As such, it is open to all kinds of aesthetics and artistic mediums.

The Traveling Plant project aims to avoid anthropomorphism and anthropocentrism to present the plant's perspective about herself and her surroundings. It will unfold, slowly, over two years, in line with the plant's rhythms. The project's format will encompass and span the entire continuum of online events and physical spaces, with every possible in-between, hybrid proposition.

During Ars Electronica Festival 2020, *The Traveling Plant* will be preparing its journey by compiling a collective Preparatory Log Book. In a hosting spirit, people will be invited to tell the plant what she may expect to discover and experience in her voyage, and what and whom she may encounter.

Initiated by Annick Bureaud, Leonardo/Olats organised in partnership and collaboration with:
Tatiana Kourochkina, Quo Artis; Marta de Menezes, Cultivamos Cultura; Claudia Schnugg, independent curator; Robertina Šebjanič, artist, Leonardo/Olats is supported by the Daniel and Nina Carasso Foundation

© Pavel Tavares

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
PARIS

AI×MUSIC

IRCAM Institute for Research and Coordination in Acoustics/Music (FR)

Challenging the limits of AI for the next generation of co-creative tools

The Institute for Research and Coordination in Acoustics/Music is one of the largest public research centers dedicated to musical creation and scientific research. After 42 years, it remains a pioneering and world-leading venue where artistic vision converges with scientific and technological innovation. Following this tradition of combining scientific and artistic approaches, the IRCAM AIxMusic garden will display multidisciplinary views of both the scientific and creative research carried out on AI. It will feature six events: *Can we do the same with less — AI in 64 Kb,* a hands-on workshop for the AIxMusic Hackathon by Philippe Esling (FR) introducing techniques for lightweight AI and demonstration of embedded technologies; the panel *Fronteers of Music and Artificial Intelligence* organized by Elaine Chew (FR), and discussions with Dorien Herremans (BE) and Philippe Esling (FR); the panel *Musical Generatives* — a discussion panel In the framework of the *Forum Vertigo* 2020; "Little Etudes for Piano" — a performance by Elaine Chew (FR) a series of short piano pieces based on cardiac electrical anomalies; "AI Creative Agents: The Man I Love" — a video featuring the Improtek project and interpreted by Hervé Sellin (FR) and Remi Fox (FR); and the performance of the *Three Ladies Project* by artist Georges Bloch featuring the DYCI2Lib technology at Manifeste 2020.

IRCAM — CNRS UMR 9912 STMS — Sorbonne Université
The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

© Philippe Barbosa

GARDEN PROFILE

FORMATS
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This Garden is part of the STARTS programme.

PAROS

MADE Group (GR)

Random Rhetoric

Random Rhetoric conjoins democracy with Epicurus' swerve (παρέκκλιση parénklisis; Latin: clinamen); a notion that describes the slight deviation and randomness of atoms from their ordinary pathways. At age 35, Epicurus (341–270 BC) bought a garden outside Athens as the final site for the school where he would teach philosophy until his death. Melanitis' works on democracy refer to a geometrization of oratory and its processes through the randomization of information. Political speech and philosophy emerging from machines and computers render humans as mere 'viewers' and envisage new roles in society. He anticipates that even official, state structures for future dialectics may derive from self-programming computers.

Random Rhetoric is a digital environment that acts as a metaphor of the Epicurean garden, a dynamic place where logos, speech and dialectics are remodeled through machines. It serves as the main platform where interactive code-based works like "The Oratory Machine" (a computer programmed in AppleScript) participate in a philosophical dialogue with the public, remodeling the art of rhetoric by, in some cases, the pretense of intelligent dialogue.

In the context of the STARTS Regional Centers in Greece, MADE—with the support of the Cultural Association of Archilochus—sets the foundations for future collaborations in Paros—often described as the Marble Island—with the Department of Sculpture from the Athens School of Fine Arts and the Paros ANNEX, the Municipality of Paros, the ancient quarry of Marathi and its local ecosystem, including schools explorring innovative techniques for cutting, sculpting and 3D printing marble with thermoplastic materials.

Christiana Kazakou, Curator MADE Group, Regional STARTS Centers
Ioannis Melanitis, Artist, Assistant Professor at the Athens School of Fine Arts, Department of Sculpture
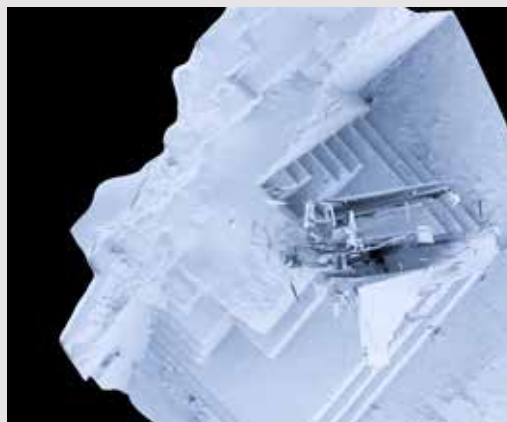
© Ioannis Melanitis

GARDEN PROFILE

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- ● Exhibition
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This Garden is part of the STARTS programme.

ARS ELECTRONICA GARDEN
PLYMOUTH

AI×MUSIC

Interdisciplinary Centre for Computer Music Research (ICCMR), University of Plymouth (UK), Eduardo Reck Miranda (BR/UK)

Biocomputer Rhythms

Biocomputer Rhythms is a piece of music for piano with electromagnets and percussion, composed with an innovative biocomputer built using electronic components grown out of biological material. The composer is interested in harnessing biological organisms as components of computing architectures for new kinds of creative artificial intelligence. His ICCMR research team invented a biological processor made with living tissue from an organism known as *Physarum polycephalum.* They baptized this processor as the 'biomemristor'. *Physarum polycephalum* is found in decaying leaves and tree bark. Its intracellular activity produces fluctuating levels of electricity which can be relayed through its body, which prompts it to behave like a memristor. A memristor is a relatively unknown electronic component which is not widely available yet: a resistor with memory. The memristor is exciting because its behaviour is comparable to that of biological neurons.

The team built biomemristors cased in small 3D-printed mini-Petri dishes and developed an interface for a group of biomemristors to read and output signals. They baptised this system as the 'biocomputer'. Electromagnets are positioned inside the piano to vibrate its strings. Some electromagnets vibrate percussion instruments. The reason to prepare the piano with electromagnets stems from the composer´s desire to give it a dual identity characterized by standard piano sounds — produced by the hammers striking the strings — and by somewhat other-worldly sounds produced by the biocomputer.

Composer: Eduardo Reck Miranda
Assistant Engineer: Edward Braund
Interdisciplinary Centre for Computer Music Research (ICCMR), University of Plymouth

The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

ICCMR — University of Plymouth

GARDEN PROFILE

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This Garden is part of the STARTS programme.

PORTO

FNDMT (PT)

Welcome to the City of Makers

Welcome to the city of makers and thinkers, where high-tech meets traditional craftmanship! While in the Porto Garden, we will show you around our city, introduce you to the makers and shakers of the region, talk about material science, ethics and AI in space travel, ethics and how important "made in EU" is now.

To kick-off, we have partnered with ThePower-House, who will release their new future report exclusively to the audience at Ars Electronica. In recent months we have interviewed technologists, artists and thoughts leaders about our "new stage of presence." We dared to ask –what's next? At the Porto Garden, you'll be meeting all the contributors for an online FAQ session.

There will be a digital roundtable with the contributors and the author of the report, Livia Pinent, Head of Research at ThePowerHouse. For the second part of our program, we bring Porto closer to you. Local artists, artisans, makers, creators and technologists will greet you via video and give you insight into their work and creative spaces. Keep an eye out for our *Meet the Makers* series, where you can find out more about how the artists of Porto use technology in their work. The video has been kindly sponsored by ScaleUp Porto. The third part of our program will go further in asking the big questions and sharing their stories, through a series of roundtables with international and Porto-based though leaders.

FNDMT, ThePowerHouse, ScaleUp Porto

© Hack for good Porto

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
POTSDAM

Filmuniversity Babelsberg (DE), IFAI — Institute for Art and Innovation (DE)
Transmedia Storytelling
Camilla Plastic Ocean Plan

Can the expertise of filmmaking and art creation help solve current ecological problems?
We believe in the co-creation of new narratives to achieve global climate goals. By blending art, film, scientific and artistic research we establish new formats for appropriate ways of thinking and doing to tackle current challenges. Global problems must be solved collectively including Citizen Power. Backed up by science, we understand the mediums of film and art as avant-garde, mind-opening, and as a multiplier for new ideas. *Transmedia Storytelling; Camilla Plastic Ocean Plan* is a web exhibition based at Film University Babelsberg Konrad Wolf. During the Ars Electronica festival, the third room will be opened. With a mix of artistic imagination and fantasy-setting about environmental problems, the project is backed by scientific expertise from the renowned Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research. The short story about Camilla guides us through the exhibition. Based on scientific collaboration, numerous artists from different parts of the world create works like painting, concept art, sculpture, 360 degree movie and VR experience. The zone that enables life and makes the planet unique is thinner than previously thought. Due to the complex socio-economic, cultural and ecological challenges, strong images and value-based visions are required to steer towards a positive future. In the 2-hour workshop *Co-imaginations and Co-production for Tomorrow's World* organized by Filmuniversity Babelsberg Konrad Wolf and the Institute for Art and Innovation, the future is visualized and designed in a co-productive way. By melting our creative minds, we'll find relevant scenarios for a world we want to live in.

Idea and project management: Angelica Böhm
Co-author: Liane Porthun
3-D artist & quill-painter: Jan Schneider
Wearable art: Antoaneta Tica
Philosophical consulting: Stefan Winter
Filmuni summer school: Julie Halten
The project is based at Film University Babelsberg Konrad Wolf, Germany
Partner: Alfred Wegener Institute (AWI), Helmholtz Center for Polar and Marine Research, Bernhard Diekmann, Lars Gutow
Kunst & Innovation partner: The Universal Sea by the Institute for Art and Innovation, Nicole Loeser
S.T.ARTs, DAAD, ZEM Brandenburgisches Zentrum für Medienwissenschaften
CO-IMAGINATIONS and CO-PRODUCTIONS for TOMORROW'S WORLD
Concept and workshop facilitation: Angelica Böhm, Nicole Loeser
3D artist & quill-painter: Jan Schneider

GARDEN PROFILE
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This Garden is part of the STARTS programme.

PRAGUE

UMPRUM, Academy of Arts, Architecture and Design in Prague (CZ)

SYNTHESIZING / DISTANCING
Isolation, Ecology and Democratic Space

The Platform
The crisis in recent months is forcing us to rethink matters that we took for granted. Among them is the notion of public space as an open platform for meeting people and exchanging ideas, a space without borders that is suddenly confronted with security rules. At the same time, Ars Electronica is moving from the closed underground spaces of POSTCITY to Kepler Gardens, a public space that must cope with new demands, while maintaining the extant values of a democratic space. The thematic installation, in the gardens of a private gallery in Prague, deals with distancing in public spaces. *The Platform,* a public meeting and distancing space, will be created on 30 square meters. It generates new textures that should manipulate the visitors into the new demands being made on public spaces. The project as a whole is conceived as an experiment, in which targeted data collection during the festival will be assessed and processed as a separate case study on the topic of public space texture. There will be an instant access to the installation via a project website and a live camera broadcasting the experiment in real time.

Photosynthetic Landscapes
Crop production is currently undergoing many changes. The current trend is to play for time: to meet the high requirements for the quality and quantity of production as quickly as possible, in order to respond to the increased consumption of a fast-growing company. The technologisation of the natural element is being negatively associated to the loss of the "natural" at the expense of the "technological". But what happens if these elements support each other? One of the ambitions of *Photosynthetic Landscapes* is to present algae as photosynthetic organism against greenery loss in the urban environment, with its related growth in CO2 and impact on diminished quality of public space. The spaces in Kepler's gardens and their flora contrast with the technologically grounded *Photosynthetic Landscapes* prototype: a modular, organic system that pushes the boundaries of thinking about the penetration of nature and technology in the context of an environmentally-oriented spatial installation. The prototype will be a modification of the installation presented at the Landscape Festival 2020 in the courtyard of the Nevan Contempo Gallery.

Shota Tsikoliya, Imro Vaško, Veronika Miškovičová, David Kovařík

GARDEN PROFILE

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ARS ELECTRONICA GARDEN
RIGA/KARLSRUHE

RIXC Center for Art and Science, Riga (LV) in collaboration with Virtual BioSensing Project Group at BioDesign Lab HfG in Karlsruhe (DE)

PLA(N)Tform

The *PLA(N)Tform* is a virtual organism in which both natural and artificial actors grow and evolve together, in the darkness of an infinite space of potentialities. The *PLA(N)Tform* grows in Deleuzian and Guattarian "rhizomatic" proliferations while it is nourished by luminous seeds, each containing their own "naturally artificial" worlds. By juxtaposing the different realities in a heterogeneous plurality, the *PLA(N)Tform* is understood as a speculative experiment of Latour's "terrestrial co-existence." Epistemological and aesthetic practices, far removed from hierarchical mechanisms, merge into a space-time of planthropocene"—Natasha's Myers envisioned gardens for plant-people "involution." The *PLA(N)Tform* at Ars Electronica will evolve into a virtual garden connecting the live video concert from the Forest Garden Greenhouse in Riga and *Virtual BioSensing* exhibition in Karlsruhe, featuring the artworks that eco-systematically explore the forests and underwater world creating *Reversed gardens*, *Forest stories* and *Floating woodlands*; grow telegraph-plants and mimosa to explore devices for tracking and visualizing the plant-movement; use photogrammetry to create virtual *Nature nostalgia* environments in the times of isolation; make sensing experiments to explore human-plant kinship; investigate herbal tea making traditions, and engage in *Home-Sick Farming* activities that manifest in plant-growing and sharing, and cooking performances.

Riga: RIXC Center for Art and Science / Curators and Artists: Rasa Smite, Raitis Smits, Ivo Taurins, Platons Buravickis, Kristaps Biters, Lauris Smits and RIXC Karlsruhe: Virtual BioSensing Project Group at BioDesign Lab HfG Karlsruhe / Artists: Kira Ellen Adams, Julia Ihls, Alejandra Miranda Janus, Margrethe Emilie Kühle, Jung Eun Lee, Isabella Münnich, Eleanora Pfanz, Christina Vinke, Carmen Westermeier
PLA(N)Tform Garden Riga-Karlsruhe project is curated by Rasa Smite in relation to BioSensing and Virtualities seminars at HfG Karlsruhe, and Forest Lab project by RIXC in Riga. The project is taking place in the framework of RIXC's project "Green Revisited—Encountering Emerging Naturecultures", co-funded by EU program Creative Europe and Latvian State Cultural Capital Foundation. The project is produced by RIXC Riga-Karlsruhe, 2020.

PLA(N)Tform Karlsruhe, © Carmen Westermeier

GARDEN PROFILE

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SAN SEBASTIÁN

Tabakalera (ES)
Tabakalera presents Art and Science

Art meets Science in an immersive installation. Tabakalera and Ars Electronica kick off their collaboration and present a new artwork inspired by the known and unknown aspects of space exploration. The artist collective Quadrature meet Astronomer Silvia Bonoli and Raul Angulo and collaborate on a new artwork. With the support of citizen science initiatives, the artists and scientists transform scientific data into an extraordinary artistic installation that allows visitors to enter a space of wonder and astonishment. This project is a work in progress and the final result can be seen in September at Tabakalera as well as online at the Ars Electronica Festival.

Building on their series about official and unofficial man-made objects in space, Quadrature's video installation focuses on exploring new ways of encountering space. Speculation meets imagination and opens new perspectives. For the artist, the input from their collaborators from the field of astronomy will be crucial for finding new visual narratives. Exploring San Sebastián and also including a local community as well as issues that matter to the citizens of the city is another pillar of their work.

Quadrature (DE), Siblia Bonoli (IT), Raul Angulo (CL), Donostia International Physics Center (ES)

Kanpoaldea, © Tabakalera

Irudia, © Tabakalera

GARDEN PROFILE

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- ● Streaming

ARS ELECTRONICA GARDEN
SANTIAGO DE CHILE

PRISMA: Art, Science, Technology (CL)
SPACE / EARTH / WATER TRIAD

This Garden presents the *SPACE / EARTH / WATER TRIAD*. The three conceptual axes embody the main components of Chilean geography and the wide diversity of its natural terrain from north to south. They comprise projects developed by artists together with scientists, live-streamed performances, excursions, videos, and virtual environments at the crossroads of arts, science and technology. With the aim of exploring creative imaginaries that challenge traditional boundaries among these fields of knowledge, all of them outline alternative ways of living, thinking and feeling within our ever-changing environment.

SPACE / EARTH / WATER share concerns about the development of sustainability and resilience strategies through a transdisciplinary practice that may bridge the gap between artistic creation, scientific research, and technological media.

The first axis, SPACE, revolves around astrobiology and planetary exploration, considering the correlations between the evolution of life and its deep link with terrestrial gravity. The second one, EARTH, focuses on the Chilean desert, characterized by extreme climate, industrial intervention, archaeological remains, and scientific investigation around energetic resources and sustainability. The third axis, WATER, addresses the Schiaparelli Glacier in southern Patagonia, where water plays a crucial role in the context of the current climate crisis. These axes will be exhibited and interconnected in an online platform called Xirius, where they will become nodes in an open network especially designed to share data, experiences, and other forms of conversation between artists, scientists, and institutions.

PRISMA:
General coordinator: Valentina Serrati
Curatorship: Jazmín Adler
Web art design: Claudia Müller
Scientific coordinator: Alejandro Jofré
PRISMA's Institutions and Partners:
Pontifical Catholic University of Chile. Department of Arts.
Atacama Desert Center (CDA)
 University of Chile. Department of Engineering. Center for Mathematical Modeling (CMM). Space and Planetary Exploration Laboratory (SPEL)
Magallanes University. Institute of Ecology and Biodiversity (IEB)
MIT Media Lab Space Exploration Initiative
SPACE: *Cosmoecology* (Luis Guzmán — CL). Immersive Experience / performative talk with artist & researcher Nicole L'Huillier (CL)
EARTH: *Nebula* (Mauricio Lacrampette — CL). Documentary / live streamed, site specific performance in Alto Patache.
WATER: *Hexa* (Claudia Müller & Matías Labbé — CL). Immersive sound and visual environment / live guided tour to Omora Park in Puerto Williams
This project is a cooperation between the Ministerio de las Culturas, las Artes y el Patrimonio, the Ministerio de Relaciones Exteriores | Gobierno de Chile and Ars Electronica

GARDEN PROFILE

FORMATS
- ● Exhibition
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- ○ Workshop
- ● Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Participatory virtual environments
- ● On-demand content
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- ● Streaming

SANTIAGO DE CHILE

Museo del Hongo (CL)
A Fungus Garden

The semantic universe of the word *garden* is often related to a designed outdoor space, either for leisure or the cultivation of edible plants. In the same idealized imagery, the fungi kingdom is represented through bright and colorful mushrooms, like the famous *Amanita muscaria*. But what is the role of fungi in a garden? Invisible organisms acting underneath the soil, carrying information through the ecosystem, digesting dead matter; fungi are among the most active components in a garden's sustainability. However, it is estimated that we only know 5% of the world's fungal biodiversity. In times in which human activity is altering our entire planet, learning from our natural recyclers will definitely contribute to a more sustainable future for humanity. How would a fungus-only garden look like? There are some known fungus gardens made by termites and ants. These insects cultivate fungal mycelium inside their underground galleries in order to feed from it. Both organisms, insect and fungus, create a symbiosis that maintains the balance. *A Fungus Garden* is a digital exhibition which invites you to know more about the importance of fungi and their marginality, being often associated with death. Through a multimedia online experience around the fungi kingdom, *A Fungus Garden* approaches human decay as a symbol of mystery and beauty, noticing the invisible webs in which we are embedded.

Curator: Juan Ferrer
Artists: Juan Ferrer, Iván Navarro, José Bidegain, Futuro Fósil, Sebastián Calfuqueo, Alexandra Mabes, Nicolás Oyarce, Ana Rosa Ibáñez.
Collaborators: Courtney Smith, Especie Axial, Hueso Records, Fundación Fungi, Sala de máquinas.

This project is a cooperation between the Ministerio de las Culturas, las Artes y el Patrimonio, the Ministerio de Relaciones Exteriores | Gobierno de Chile and Ars Electronica.

Vigilantes, © Pacual Mena

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ARS ELECTRONICA GARDEN
SÃO LUIS

Cultivamos Cultura (PT)

Acquired Immunity @ Cultivamos Cultura

The *Cultivamos Cultura* Garden is a space where the local and the global merge. We perceive it as a living organism, with different levels of organization at distinct scales: cells, tissues, organs, systems. At its core, a community of artists/researchers/makers, our residents, keep *Cultivamos Cultura* alive. On the next level are the interlaced exchanges with the local community of human and non-human members in São Luis (Alentejo, Portugal), in the largest natural park of the country. Beyond that, connections are strengthened through links that reach the whole world.

We created a virtual *Cultivamos Cultura* space in Mozilla Hubs to match the physical space (an old farm with three connected barns) where we host our yearly exhibition. *Acquired Immunity* shows artworks arising from our residencies and guests. The translation of the physical space and its artworks into our hub involves rethinking the materiality of the work and whether we can live and interact with each other and produce creative outcomes in a virtual/real interface. At *Acquired Immunity*, we bring together a collection of works and a series of local activities showing the

Cultivamos Cultura experience. Guided tours of the exhibition by curator Marta de Menezes, artist Adam Zaretsky and immunologist Luis Graça will provide different paths within the real and virtual spaces. The activities will include guided tours of the local natural park landscape and local culture, along with micro-documentaries related to the possibilities of laboratory and fieldwork in art and biology. Through this visit, we aim to show representative artworks and the context that led to their conception.

Cultivamos Cultura has the support of Município de Odemira, Direcção Geral das Artes | Ministério da Cultura, and Naturarte Turismo Rural.

Participating authors:
Artists: Adam Zaretsky (US/PT), Alan Tod (FR/PT), Antonio Caramelo (PT), Amy Youngs (US), Carolyn Angleton (US), Carla Rebelo (PT), Dalila Honorato (PT/GR), Erich Berger (AT/FI), Hege Tapio (NO), Kathy High (US), Ken Rinaldo (US), Kira O'Reilly (IE/FI), Lena Lee (MX), Maria Manuela Lopes (PT), Mark Lipton (CA), Marta de Menezes (PT), Monica Garcia (PT), Paulo Bernardino Bastos (PT), Pavel Tavares (BR/PT), Robertina Sebjanic (SI), Till Boverman (AT/FI)

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SEOUL

Korea National University of Arts (KR)
Garden of Third Life

At the end of the 20th century, South Korean cities demonstrated two distinct characteristics. First, the cities were transformed into a sea of apartment complexes. Second, high-speed Internet and digital technology became ubiquitous, which resulted in the creation of unique online communities. The former focuses on the collective and is a physical space, whereas the latter is more fragmented and virtual. Several cities of the world are similarly structured; however, South Korean cities in particular seem to naturally balance the tangible world with its more flexible virtual counterpart. We dream of a city of the future––an epic Smart City where these two spaces harmoniously coexist. The *Garden of Third Life* is a practical and metaphorical concept that explores what life is like during this pandemic. If the "First Life" is the physical world we live in and the "Second Life" is the virtual, synthetic world, the "Third Life" is where both elements exist together, and through their interaction, disintegrate barriers by adding virtual aspects to real life and real aspects to the virtual one, and facilitate living within that intersection. The Third Life concept emphasizes that embracing ecology and technology is no longer optional, but an inevitable part of our lives, a part of our fate. In response, Korea National University of Arts presents the theme *Garden of Third Life* which is a practical and metaphoric concept that imagines future human ecology, while simultaneously undertaking a serious reflection on technology.

Project director: Dongyeon Lee (KR)
Hosted by Korea National University of Arts
Organized by Art Collider
Communication and Project Management:
Dayoung Lee (KR), Hana Yun (KR)
Third Garden > Participating artists: Arrddon (KR), Hyun Cho (KR), Eunkyo Kang (KR), DUDO WAVE (Duruphil+DoiDoi) (KR), WONWOORI (KR), Dongjoon Park (KR), KARTS Industry-Academy Cooperation Foundation Education Program (Faculty: Chung-Yean Cho (KR), Youngju Kim (KR)).
Design: pa-i-ka
Web Development of Third Garden: Loopntale Studio (Youngju Kim (KR) & Hoyoun Cho (KR)), Mingyu Kim (KR), Jinoon Choi (KR)
Garden of Third Life
Faculty: Hyehyun Cheon (KR), Chungyean Cho (KR), Martin Honzik(AT), Hyunseok Kang (KR), Bongryeol Kim (KR), Buhmsoon Park (KR), Soyo Lee (KR), Dongyeon Lee (KR), Kwangseok Lee (KR), Eunseon Park (KR), Hanbyul Shim (KR), Wonjoon Yoo (KR)
Two Hands > Art Director: Kyunghwa Yu (KR)
Visual Director: Pungyoun Cho (KR)
Projection Mapping: Seongouk Kim (KR)
Musicians: Janggu & Chulhyungeum_Kyung-Hwa Yu (KR), JC Curve_contrabass (KR), Jeehyun Kim_keyboard, sound design (KR), Bumtae Park_gut (KR), Sunghoon Park_gut (KR)
Seoul Garden > Creator: Aisha Noomi Stief (DE)
Assistant Researcher: Subin Lee (KR)
Web Gardening > Presenters: Daechan Heo (KR), Youngju Kim (KR), Eunji Kim (KR), WONWOORI (KR), Guhong Min (KR), Dongjoon Park (KR)

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ARS ELECTRONICA GARDEN
SILICON VALLEY

AI×MUSIC

The Grid (US/EU), Gray Area (US), Codame (US), ZERO1 (US), MUTEK.SF (US), EUNIC Silicon Valley (US), EUNIC Washington DC (US), EUNIC New York (US), Ars Electronica AIxMusic Festival (AT), STARTS, European Commission (EU), Center for Humane Technology (US), Salesforce (US)

The Grid: Exposure — Art + Tech + Policy Days

Born out of a global crisis, *The Grid: Exposure — Art + Tech + Policy Days* explores innovative ways to reconnect the world in our current state of isolation. *Exposure* is The Grid's new annual festival format, an art + tech expo in San Francisco. It showcases the vast creative potential of Silicon Valley by exposing the global community to its ideas. Technologies are not mere artifacts, but dynamic systems entwined with culture and policy. Mobilizing artists, technologists, and policymakers from around the world, *Exposure* reimagines interdisciplinary and international collaboration to overcome deadlock and siloed thinking. It extends the conversation to leading global policymakers tasked with regulating technology. Through art, panels, talks and workshops, it works towards shaping technological development for the benefit of all. This year's *Exposure* deploys the visual phenomenon of *Blurring Borders* as an artistic strategy. It creates a platform for technology to make itself vulnerable to artistic practices rooted in humanism that expose the essence of our digital reality. Recent advances in AI have put within reach a world where art can be created and performed entirely by algorithms. In a series of panels, workshops, and live performances, The Grid: Exposure — Art + Tech + Policy Days will explore the blurry line separating the artist from the machine by comparing different creative approaches in Europe and Silicon Valley. Exposure highlights the vast creative potential of the SF Bay Area and its leading art + tech organizations (Gray Area, Codame, ZERO1, MUTEK.SF) while engaging in a dialogue with the local tech industry (OpenAI, Google Magenta, Salesforce, etc.) on the topics of AI and creativity, reimagining tech regulation, and the creation of new digital communities around the world.

Curatorial Co-Directors: Clara Blume and Vanessa Chang
Festival team: Hannah Angely, Juliette Donadieu, Robert O'Driscoll, Anna Maria Di Giorgio, Mary Ellyn Johnson, Algance Mahdjoub, Noemie Njangiru, Michael Treacy, Martin Rauchbauer, Nicola Ruffo, Nadine Schach, Bettina Wodianka / Taming Tech — Center for Humane Technology, STARTS, EU Delegation — Washington DC / AIxMusic Festival — OpenAI, Google Magenta, Ars Electronica Futurelab
The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

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This Garden is part of the STARTS programme.

SLOVENIA

Kersnikova Institute [Kapelica Gallery + Rampa + BioTehna + Vivarium] (SI), Projekt Atol Institute (SI), Ljudmila Society (SI), Aksioma Institute (SI), Cona Institute (SI), University of Nova Gorica — School of Arts (SI), Youth Cultural Centre Maribor (SI), Youth Centre Velenje (SI), LokalPatriot Novo mesto (SI)

konS ≡ Garden for Contemporary Investigative Art and Tactical Media

Nine partners –contemporary investigative art producers (NGOs), tactical media, public cultural centers and an art academy, all based in Slovenia — joined efforts in the *konS ≡ Platform for Contemporary Investigative Art* to establish an active research, production and presentation / dissemination network to create improved conditions for research, development and the realization of contemporary investigative art projects. *konS ≡ Platform for Contemporary Investigative Art* aims to establish a network of three discrete types of capacity-building hubs across Slovenia: (konS ≡ PARK), wherein various audiences can be empowered in the critical use of new technologies, (*konS ≡ NOVA*) for nationwide research laboratories that enable the production of contemporary investigative art and (*konS ≡ PRAKSA*) for speculative innovations to translate far-sighted artistic ideas and inventions into innovations for the advancement of European social environments. The network is striving to connect communities, knowledge institutions, research centers and the economy on a systemic level, such that all stakeholders are interested in co-creating a sustainable, safer and more ethical future in a dynamic and constantly changing world. The *konS ≡ Platform* is an open and evolving structure, and other communities in cities across Slovenia and neighboring countries are invited to join the network.

Partners: Kersnikova Institute (Kapelica Gallery + Rampa + BioTehna + Vivarium), Projekt Atol Institute, Ljudmila Society, Aksioma Institute, Cona Institute (all from Ljubljana), University of Nova Gorica — School of Arts, Youth Cultural Centre Maribor, Youth Centre Velenje, LokalPatriot Novo mesto — SI
konS ≡ Platform for Contemporary Investigative Art is a project chosen on the public call for the selection of the operations "Network of Investigative Art and Culture Centres". The investment is co-financed by the Republic of Slovenia and by the European Regional Development Fund of the European Union.

konS PARK, Blaž Pavlica, *What shape the sound is*, Workshop at Ljudmila, Photo: Matjaž Rušt

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This Garden is part of the AI LAB programme.

Maja Smrekar (SI)

!brute_force

Responding to the coronavirus pandemic, the *!brute_force* project focuses on the future of market-driven diagnostic wearables and AI-based health monitoring technologies. A human and dog performer climb through an installation of platforms and empty spaces. Both wear Electrocardiograph ECG/EKG diagnostic wearables, used for the medical monitoring of chronic heart and respiratory conditions. These are gathered within a Neural Network, whose goal is to synchronize the heartbeat of the human with that of the dog. On the one hand, the installation represents the canine and human bodies under surveillance capitalism, as abstractions within total corporate knowledge and control of bodily function. On the other, the installation also suggests paths of resistance, by imagining the coexistence of the two species in a state of joint physical activity. By forging alliances between the human and her companion species, reclaiming agency emanates through corpo-reality that awakens the necessity to be actively involved in decision making around the ethical implications of monitoring technology. Such power is especially imperative for civil society in the zeitgeist of political and vending implications that bring us to erosion of trust in the ever more developing global context of disaster capitalism.

brute force, © Aljaž Rudolf, Dongwook Jang, Maja Smrekar

ARS ELECTRONICA GARDEN
ST. PETERSBURG

KURFUTURELAB (RU)
Pangardenia

Fragility (uncertainty) and self-sufficiency (autonomy) are distinctive features of today's pandemic life in lockdown. Our lives grow from the middle (Kafka) and we no longer have strong roots in the soil, but we are not immaterial cloud-based creatures either. This is a life between matter and data. Timothy Morton says that "information dump mode" is a way for us not to relive the experience of (traumatic) data. To relive means to integrate data back into personal experience, and thus integrate it into the "collective experience," expanding to a planetary scale (J. Lovelock). *Pangardenia* is an aspiration to relive through data, and an ambition to re-connect the virtual and the real. *Pangardenia*, a natural chimera, embraces Panic sensibility of the wild and guarded gathering of the garden and gradina, elemental and structural, growing and digital. What can bear fruit in these liminal gardens? The *Pangardenia* project is made up of four paths: *Parniki* (artists at their homes; indoor gardening; autonomous existence and any other types of "capsuled" life), *Abandoned gardens* (semi-closed universities and ways for growing knowledge and art in lockdown), *Wandering gardens* (a site-specific artistic boat-trip in collaboration with boat-drones), and *Post(non)human gardens* (finding new types of life forms, combining both human and non-human agents). Each day we will walk down one of the paths (subtheme) and finalize the festival with a closing movie of *Pangardenia*.

KURFUTURELAB / ITMO University / The Faculty of liberal arts and sciences (SPb) in collaboration with Bard College (NY) "Curatorial studies" master program / Laboratory of New Media, New Stage of Alexandrinsky Theatre

Postnonhuman Gardens, © Anna Prilutckaia

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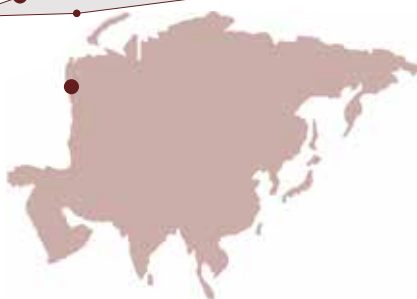
ARS ELECTRONICA GARDEN
ST. STEFAN OB STAINZ

Stieglerhaus (AT)
Augenschein

The eye has always played a vital role in human history, whether as organ of vision or as pivotal cultural symbol in the arts across time. In digital and new media art especially, it becomes a "third eye," that is, the camera that translates electromagnetic stimuli into light perceptions that give shape and colour, not unlike the sensory organ itself.

The Ars Electronica Garden St. Stefan ob Stainz takes us on a journey to Sylvia Eckermann's public art project *Augenschein. Augenschein* takes the eye as a symbol for how our society relates to vision and visualisation, in its encouraging and more dangerous aspects.

Though seeing is the paradigmatic sense of our time, it is not an objective process. It is influenced by our beliefs and ideas, conventions and morals, norms and objectives, interests and suppressions, memories and fantasies. At the same time, the eye and the sense of seeing are vital for the socio-cultural process we call individualisation. The "power of the eye" embodies a host of different senses, the meanings between which can be far apart, as with the curiosity to see the world ("Schaulust" in German), the visualisations of science and technology, and the reveries and revelations of one's innermost thoughts. The eye represents consciousness and insight, providence and embracing love, but also voyeurism, superstition and possession. It is a symbol of enlightenment, the sciences and progress as well as fantasies of omnipotence and conspiracy theories. Metaphorically, it stands for the all-seeing eye of God as well as surveillance technologies, for vigilance and focusing on the basics, as well as the beauty of the visible world.

Augenschein. Sylvia Eckermann (AT).
LED Mesh Screen: LDDE Lighting Ideas Vienna (AT).
Production: Bela Eckermann (AT)

© Sylvia Eckermann

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NOBA — Norwegian Bioart Arena (NO)
Path Less Trodden

Watch our premiere of *Humanoil*, a recorded performance by artist Hege Tapio, followed by the introduction of NOBA — Norwegian Bioart Arena. NOBA is the hub for the expanded field of bioart in Norway, and exists to bridge the gap between artists and scientists working on ecology, biology, technology, activism and art. View NOBA's facilities and geographical placement by pre-recorded video, featuring its indoor and outdoor spaces. We present people the artists and researchers NOBA is working with to communicate its attitude and projects. Our topics of interest include: alternative ways of human / non-human coexistence; concepts and language surrounding multitude, multiple identities, pluriversal narratives and diversity, and the encounter between modern scientific and old craft methods as ways to materially engage with the local environment. By including prerecorded videos from our network in the long and sparsely populated country of Norway, we present their voices, locations and practices. Watch reports from nomadic, artistic research vessels and permaculture havens, to close-knit human-bacterial relations unfolding beyond the Arctic Circle. We then move into

a live video chat that expands on the practices of Hege Tapio and NOBA. Taking the project *Humanoil* and its themes as a starting point, we will engage live and digital audiences in discussions around art / science collaborations.

NOBA — Norwegian Bioart Arena with
FAEN-Female Artistic Experiments Norway
Eva Bakkeslett
Centre for Genomic Gastronomy
The Dinghy AiR
Steven Barstow
Marita Isobel Solberg and Trond Ansten
Elind Rui Blix

FAEN Intersected waterbodies by Anne Cecilie Lie, © Juliane Scütz

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ARS ELECTRONICA GARDEN
STOCKHOLM

AI×MUSIC

KTH Royal Institute of Technology (SE)
KTH AIxMusic Garden

The *KTH AIxMusic Garden* features three events focused on AI and music: a video-recorded performance, a panel, and a *machine folk music school*. The performance features folk music generated by AI. The panel *Music as Experience in an age of Artificial Intelligence and Computational Creativity* features six composers who have used AI for music creation, reflecting on the process. The *machine folk music school* is an interactive music learning session during which an AI-generated folk tune is taught in the aural tradition. The garden is organized by Bob L. T. Sturm (KTH Associate Professor of Computer Science). For the past five years, Sturm has been building, learning from and collaborating with AI systems trained on transcriptions of traditional music. These systems are trained on tens of thousands of transcriptions of traditional dance music from Ireland and Scandinavia, and effectively generate an unlimited supply of new tunes imitating traditional ones. This work provides the foundation for a five-year project commencing in Oct 2020, *MUSAiC: Music at the Frontiers of Artificial Creativity and Criticism* (ERC-2019-COG No. 864189)

KTH Royal Institute of Technology (SE)
Artists: Bob L. T. Sturm (US), Daniel Näsström (SE), Jennifer Walshe (IE), Robert Rowe (US), Oded Ben-Tal (IL); Shelly Knotts (UK); Artemi-Maria Gioti (GR)

© Carla Townsend Sturm

The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

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This Garden is part of the STARTS programme.

SYDNEY

Tactical Space Lab (AU)
Fertile Methodologies

Tactical Space Lab is a research initiative focusing on the intersection of art and technology. We are committed to expanding the diversity of stories and voices represented through new technologies via collaborative projects and educational programs across all ages, with the aim of 'demystifying' VR, not just for artists, but for the wider community.The Ars Electronica Garden Sydney hosts the output of nine, Australia-based artists who participated in the artist-led research program on experimental VR studios at the Tactical Space Lab; during which each artist was introduced to VR technologies, experiences, and digital creation workflows during a two-week 'incubator' style studio in skill-building, experimentation and collaborative art-making. Through COVID-19 isolation, the Tactical Space Lab transitioned to remote work, with the artists co-presenting in VR spaces and through video-conferencing, screen-sharing, live-stream demos, 360-video and Mozilla Hubs.

Our Sydney Garden is an open showcase of not only the outcomes produced by our artists — 3D models, animations, embedded video and sounds— but the processes and conversations that led to them; a personal tour of our lab with all of our experiments and prototypes on show.

Director: Dr Josh Harle (AU)
Participating Artists: Tarik Ahlip (AU), Cigdem Aydemir (AU), Kylie Banyard (AU), Nic Cassey (AU), John Gillies (AU), Grace Kingston (AU), Claudia Nicholson (AU), Jason Phu, and Louise Zhang (AU)
Videographer: Josh Mehmet (AU)/ Officedog Productions (AU)

© Nic Cassey

© Josh Harle

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ARS ELECTRONICA GARDEN
TAIPEI

Virtual and Physical Media Integration Association of Taiwan (TW)

Kaleidoscope of Taiwan

The COVID-19 pandemic didn't only have a huge impact on our social life, it also changed the way people view art in a fundamental manner. Contemporary art needs support from new technologies across fields to break through the limit of viewing art from actual venues.

Via Internet transmission, the audience is able to step across boundaries and social distance to elevate the experience of viewing art. Hosted by the Virtual and Physical Media Integration Development Association of Taiwan in collaboration with Kaohsiung Film Archive, Taiwan Garden collects the most important Taiwanese XR works in recent years and organizes the Taiwan XR Art Team to represent it in the 2020 Ars Electronica Festival. Taiwan Garden gathers the most outstanding artists and teams, whose works center around various fields relating to Taiwan's local character and visual elements, such as its history, nature, environment, folklore, politics, culture, and travel. These brilliant works address different topics, from the delicate to the popular. Taiwan Garden emphasizes the interaction between modern technological applications in art and Taiwan's valuable cultural assets to embody the concept of "glocalization." This ability to see Taiwan's XR development from a bird's eye view has doubtless helped to bring out the top-notch talents and high-quality production capacity in its XR field.

Artists: Chang Chao-Ching, Cheng Wei-Hao, Chiu Li-Wei, Gaëlle Mourre, He Wei-Ting, Hsiao Ya-Chuan, Hsu Chih-Yen, Hsu Hung-Yuan, Hu Chin-Hsiang, Huang Hsin-Chien, John Hsu, Kao Yi-Chun, Lai Kuan-Yuan, Lau Kek-Huat, Laurie Anderson, Marco Lococo, Marie-G. Losseau, Singing Chen, Tsai Ping-Hua, Tsai Tsung-Han, Vick Wang, Wu Po-Hung, Yang Ya-Che, Yann Deval

Institutions: Kaohsiung Film Archive (KFA), Kaohsiung Museum of Fine Arts (KMFA), National Taiwan Normal University (NTNU), Virtual and Physical Media Integration Association of Taiwan (VPAT)

Bodyless, © Huang Hsin-Chien

GARDEN PROFILE

FORMATS
- ● Exhibition
- ○ Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ● Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ○ Streaming

TALLINN

Estonian Academy of Arts (EE)

Decoding New Technologies in Art and Design

The conference discusses the role of technology in creative practices. On the one hand, we aim to underline what kinds of changes, ideas, trends, and methodologies technology has introduced into art and design. On the other hand, the conference offers a venue for exploring new concepts, ideas, and dangers that the technological age introduces, today and in the future. More specifically, we will take a closer look at topics like AI and machine learning. What can AI offer to creative communities? Will it boost creativity and innovation or replace human creativity with computational creativity? And what kind of impact will these computationally expensive processes have on our environment, design and art? The conference invites local experts and practitioners to debate and share their ideas on these topics.

Local experts and practitioners:
Dr Raivo Kelomees, Dr Varvara Guljajeva, Oliver Laas, Mar Canet, Dr Andi Hektor, Jon Karvinen, Maximilian Schich, Estonian Academy of Arts (EE)

Neuronal Landscapes, © Varvara & Mar

One Flag Every Day, © Pablo Argente

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ● Streaming

ARS ELECTRONICA GARDEN
TEQUILA

Mad Machina (MX)
Tech-ila ARTesano Coolture

Tequitl - tlan / tequila: nahuatl for "workplace"
Tequila Region with Qualified Designation of Origin; Jalisco, Mexico
ARTISAN: person who does work with his hands
Coolture: cool (modern, disruptive, revolutionary)
Mexico is cultural kinaesthesia. It represents a convergence of meanings. Its land consists of countless layers, many of them, yet to be discovered. In September, the region of Tequila will have the opportunity to understand its past and connect with the present to project a better future.

From September 9 to 13, the Tequila region will become a centre for exploration, knowledge, biodiversity and hacks. From the local, we propose four main activities carried out from a place of artistic aptitude and empathy, through innovation, entrepreneurship and science. The purpose of these activities is to seek solutions to current reality despite physical distance, to approach each other with resilience, thoughts for the construction of our identities through diversity, a better understanding of the products of our land and of sustainable economy. The techno-human immersion in these activities will gather pieces of the past to connect them with the present and propel us towards a shared future.

Led by *Mad Machina,* under the direction of María José Sánchez-Varela and with the collaboration of various institutions, artists, innovators, technologists, craftsmen, scientists and inhabitants of the Country.

© Tumbao Films , Oscar Portilla

© Tumbao Films , Oscar Portilla

GARDEN PROFILE

FORMATS
○ Exhibition
● Lecture/Conference/Talk
● Workshop
● Journey
○ Performance/Concert/Event
○ Film/Animation

COMMUNICATION STRATEGIES
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● On-demand content
○ Experimental tools
● Streaming

THESSALONIKI

Centre for Research and Technology Hellas (CERTH) (GR), Maastricht University (NL)
MindSpaces

MindSpaces Garden will host the *MindSpaces project*, funded by the European *HORIZON2020-STARTS program*. To encourage collaboration between research projects and artists, *STARTS* funded residencies for artists at technology institutions and for scientists and technologists at artists' studios.

The design of space on the architectural and urban scales has been shown to significantly affect the emotional, cognitive wellbeing of individuals, and to influence the functionality and effectiveness of indoor and outdoor spaces in ways that have often been overlooked in the past. *MindSpaces* proposes a new model of real-time public participation in architectural design processes. *MindSpaces* is a multidisciplinary initiative that integrates the arts, neuroscience, natural language technologies, architecture, 3D modelling, visual and textual fields, electroencephalography, physiological detection analysis, and augmented and virtual reality.

MindSpaces Garden will host pre-recorded interviews of the six artists selected from the Open Calls, a pre-recorded demonstration of the *MindSpaces* platform, and a live demonstration of the *DïaloG project* held by the consortium's digital artists Maurice Benayoun and Refik Anadol. *DïaloG* is an urban art project proposed by the

two artists as an experimentation platform on the value of mutual understanding between artworks, as well as between artworks and humans, between humans, and therefore, a form of human to human (H2H) interaction.

MindSpaces Consortium
Maurice Beanyoun (FR)
Refik Anadol (TR)
Artists in residency: Haseeb Ahmed (US),
Sarah Derat (FR), Emanuel Gollob (AT),
Emmanuel Van der Auwera (BE),
João Martinho Moura (PT), Michael Sedbon (FR)
MindSpaces is funded by the European Union's Horizon 2020 programme in the framework of the S+T+ARTS programme.

Mind Spaces , Refik Anadol, Maurice Beanyoun

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ● Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

This Garden is part of the STARTS programme.

ARS ELECTRONICA GARDEN
TOKYO

**Supported by Japan Media Arts Festival
Agency for Cultural Affairs, Government of Japan (JP)**

Tokyo Garden

Tokyo Garden is an online place where we all can explore the origin of Japanese Media Art. As William Gibson describes in his novels, Tokyo is a city of cyber, high-tech and a uniquely wired culture. Why? We will try to find an answer, tracing where, how and from whom our media artists' roots originate. For this challenge, we are planning to contents such as talks with different artists and curators, virtual studio tours, a sharing archive, and current artists' work, including winners of the Japan Media Arts Festival 2020. Of course, we will also have many entertainment programs with DJs and artists. We hope you can virtually visit Tokyo, enjoy it and think together about the future of media art.

Tokyo Garden is hosting a portal website for various Japanese creators and organizations who have played an important role in Japan's media art scene such as ICC and Dommune, with their original exhibitions and performances in association with Ars Electronica 2020. Dommune, for example, was founded in 2010 by artist Naohiro Ukawa, and was Japan's first live streaming studio and channel. Monday through Thursday, it has been streaming for five hours a day for ten years, experimenting with live video delivery in an era where the traditional concepts of "broadcasting",

"publishing" and "advertising" are going bankrupt. In collaboration with *Tokyo Garden*, Dommune will showcase new possibilities for visual communication at Ars Electronica Festival.

TOKYO GARDEN
Director: Seiichi Saito
Artists (Exhibition): Daito Manabe (Rhizomatiks), Kenichiro Shimizu (PELE), ReKOGEI, Yasuaki Kakehi, Daisuke Akatsuka , Juri Fujii, Yoshimori Yoshikawa, Joung Min Han, Hosoi Miyu, Daisuke Yamashiro, dividual inc. (Takumi Endo, Dominique Chen) and others
Artists, moderators and speakers (conference, studio tours, event): Seiichi Saito, Minoru Hatanaka (ICC), Naohiro Ukawa (Dommune) and others

Tokyo Garden, Terminal Slam

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
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- ○ Film/Animation

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- ● Streaming

TOKYO

Austrian Cultural Forum Tokyo (JP)
#JapanRevisited202x Garden
Tokyo then–now–after

In a matter of weeks, artists around the globe have suddenly found themselves surrounded by a haze of uncertainty. Art fairs, residencies and festivals are postponed, in-person collaborations are cancelled and international travel has all but disappeared. This "new" world — further removed from the physical than we have ever experienced — has forced artists to adapt to entirely new structures. But perhaps it is this new challenge that also gives rise to new opportunities: time and freedom to question and redraw our way of creating and experiencing art from the bottom up. As an encouragement to keep pushing forward and break through this mist of uncertainty, the Austrian Cultural Forum Tokyo has launched *#JapanRevisited202x: then–now–after*, which reimagines the cultural exchange between Austrian artists and Japan, a bond that has existed for more than 150 years and is now facing an abrupt change.

Submissions have been invited which explore or react to one or more of the following concepts:

then→ the Japan I remember: How has my experience of Japan shaped me? How have my memories of Japan changed since visiting?

now→ Japan in process: How do I understand Japan at present? How, if at all, can I experience Japan from afar?

after→ Japan post-now: How can I imagine Japan in the future? What vision do I have for Japan going forward?

EXPOSURE Phase 1: Submitted works will be featured in the curated online exhibition on the website, which launches in September 2020. We are expecting an exciting range of artworks from various types of media, challenging the concepts of "art" and "exhibition" in the context of 2020.

EXPOSURE Phase 2: Submitted works have the chance to be selected and shown at the *#JapanRevisited202x* exhibition in Tokyo in 2021 (or as soon as conditions allow).

Austrian Cultural Forum Tokyo, Austrian Foreign Ministry (BMEIA), AustriaKulturInternational

Japan Revisited 202x, Milan LOVIŠKA & Otto KRAUSE

GARDEN PROFILE

FORMATS
- ● Exhibition
- ○ Lecture/Conference/Talk
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- ○ Streaming

ARS ELECTRONICA GARDEN
TOULOUSE

Cité de l'espace (FR)

Space Garden
Visit the Moon with an astrophysicist!

Come visit the Moon with French astrophysicist and co-discoverer of ice on the Moon, Sylvestre Maurice! He will guide you through the *Moon exhibition* in Cité de l'espace, the space museum in Toulouse, France. These 4 videos were made as part of the *children's science conference* that invited pupils to imagine their schools on the Moon. Through the eyes of an astrophysicist who has dedicated his life to solar system exploration, click and discover step by step the immersive *Moon exhibition*. Relive the accomplishment of Apollo 11 and the first steps of Neil Armstrong and Buzz Aldrin on the Moon in a retrospective that reveals the key moments of this world event and the incredible challenges solved 50 years ago by NASA teams. Learn how hostile the lunar environment is but also how resourceful and full of surprises it can be! Finally, let's understand how we could use our knowledge to settle on the Moon.

Cité de l'espace, Toulouse, France
Speaker: Sylvestre Maurice, astrophysicist, co-discoverer of ice on the Moon
Filmmaker: Bruno Canredon

expo Lune Festival Ars Electronica, Filmmaker: Bruno CANREDON

expo Lune Festival Ars Electronica, Filmmaker: Bruno CANREDON

GARDEN PROFILE

FORMATS
○ Exhibition
○ Lecture/Conference/Talk
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COMMUNICATION STRATEGIES
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○ Streaming

This Garden is part of the spaceEU programme.

TRBOVLJE

RUK — Network of Art and Cultural Research Centers (SI), Delavski dom Trbovlje (SI), Kibla (SI), Pina (SI), En-Knap (SI)

The Slovenian Elevator

The desire to transcend ourselves, to grow, to improve are basic human characteristic. Art, technology and science are ways to achieve that: to reach for the stars. Trbovlje, an ex-miner postindustrial town is striving to transcend its past and grow into the future. At 365 meters, the chimney of its power plant is the highest chimney in Europe and the tallest building in Slovenia. As such, it is the ultimate symbol of the industrial era. Its top symbolizes our future, which we will designed. When you reach the top, you have reached the end of industrial era, and the next step is…

Climb onto the highest point of our past to see the future. It can be terrifying. It will be exciting. We choose for it to be humane. One of our main platforms for creating a new identity of our town of Trbovlje is DDTlab, a research laboratory for art, science and new technologies. We do so under the premise of Humanization of Technology. DDT-lab is part of RUK, a network of art and cultural research centers. The RUK network consists of three locally/regionally/nationally/internationally located platforms: DDT, PiNA, and KIBLA. Partnerships include scientific organizations and institutions, companies, universities and other educational institutions. In our garden, you will experience the Vertigo Bird 2020 –where you will climb onto the highest chimney in Europe- and *NeuroFly* project, where you will be flying an airplane using only brain waves and manipulating the movements of robots with your thoughts.

Trbovlje New Media Setting (SI), AFormX (SI), Yaskawa (SI), Arctur (SI), Dewesoft (SI), HSE (SI), Creative nomads (SI), STPŠ (SI), En-Knap (SI), Dunkin Devils (SI)

NeuroFly, © Masa Jazbec

Chimney Climb, © Nightscape

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ○ Lecture/Conference/Talk
- ○ Workshop
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- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Experimental tools
- ○ Streaming

ARS ELECTRONICA GARDEN
TSING HUA

National Tsing Hua University (TW)

Tsing Hua Garden

Tsing Hua Garden is the joint event of Ars Electronica Festival 2020 hosted by National Tsing Hua University (NTHU), a first-tier university in Hsinchu, Taiwan. NTHU has a plenty of lakes and forests which constitute a big and beautiful garden. NTHU has a wide range of academic fields, converging creativities in science, technology, humanity and art. There are four exhibitions in Tsing Hua Garden: *Bitter Spring and Fruity Fall Exhibition* (春苦秋實) curated by Ho-Lin Lo & K.T. Li Foundation for Development of Science and Technology: an exhibition of the 15th KT Award for Technology Art, the most prestigious award for college students in digital arts in Taiwan; There are three kinds of awards: interactive art, digital animation, and digital game. *Buds about to Blossom Exhibition* (含苞待放) curated by Chu-Ying Chen: This exhibition provides a stage for our younger artists, who are undergraduate students of the young "Tech-Art Department" (TnAD) established in 2017, under the scope of the National Tsing Hua University College of Arts. *Flower Illuminating Forest* (花光照林) by HSCC Lab and FBI Lab: This IoT installation art combines the climate data gathered by the smart street lamp with COVID-19 screening data in Tsing Hua campus. *COVID Flower Behavioral Art Everywhere* (肺花遍野) curated by Su-Chu Hsu and Walter Lu: After the epidemic wore off,

people began to relax or even forget the changes brought about by the epidemic. So we will carry out an action to let students lie quietly in Yuehan Pavilion and recall the impact of COVID-19 on our life through the audio/video art projected in the ceiling of pavilion.

NTHU, K.T. Li Foundation, and MOST (TAIWAN, R.O.C.)

COVID Flower, © TechArt Center

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
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- ○ Film/Animation

COMMUNICATION STRATEGIES
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UK

University for the Creative Arts, York Mediale, FutureEverything, University of Wolverhampton, Art in Flux, NEoN Digital Arts Festival (UK)

Garden of Earthly Delights

The inspiration for this project comes from the central panel of Hieronymus Bosch's painting "The Garden of Earthly Delights", which has been the subject of great study and many different interpretations. Perhaps these are apt for our time: has too much earthly indulgence led to this moment?

Inspired by the Ars Electronica 2020 metatopics of ecology, democracy, uncertainty, humanity, reality and autonomy, the UK garden will combine them with Bosch's vision of the range of human experience to interrogate our time: humanity facing the possibility of a long term pandemic which is creating an instant global recession and mass unemployment, continued climate crisis, prolonged inequality and the spread of fascism, as well as the looming impact of Brexit on the UK and across Europe.

In the case of this year's Ars Electronica UK Garden The *Garden of Earthly Delights* is an inclusive concept for many different simultaneous activities over the five days, which can take place from one online entry point, allowing each organization to create their own sub-program within the one 'garden' for the duration of the festival.

The *Garden of Earthly Delights* will act as a unifying community celebration of high-quality art-tech/art-science collaborations, showcased from north to south, with the START Prize winners, runners-up, nominees and other STARTS projects (residencies, Lighthouse projects) at the heart of the program.

Dr. Camille Baker — UCA, Farnham / STARTS Ecosystem project
Dr Birgitta Hosea — UCA, Farnham / ARS E Expanded Animation programming
Irini Papadimitriou — FutureEverything, Manchester, Creative Director/ ARS E Jury
Dr Denise Doyle — Wolverhampton University, Wolverhampton & Birmingham / STARTS Prize methodologies research project
Kay Watson -The Serpentine Gallery, London / Digital Curator and Ben Vickers, CTO/Curator
Lucy Bunnell — UCA, Farnham /STARTS Ecosystem
Maria Almena — Art in Flux, London, Curator / Creative Director at Kimatica Studio.
Oliver Gingrich — Art in Flux, London / Curator
Aphra Shemza — Art in Flux, London / Curator
Tom Higham — York Mediale, York / Creative Director
Donna Holford-Lovell — NeoN Festival Digital Arts, Dundee, Scotland / Director
(with Curator and CRUMB founder, Sarah Cook)

This project is co-funded by the European Commission's DG CONNECT, in the framework of the Horizon 2020 programme of the European Union under the S+T+ARTS programme's Regional STARTS Centers.

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
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- ● Journey
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- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
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- ● Streaming

This Garden is part of the STARTS programme.

ARS ELECTRONICA GARDEN
UTRECHT

IMPAKT (NL)
Gardens of Darkness, Gardens of Light

In *Gardens of Darkness, Gardens of Light*, Utrecht-based media arts organization IMPAKT will present a survey of contemporary technoculture at a time when the future seems profoundly uncertain. *Radicalization by Design* will discuss the question of whether our media are radicalizing us. Is social media tearing society apart? How do trolls, conspiracy theories, memes and fringe platforms impact politics today? With contributions by Dimitri Tokmetzis, Richard Rogers, Bharat Ganesh, Florian Cramer and others, the project discusses issues of freedom of speech, extreme speech and deplatforming. *Abducting Europa* looks at how reactionary movements manifest online and how the European political imaginary is permeated with metaphors of struggle and dreams of national rebirth grounded in myth. With contributions by Simon Denny, Andy King, Szabolcs KissPál, Annika Larsson, Sulaïman Majali, Dorine van Meel, Liliana Piskorska, Jon Rafman and Jonas Staal. *Zero Footprint* offers a preview of the upcoming IMPAKT Festival, starting 28 October 2020, whose focus is the climate crisis through the eyes of artists and radical thinkers. Finally, the interdisciplinary collective Clusterduck will present *MEME MANIFESTO,* a transmedia project about Internet Memes, exploring the occult meanings and communicative potentials of memetic symbology, produced as part of an IMPAKT residency in the framework of the European Media Art Platform (EMAP).

IMPAKT, EMAP, OILab oneseconds, City Of Utrecht, Creative Industries Fund NL, Democracy and Media Fund NL.
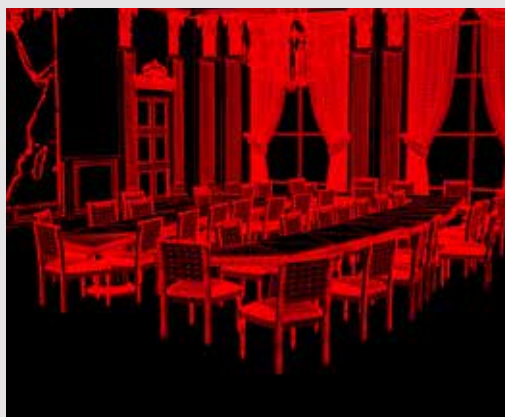
Dorine van Meel — Berlin Conference

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ● Performance/Concert/Event
- ● Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ○ Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

This Garden is part of the EMAP programme.

ARS ELECTRONICA GARDEN
UTRECHT

HKU University Of The Arts Utrecht (NL)
New Connections

The Ars Electronica Garden Utrecht hosted by HKU is a showcase of upcoming talents from the HKU University of the Arts Utrecht. As a focus this showcase reflects on what could be called "new connections." The HKU Expertise Centre for Creative Technology has curated this showcase. This world, and not only due to the corona virus, is making demands on us and is in need of new connections. The way we interact with each other, with the world around us, with technology, with corporations, with our future and with our past is changing rapidly. Artists have the responsibility to imagine the world of tomorrow. Imagination is key to starting discussions about our behavior, about solutions to current problems and designing the future. This HKU showcase as part of

Ars Electronica 2020 shows works related to the theme of making connections to the world around us and discusses possible futures. The works presented all take on a notion of a world in transition and the need for humans to change their attitude towards this world. This can be towards technology, nature or spirituality for example. The showcase is an invitation to explore ways to make new connections with everything taken for granted around you — sometimes in a lighthearted and playful way, and at other times more seriously and holding up a mirror.

Ars Electronica Garden Utrecht is hosted by HKU but made possible with these local partners:
Uncloud, SETUP, Creative Coding Utrecht, Kapitaal, House TMM
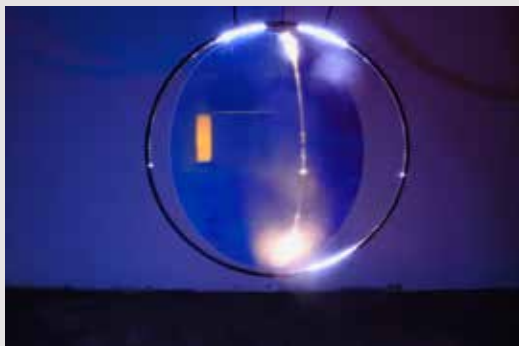
wait what, ©Jorien Aberkrom

Shaping futures, © Nienke Meinster

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ○ Workshop
- ○ Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
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- ○ Experimental tools
- ● Streaming

ARS ELECTRONICA GARDEN
VALPARAÍSO

CIA-UV University of Valparaíso Artistic Research Center (CL)

Valparaíso Brushwood Garden

Valparaíso Brushwood Garden is an open task to envision a space in which creativity overcomes adversity and precariousness. Growing as brushwood in the wildlands, creativity always finds new materials to work with, new ways to survive, new forms to communicate ideas and create relationships, beyond economic approaches. This is an exercise to conceive an architectural common space for many artworks that symbolize several creative forms of life.

Words, images, sounds, letters, gestures... all different sprouts that coexist and share a common place, unknown to the official cartographies. Spaces, Ecologies, Memories and Resistances are the main concepts in which this virtual space has been conceived and built. Against precarization or any monolithic idea of experience, Brushwood Garden seeks alternatives to imposed *mapping forms* or *ways of inhabiting*, always forcibly separated or stacked, many of them considered truly *brushwoods.*

This sprouted garden is conceived as a communication spot between all artworks, a place that allows them to live in dignity, opening a possible future for arts and better ways of inhabiting. In this sense, virtual space is an experimental material to conceive new territories.

Project Credits: University of Valparaíso Artistic Research Center (CIA-UV).
Acknowledgements to: University of Valparaiso Vice-Rectory of Research and Innovation; Doctoral Program in Interdisciplinary Studies in Thought, Culture, and Society (DEI-UV); Faculty of Architecture; Faculty of Humanities.
Artists: Verónica Francés (ES), Paul Hernández (CL), Marcelo Raffo (CL), Fabián Villalobos (CL), Verónica Francés (ES), Cristian Galarce López (CL), Sibila Sotomayor Van Rysseghem (CL)
Panelists: Gustavo Celedón Ph.D. (CL), Makis Solomos Ph.D. (FR), Adolfo Vera Ph.D. (CL), Sibila Sotomayor Van Rysseghem (CL)

This project is a cooperation between the Ministerio de las Culturas, las Artes y el Patrimonio, the Ministerio de Relaciones Exteriores | Gobierno de Chile and Ars Electronica.

Valparaíso Brush wood, © Marcelo Raffo

GARDEN PROFILE

FORMATS
- ● Exhibition
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- ○ Workshop
- ● Journey
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- ● Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
- ○ Online participatory tools
- ● Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

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VIENNA

Austria in Space (AT)
Austria in Space Garden

Austria in Space is a showcase for Austria's space activities and a meeting point for space professionals, talent, media and enthusiasts; a community designed to support its members in the development of the domestic space sector and as part of Europe in space. *Austria in Space* is open for innovation, interaction, and information. The platform, built and provided by the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK), shows the current landscape of Austrian space activities and institutions. It offers a comprehensive overview of available opportunities, ranging from primary education, job opportunities and ways to experience space daily. *Austria in Space* deepens the experience of space for all of us. It is for everyone and invites everyone to participate, engage, communicate, present themselves and shape the way we experience space. Austria has been an active player in space activities for many years. This approach stimulated the development of Austrian space technology, space-based applications, space industry and exploration. Austria is a recognized partner in the space world. As the responsible governmental department and policy maker, BMK directly invests around 70 M EUR in the space sector per year, most of it in programs and projects within the framework of the European Space Agency (ESA).

Austria participates in ESA programs for Earth observation, telecommunications, technology development, scientific instruments and exploration, launchers, satellite navigation and space situational awareness.

In addition, Austria invests around 30M EUR per year as a co-owner of the European Union (EU) space infrastructures such as Copernicus (Earth observation) and Galileo (navigation), as well as for SST (Space Surveillance and Tracking) and Horizon 2020 (research and innovation programme).

Austrian Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology
Section III, Space Affairs

AIS Header, © Austria in Space

GARDEN PROFILE

FORMATS
- ○ Exhibition
- ○ Lecture/Conference/Talk
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- ● Journey
- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ○ Streaming

ARS ELECTRONICA GARDEN
VILNIUS

Instituto Media, LTMKS / Letmekoo (Lithuanian Interdisciplinary Artists' Association), Ūmėdė / MENE, VDA PhAMA (Department of Photography and Media Art at Vilnius Academy of Arts)

from groves to grooves at SODAS2123

The Garden unfolds at the new SODAS2123 cultural complex (in Lithuanian SODAS means GARDEN), in downtown Vilnius and online. A few dozen artists, researchers, students and professors perform in the hybrid reality grove that merges the physical with the perspectives of creatures living in and around it: from the artists themselves to microorganisms.

The Garden takes the visual and conceptual metaphor of the grove and builds its programme around it. As an assemblage of trees or a smaller unit of forest, a grove is a place where symbiotic communication and relationships take place not only between its indigenous habitants, but also among invasive and migrant species, including human beings and their activities.

Every grove has from six to nine layers: the overstory, the canopy, the understory, the shrub layer, the grass, the forest floor (moss and soil) and the underground (mycelial/fungal/roots). Garden Vilnius is inspired by Jussi Parikka's *Insect Media*, and manifests as a networked hive or swarm in the grove, where makers, culture, and DIY activities flourish.

Multiple viewing modes and angles enable 3 days (and nights) of activities in the "physical grove", merged with a virtual grove through live streams and pre-recorded materials. One can experience hybrid reality by following a wandering camera-(wo)man, a tree climber, a flying drone, a running or crawling pet (dog, cat, bird, rat) or even branch or herb movement.

The artists in the event are expanding the notion of humanity and sustainable living with the help of culturally sited (and rooted) approaches to new media, and its relations to the biological and urban grove.

Curator-commissionaire: Vytautas Michelkevičius
Curatorial team: Danutė Gambickaitė, Lina Rukevičiūtė, Mindaugas Gapševičius, Ignas Pavliukevičius, Gailė Griciūtė
Artists: Mindaugas Gapševičius, Ignas Pavliukevičius, Gailė Griciūtė, Brigita Kasperaitė, Rūta Spelskytė, Valentinas Klimašauskas, Auksė Gaižauskaitė, Vitalij Červiakov, ūmėdė
Team: Antanas Skučas, Arturas Bukauskas, Paulius Žižliauskas, Gailė Cijūnaitytė, Nidas Kaniušas, Eva Rodz, Žilvinas Baranauskas, Gabija Pernavaitė; and all students, artists and collaborators

GARDEN PROFILE

FORMATS
- ● Exhibition
- ● Lecture/Conference/Talk
- ● Workshop
- ● Journey
- ● Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
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- ● Participatory virtual environments
- ● On-demand content
- ○ Experimental tools
- ● Streaming

Adam Mickiewicz Institute (PL)
Folded Maps of Time

Folded Maps of Time (FoMaTi) is an immersive audio-visual performance that integrates bio-sensoric electromagnetic systems (MC) and object-oriented electrified percussion (CC).

The audience is surrounded by a multichannel sound and video system, as if inside a virtual brain, with multiple inlets, outlets, channels, and entanglements: our folded maps of time — a constant flow. Brain activity is projected as a virtual floating model, integrated with 3D laser extended mapping system, with biofeedback playing a significant role in all aspects of the performance. Selected brain waves show the mediation of the subconscious and intuitive with the prepared, pre-composed and performed materials.

Against the intuitive stands the deliberative. As brainwave-driven sounds and images are interpreted in real-time by a second performer, the sum feeds back organically into the monitored mind of the first performer. Thus, brain biofeedback is multiplied and extended through a mélange of voluntary and involuntary feedbacks to produce cascading reactions in both performers. This is a unique collaboration between Polish composer, artist Marek Chołoniewski and British percussionist and composer, Chris Cutler; that integrates Chołoniewski's award-winning audio and audiovisual work in electroacoustic performance, and Cutler's history of creating vanguard works across multiple genres using extended instruments and techniques.

The video projections are realized by Artur Lis, and the sound — by Piotr Madej.

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- ○ Streaming
- ● pre-recorded video

ARS ELECTRONICA GARDEN
WROCŁAW

WRO Art Center (PL)
Point Nemo Garden

Relatively near Point Nemo
Paweł Janicki's show is a metaphorical journey toward Point Nemo, a geographical construct denoting the location in the Pacific Ocean which is farthest from all land, often also called the pole of inaccessibility.

Navigation is based on protocols of dealing with autonomous evolving systems and experiments with AI, the Internet, patterns in huge data sets, code, and new materiality. Objects, installations, actions, and non-actions revolve around one center of gravity from which a new order of laws and intentionalities emerges or into which everything collapses.

Though replete with references to the history of humanity, scientific and geographical discoveries, and the history of reflection on the limits of human knowledge, Janicki's Point Nemo is determined by posthumanist practice. The currently endorsed coordinates of Point Nemo are software-calculated, and the artist observes that both the infrastructural basis and the collective imagination that promoted the interpretation of technology as a site of liberating play barely exist any longer.

Models fail to take into account the cumulative, evolutionary growth of agentive potential and the complexity of knowledge—a growth resulting from the evolution that unfolds at the plane of abstract computational systems and black boxes of machine learning, increasingly redolent of alien intelligence. Given this, it is not progress, for progress is a human concept. Rather, it is evolution.

Co-funded by
Municipality of Wrocław
Minister of Culture and National Heritage from Culture Promotion Fund
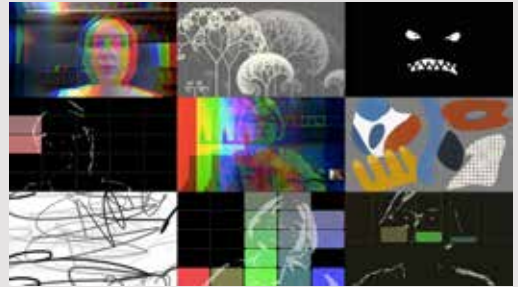
Concert For Web Applications Grid

GARDEN PROFILE

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- ○ Streaming

This Garden is part of the EMAP programme.

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YAMAGUCHI

Yamaguchi Center for Arts and Media [YCAM] (JP)
YCAM Garden of Threads

YCAM Garden of Threads is an artistic creation as a response to the Covid-19 era proposed by YCAM. Currently, we are facing a greater focus on the challenges that have been imposed on us in the past: What is the appreciation of a work of art? Who is the physical audience for art? YCAM has been pursuing various forms of expression that are closely linked to media technology, and this time, it presents two types of contents: live performance and net artworks.

This program imagines a garden full of threads as a symbol of an individual who tried to connect, independently yet organically. It is a metaphor to help picture today's situation, which requires restrictions on human movement, heightening our longing for faraway sounds that have a deep relationship with our imagination. These sounds invite us to warp instantaneously to their source. This ability not only allows us to enjoy art, but also gives us the power to overcome difficult situations. Indeed, we can face any reality with a strong imagination.

quartets online
Artist: Otomo Yoshihide + Norimichi Hirakawa + Yuki Kimura + Ko Ishikawa + Yoshimitsu Ichiraku + Jim O'Rourke + Kahimi Karie + Sachiko M + Axel Dörner + Martin Brandlmayr + YCAM

Sound Tectonics #24
Artists: SENYAWA /Wukir Suryadi & Rully Shabara (ID) & Kakushin Nishihara (JP)

quartets online, © quartets team

GARDEN PROFILE

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- ● Streaming

Ars Electronica Garden HONG KONG

School of Creative Mieda, © CityU

Ars Electronica Garden POTSDAM

Art For Future, © Philomena Koebele

Ars Electronica Garden SANTIAGE DE CHILE

Nebula, © Sebastián Arriagada

ARS ELECTRONICA GALLERY SPACES GARDEN

The Gallery Spaces Program was successfully established to bring international galleries and collections on digital art to the Ars Electronica Festival — and 2020 is no exception. But there is more to it than showing digital art represented by galleries, it is especially concerned with the changing conditions of creating and marketing art under digitalization, which are now more relevant than ever. In the months prior to the festival, societies around the world changed drastically under the effects of the COVID-19 pandemic. The crisis has led to an explosion in the usage of digital technologies. The advantages provided by these tools are already visible in online exhibitions and in virtual and augmented reality. There are countless ways in which the creation and presentation of connected, interactive and web-based art has been investigated and experienced. The contemporary art world is now rushing to adapt to an unprecedented situation that compels everyone to think beyond the physical space, and to question how we perceive the artwork as an object. There is a real opportunity to conceive of exhibitions as cultural events to be experienced both online and offline, where the content is not merely documentation, but an integral part of the curatorial endeavour.

Hence, Ars Electronica invites galleries from all over the world to participate in this far-reaching online program, and to connect within the Ars Electronica Gallery Spaces Garden — a platform to discuss new tools and technologies, which result in a multiplicity of novel approaches, methods and developments.

Due to its continuous work and experience in the production and presentation of media art and digital art since 1979, Ars Electronica is the ideal environment for an exchange among collectors, exhibitors, artists and other parties involved or interested in the field.

Ars Electronica Gallery Spaces Garden Galeri ODUMIJE, Kennii Ekundayo (NG)

Pandemic Pandemoniuml, © Tobi Tejumola

Ars Electronica Gallery Spaces Garden MAM Mario Mauroner Contemporary Art Vienna (AT)

Markus Hofer @ MAM Mario Mauroner Contemporary Art Vienna, AT

Ars Electronica Gallery Spaces Garden The Wrong (ES)

Flamingos, © Dvein

.art Domains (UK), Ars Electronica Linz (AT)

Ars Electronica .ART Gallery

The current pandemic has set the stage for an unprecedented shift toward the online. As a response, the team behind .art Domains has developed .art Digital Twin. Essentially a digital certificate of authenticity, .art Digital Twin captures the artwork information in volumes and quality that wouldn't be possible with a "traditional" offline certificate. Using the stability of the DNS (domain name system) as its foundation, it allows for Ethereum integration and other blockchain solutions. On a more practical level, it allows users to store an unprecedented amount of files and data attached to an artwork. We showcase all formats of digital creation. The possibilities the .art Digital Twin offers in an online exhibition format are extremely helpful.

Together with Ars Electronica, the team behind .art Domains hopes to improve and tailor this product for the creative audience through feedback collection and open dialogue with its users. Its main goal is to support artists and art institutions, and above all, to assure visibility for their projects.

Ars Electronica .ART Gallery is created to highlight the variety of projects that are possible in the online format and offer participating artists the opportunity to certify their works with a new tool created for this purpose. The project will kick off at this years' Ars Electronica Festival, which,

with its wide-reaching network built over time, is the ideal platform to distribute and promote this initiative within the community on a global scale. Furthermore, Ars Electronica .ART should also act as a model for further exploration of possibilities for the art sector within the digital realm. After all, to properly represent today's artistic positions and ideas, the fusion of intelligent on- and offline solutions is key.

Still, Atelier Sovetski, by Orkhan Huseynov

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- ○ Streaming

Deutsche Telekom AG (DE)

Keeping the Balance

3D–Tour: Experience the Art Collection Deutsche Telekom in Nîmes and Budapest

Founded in 2010, Art Collection Telekom is focused on collecting, preserving and exhibiting contemporary art from Central and Eastern Europe, while reaching out to neighboring areas, such as Turkey or the Caucasus region. The collection contributes to an open, discursive and communicative culture that is of great importance for mutual understanding in Europe, and understood to be a tool for communication, the main task of which is to promote the exchange of ideas and emotions through contemporary art. A 3D tour of an exhibition can never convey the sensual presence and aesthetic power of its works of art. The physical presence in a real exhibition space, the complexity of looking and the experiencing the environment, cannot yet be conveyed through digital technology.

Such a tour, however, can be an essential tool in documenting past events, and it serve as an additional platform for mediating content.

There are two tours on view: *Keeping the Balance* is Art Collection Deutsche Telekom's actual exhibition at the Ludwig Museum in Budapest. It runs from September 4 to November 22, and presents the work of nearly forty Eastern European artists. *30 Years After* in the Carré d'Art — Musée d'Art Contemporain in Nîmes, was held as a part of Recontres d'Arles Photography from June 11 to November 10, 2019. The exhibition presented photographic works from the collection and gave insight into the burgeoining Eastern European art scene for the international audience at the Rencontres.

Art Collection Deutsche Telekom, Bonn, Germany/ Ludwig Museum, Budapest, Hungaria / Carré d'Art — Musée d'art Contemporain, Nîmes, France / Artists: Nevin ALADAĞ, Sasha AUERBAKH, Szilárd CSEKE, Danica DAKIĆ, Aleksandra DOMANOVIĆ, Petra FERIANCOVA, Igor GRUBIĆ, Aneta GRZESZYKOWSKA, Nilbar GÜREŞ, Petrit HALILAJ, Flaka HALITI, Vladimír HOUDEK, Hristina IVANOSKA, Pravdoliub IVANOV, Sanja IVEKOVIĆ, Hortensia Mi KAFCHIN, Šejla KAMERIĆ, Lito KATTOU, Zsófia KERESZTES, Little Warsaw, Eva KOT'ÁTKOVÁ, Maria KULIKOVSKA, EQUALS Collective, Nino KVRIVISHVILI, Piotr ŁAKOMY, Brilant MILAZIMI, Ciprian MUREŞAN, Vlad NANCA, Roman ONDAK, Paulina OŁOWSKA, Dan PERJOVSCHI, Agnieszka POLSKA, Stepan RYABCHENKO, Slavs and Tatars, Iza TARASEWICZ, Krassimir TERZIEV, Martina VACHEVA

Art Collection Deutsche Telekom, *What are we made of?*, Installation View Kunsthalle Darmstadt; 2019, Photo: Gregor Schuster

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Claudia Hart's The Ruins

Founded in 2001, bitforms gallery represents established, mid-career, and emerging artists critically engaged with new technologies. Spanning the rich history of media art through its current developments, the gallery's program offers an incisive perspective on the fields of digital, internet, time-based, and new media art forms. The gallery supports and advocates for the collection of ephemeral, time-based, and digital artworks.

The Ruins is an exhibition that implements still lives to contemplate the canons of a patriarchal western civilization: modernist paintings and manifestos of political utopias. Join Claudia Hart and composer Edmund Campion for a video interview as they discuss the works as meditations on a world in crisis, speaking to an unstable present experienced through the possibility of simulation-technologies that use data to model the crystallization of past, future, and present into a perpetual now.

Claudia Hart, with music by Edmund Campion

Claudia Hart
Big Red, 2019
From the series Machines for Thinking
Video (color, silent), tiled monitors or projection on stretched screen, optional custom/augmented-reality wallpaper with hand-held device and custom/augmented-reality software
Installation dimension variable
5 min, video loop

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CADAF (The Contemporary and Digital Art Fair) (US)

Artificial Seascapes

The Contemporary and Digital Art Fair is honored to present Anne Spalter and Sofia Crespo, two female artists working with AI technology. Spalter and Crespo explore current socio-economic issues — including COVID19 and ecological uncertainty — in their work. Both artists exhibited their work at CADAF Online, which took place June 25-28, 2020.

Artificial Seascapes reflects on the impact humans and technology have on the environment and explores new ways to visualize it. By incorporating AI, algorithmic tools and data processing into their practice, Spalter and Crespo allow us to see mundane events from a machine's perspective. By shifting the focal point, scenes that are familiar to the human eye — like images of cruise ships or sea creatures — start to evolve, resulting in unprecedented compositions. The artists invite the viewers to submerge themselves in these new worlds, where beauty and technology collide to expose questions of human perspective, consciousness and preservation. Launched in 2019, CADAF is an art fair dedicated to digital and contemporary art. It supports the expansion of digital and new media art through a dedicated program of art fairs, exhibitions and panel discussions around the world, nurturing and promoting the most exciting talents in cultural innovation.

CADAF provides spaces for participants to discover and connect with the world's most important artists, galleries, curators and collectors within the digital art market. It is a product of New Art Group LLC, together with New Art Academy, which is committed to education on art and technology.

Curated by CADAF
Artists: Sofia Crespo (DE), Anne Spalter (US)
Panelists: Mario Klingemann, Helena Sarin, Anne Spalter, Osinachi; Moderator: Jason Bailey
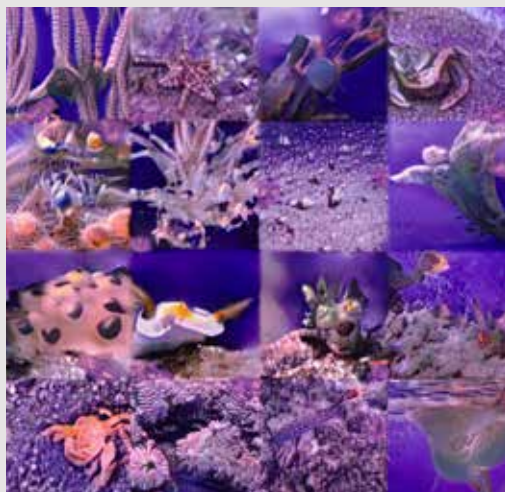
© Sofia Crespo

GARDEN PROFILE

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Carl & Marilynn Thoma Art Foundation (US)

Thoma Foundation's pioneering Digital & Electronic Art collection

The Carl & Marilynn Thoma Art Foundation was formed in 2014 to develop grantmaking, awards, and fellowships for innovative ideas in the diverse fields of global art in which it collects. The Thoma Foundation's pioneering Digital & Electronic Art collection includes over 300 artworks by 125 artists working in custom-coded and algorithmic software, internet-connected and generative animation, early computer drawing, interactive technology, video installation, and electronic sculpture. The Thoma Foundation passionately pursues new art acquisitions, operates an active artwork lending program, and curates original exhibitions in its art spaces in Santa Fe, New Mexico, and Chicago, Illinois.

We focus on purchasing artworks by mid-career and established artists whose work has shifted the fabric of the field in which they create, such as Leo Villareal, Camille Utterback, Manfred Mohr, Steina and Woody Vasulka, John Gerrard, Rafael Lozano-Hemmer, Sommerer and Mignonneau, Lynn Hershman Leeson, Refik Anadol, Trevor Paglen, Vera Molnar, and many others. Recent support for Digital & Electronic Art programming includes Rhizome's *Net Art Anthology*, the Guggenheim Museum's Conserving Computer-Based Art initiative, and *The Body Electric* exhibition at the Walker Art Center.

Carl & Marilynn Thoma Art Foundation, US

© John Gerrard, Solar Reserve

Its Whats Inside hat Counts, © Rachel Maclean

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Daata (UK)

Daata presents Eva Papamargariti

Eva Papamargariti's work explores the relationship and construction of the limits between virtual space and material reality, as well as the dynamic dissolution that takes place on the verge of these two "ecosystems." Her practice delves into issues and themes related to simultaneity, the merging of our surroundings with the virtual, the constant diffusion of fabricated synthetic images that define and fragment our identity as well as the symbiotic procedures and entanglement that take place between humans, nature and technology. Superimposing moving image, sound, text and sculptural installations, she is creating narrations that are researching pragmatic or speculative scenarios and interactions among multitudes of critters situated in diverse conditions — from microscale to macroscale. Furthermore, she is focusing on processes that are established through online presence and the traces that our operations inscribe to the objects and habitat where we find ourselves situated, through our continuous interaction with devices and machinic artifacts. Daata commissions original, digital artworks by established and emerging artists, allowing you to stream or download high-quality digital artworks on any device. Founded in 2015 by David Gryn, Daata is the leading platform for digital artworks. Through four avenues — Daata Editions, Daata Streaming, Daata TV and Galleries at Daata — Daata offers hundreds of original, digital works by an ever-growing portfolio of contemporary artists.

Eva Papamargariti, Daata, David Gryn, Anna Mustonen

© Eva Papamargariti and Daata

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Emilie Trice & LAST/RESORT present *Garden del Rio Grande*

LAST/RESORT Club is an artist collective based in the beautiful Rocky Mountains that specializes in emergent digital practices and speculative & sustainable design for the Anthropocene.

Autonomy is a myth. So is manifest destiny. These so-called "ideals" of American individualism and exceptionalism have contributed, greatly, to the current state of social, political and moral polarity in the United States, especially in relation to the region surrounding the Rio Grande River, which runs from central Colorado south to New Mexico and then along the U.S./Mexican border to the Gulf of Mexico.

The acceleration of technology is hurling us towards new frontiers, either designed by us or assigned to us, often without our input. Before we can use technology to create a different and better future, we need to reimagine our past and take steps towards reverse-engineering our present. How can technology reconnect us to the land? Or amplify indigenous voices? To what extent can art and design fortify sustainable ecologies or empower equitable narratives? Is it possible to go forward by looking back?

Autonomy, as a social ideal, is misleading — we all need each other in order to progress, and often just in order to survive. Everything happens in concert with everything else. Garden del Rio Grande seeks to illuminate the connections that bind us — to each other, to the land, to our shared past and to our collective future.

Garden del Rio Grande curated by Emilie Trice
Participating artists and institutions: John Jota Leaños, Rafael Fajardo, Cherish Marquez, LAST/RESORT Club (Artists: Jeremy Billauer, Sarai Levinson, Cherish Marquez, Scott McKinney, Austin Slominski, Emilie Trice, Jullian Young), Black Cube Nomadic Museum, Denver, Colorado; Desert Valley Art Ranch, San Luis, Colorado

Still from the animated short film *Frontera!* by John Jota Leaños

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Galeri ODUMIJE, Kennii Ekundayo (NG)
Pandemic-Pandemonium!
Curated by Kennii Ekundayo

Kehinde "Kennii" Ekundayo is an independent art curator based in Lagos, Nigeria. Specializing in modern and contemporary African art, she has curated exhibitions around the country. Her professional practice began in March 2017 with a group exhibition of amateur photographers, and has grown to curating key projects involving the likes of revered legendary artist, Bruce Onobrakpeya and Nobel laureate, Wole Soyinka, in various media ranging from drawings and paintings, to film and photographs, to texts and installations amongst other art forms.

She is Communications Officer of the *Committee for Relevant Art (CORA)*, a Nigerian nonprofit platform for artists, art critics and aficionados, and culture advocates. She is also a part of the organizing team of the *Lagos Book & Art Festival, LABAF*, a yearly prime literacy and youth empowerment project that is now in its 21st edition.

Ekundayo is head curator at *Galeri ODUMIJE*, a curatorial outfit she recently established and which operates out of Lagos, Nigeria.

The "arrival" of the coronavirus pandemic thoroughly upset the global order by putting a stop to nearly all operations and activities around the world. It was not far-fetched to think or even believe that worldwide, every individual would seize the moment to bury all hatchets and work together to find a way around the destabilization caused by the pandemic but alas! it has not been so. Recent events have created the appearance that a Pandora's box of animosity has been opened, giving rise to other tragedies — human tragedies, alongside the coronavirus catastrophe. *Pandemic-Pandemonium!* is a two-part presentation centered on the collective response of Africans living in Africa vis-à-vis current prevalent issues that threaten humankind — racial discrimination, violence against women and the COVID-19 pandemic. Whilst one part makes a statement on the resilience of the human spirit in the face of the deadly coronavirus by examining the place of faith and protest, the other focuses on the valorization of melanin-rich skin amidst the fatal hostility that accompanies it.

The exhibition sits on the theme of humanity, one of the focal points of the festival this year. It is brought to life by contributions comprising a soundless video, video-poetry and photographs from creatives based in different parts of Nigeria.

Credits go to the featured artist(e)s: Bernard Kalu, Ikenna Ogbenta, Rez Afolabi and Tobi 'Tej' Tejumola.

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Galerie Charlot (FR)
10 Year Anniversary Exhibition

Galerie Charlot was created by Valérie Hasson-Benillouche in 2010 to promote innovative contemporary art practices. Especially sensitive to emerging art forms, Galerie Charlot focuses on the relationship between art, technology and science. In May 2017, Galerie Charlot opened a second space in Tel Aviv-Yafo, Israel. The gallery is a reference for a clientele that ranges from young to leading art collectors who appreciate its vision for today's and tomorrow's talents.

The Paris and Tel Aviv-based Galerie Charlot celebrates its tenth year with an anniversary exhibition in Paris. The curated show features currently represented artists, showing a diversity of approaches to media over several generations. Exhibiting artists include Anne-Sarah Le Meur, Antoine Schmitt, Dominique Pétrin, Eduardo Kac, Eric Vernhes, Flavien Théry, Laurent Mignonneau & Christa Sommerer, Manfred Mohr, Nicolas Sassoon, Nikolas Chasser Skilbeck, Quayola, Sabrina Ratté, Thomas Israel and Zaven Paré.

Since 2010, Galerie Charlot has been developing its program on the relationship between art, technology and science; showing established, mid-career, and emerging artists spanning a range of media from the traditional to the experimental. This 10th anniversary comes at a moment when media art is gathering renewed attention thanks to recent landmark exhibitions such as *Electronic Superhighway* at the Whitechapel Gallery (2016), *Artists & Robots* at the Grand Palais (2018) and *Programmed: Rules, Codes and Choreographies in Art* at the Whitney Museum (2019).

While the earliest works in the show, like Manfred Mohr's algorithmic drawings, date as far back as the 1970s, works by emerging artists–including Quayola, Sabrina Ratté, Flavien Théry–showcase how a new generation of artists is engaging with contemporary technology. In their respective practices, these artists use 3D software, computer-generated animation, three-dimensional scanning, and optical techniques.

Courtesy Galerie Paris, Tel Aviv, © Sabrina Ratté

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KÖNIG GALERIE (DE)
better off online
Curated by Anika Meier

"It is increasingly necessary to be able to think new technologies in different ways, and to be critical of them, in order to meaningfully participate in that shaping and directing", writes James Bridle in his book "New Dark Age. Technology and the End of Future". During the lockdown nearly everything that was left for the art world to connect, share and experience were digital devices and new technologies. The digital boom was hit by a wave of criticism of technology. Artists have always worked with new technologies, and at the same time critically question them. Experiencing a global lockdown is an excuse for utopian escapism into a game environment as the only place left to experience and interact with art. The British artist Thomas Webb built a virtual world for new media artists to share their thoughts on what technology is and could be.

The WORLD WIDE WEBB by the British artist Thomas Webb is a virtual world the digital visitor enters through the browser on a smartphone.
It is a multiplayer video game, a digital exhibition space and a world full of art and characters the visitor is invited to interact with. Webb recreates the social spontaneity of the world pre-Covid-19.

Net art is presented in its genuine medium, the digital realm, where video art is also easily accessible. The visitor meets AI avatars designed by Webb, to reflect the human nature and to question the use of technology in the digital age.

Concept: Thomas Webb & Anika Meier
Game: Thomas Webb
Artists: Aram Bartholl, Arvida Bystrom, Nicole Ruggiero, Jonas Lund, Alice Bucknell, Thomas Webb, Rachel Maclean, Koo Jeong A, Sine Deja, Manuel Rossner, Sebastian Schmieg, KESH, George Jasper, Keiken

Synthetic seducion, © Stine Deja

GARDEN PROFILE

FORMATS
- ● Exhibition
- ○ Lecture/Conference/Talk
- ○ Workshop
- ● Journey
- ○ Performance/Concert/Event
- ○ Film/Animation

COMMUNICATION STRATEGIES
- ○ Social Media
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- ○ On-demand content
- ● Experimental tools
- ○ Streaming

Liusa Wang presents aaajiao

Founded in 2014, LIUSA WANG promotes and supports young contemporary Chinese artists. Nowadays, the gallery creates a dialogue between emerging artists and young talents around the world. The growing support of collectors and international media symbolizes the recognition of the gallery's artists. Being sensitive to the narration of concepts, LIUSA WANG is open to different mediums of art and keeps exploring the limits in the art world.

In this video *bot.*, the artist presents a portrait of memory built on a machine's assumptions of how people would think a machine interprets the mind. He borrows aesthetics from existing role-playing action games such as *Mother3, Adventureland, Undertale*, and *ROM*, to create awareness of our world in 2018 — a perhaps slightly dystopian impression — and to introduce a concept of memory that sets itself apart from present understandings.

He also displays the wechat circle which could be a Chinese version of Instagram feeds. This work expresses his concerns about continuous partial attention. By adopting an always-on, anywhere, anytime, anyplace behavior, we exist in a state of excitement and alertness and we can no longer concentrate fully on anything. Constant access to media has turned us into compulsive snackers and triggered a cycle of shorter attention bursts, shorter media portions, increased tempo, quicker payoff and algorithmic optimization.

As Bots, spiders or web crawlers are heavily used by search engines to figure out how to rank websites in search results, aaajiao links their basic function with modern users' illusions and dilemmas about truth. In this age of accelerated planetary computation, there is no doubt that we humans struggle to "remember" and to "think in more memorable ways" as we become unable to rely solely on regions in our brains devoted to spatial memory.

bot by aaajiao was done in collaboration with Quanquan.

© aaajiao

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MAM Mario Mauroner Contemporary Art Vienna (AT)

Markus Hofer Visuelle Hypothese — An Exhibition @AAA Project Space

Mario Mauroner Contemporary Art Salzburg was founded in 1972 by Mario and Waltraud Mauroner as Galerie Academia. With 30 years of international experience, more than 400 exhibitions and participation in international art fairs, plus an additional 1200sqm, two-level exhibition space in Vienna, MAM offers spectacular room for the presentation of large-scale sculptures –one of the gallery's main focuses. As a second point of interest, the gallery's program is also dedicated to collecting the work of outstanding international contemporary artists, especially from the Mediterranean, with a common ground in the steady progression of their respective creative work, built independently from current trends.

Aside from its Ground Floor and Basement, as of October 2014 the gallery hosts *roomnumberOne,* a space exclusively dedicated to emerging artists, as well as *All About Art,* a new space focusing on interdisciplinary projects. The Seilerstätte District, where the gallery is located, is not only known for its high class hotels, but for a very lively art scene, filled with contemporary art galleries, museums and boutiques as well as design flagship stores such as Minotti, Ladenstein and SieMatic. We want our new project space to benefit from this exciting location by bringing together art, design and architecture and inviting curators, designers, architects and collectors to collaborate on interdisciplinary exhibitions.

The focus of Markus Hofer's exhibition *Visuelle Hypothese* is the process of visual perception, in which our brain is supplied with information about objects visible in space through the retinal and optic nerve, and compares them objects to remembered and memorized objects. It is only by matching our memory to what we have already seen that we can recognize an object and determine its function. Markus Hofer: "I am fascinated by this process in which visual hypotheses are established based on sensory information. Ultimately, we cannot perceive anything that we cannot classify. This matching and learning is essential for our minds. So we can invent our reality."

With the ambiguity so typical to him and the tongue-in-cheek titles integral to the individual artworks, Markus Hofer's objects lead our experience ad absurdum and challenge us to a lustful, unbiased and revealing process of perception.

Duration of the exhibition:
September 09, 2020 — September 10, 2020
Markus Hofer / MAM Mario Mauroner Contemporary Art Vienna (AT)

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PSM presents Catherine Biocca

Within her body of work, Catherine Biocca frequently shapes environments that insinuate total autonomy from the viewer's reality. It is almost as if, by visitation, we are actually intruding upon private property or a theater stage, interrupting the very happenings taking place. Her characters, often recognizable as anthropomorphized assemblages, are consistently active and presently conscious within their surroundings. In *Milky Seas*, the viewer is instantly swept into an unpredictable narrative. We first chance upon a lively conversation we are not entirely sure we're meant to hear. Within the gallery space, two candidly aging women, their figures made up of a variety of soft and solid materials, cackle and screech freely at each other for a time. Their exaggeratedly long limbs and wry facial expressions allude to a playful kind of jeering, joke-telling, or rousing of whomever comes within earshot. Not unlike an excited crowd yelling the slogans of their favorite sports team or politician, the two mimic aggressive battle cries and shouts, usually meant to intimidate one's enemy or opponent. Their exchange is only disrupted by an impending sound; the approaching footsteps of an authority maybe ready to tread boldly into the scene, sullying the chalk-white floor with their hefty boots. Anxiety draws nearer — where can these two conspicuous mascots possibly hide?

Not far, nestled upon a modest hill, a humanoid, house-like sculpture breathes quietly, if anxiously. Meek and vulnerable, crooning sounds escape it. Perhaps it also does not want to draw attention from the looming ascendant. *Milky Seas* explores and challenges the inside/outside barriers of perception between subject and object. Once in-situ, the viewer is no longer in possession of a passive, watchful gaze, but becomes integrated into the story as a kind of collective consciousness that slips and weaves itself through the gallery space.

PSM Gallery, Berlin, (DE)
Catherine Biocca (IT)
Text: Christina Gigliotti

© Catherine Biocca

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sound:frame / Eva Fischer (AT), Marijn Bril (NL), Angie Pohl (AT)

sound:frame virtual —
Area for Virtual Art

"site inspection," exhibition tour & festival cocktail This year sound:frame expands into the virtual realm, with a new platform for virtual art and discourse: the *Area for Virtual Art*. Together with Pausanio, the Cologne-based agency for digital cultural communication, we are pursuing the vision of creating a virtual place for digital art and culture where people from all over the world can meet. The *Area for Virtual Art* will host exhibitions, discourse formats and social events and present current digital artistic approaches, such as XR, interactive or AI based (art)works. We see the internet in its hyperlinked nature as the perfect exhibition and communication environment. Amidst the chaos of cyberspace we're creating a setting for people to show and see art, gain new insights, critically reflect and create connections. Our very area within the Metaverse gives our community the opportunity to discuss their experiences in personal conversations and to enlarge their international network at virtual live events. As part of the Ars Electronica 2020, we give a first insight into the *Area for Virtual Art* and invite the audience for an exclusive "site inspection," including an exhibition tour to hear more from the artists and a virtual cocktail party to meet others. The Viennese platform for immersive art

sound:frame realizes exhibitions, performance formats and discourse programs in the field of audiovisual, post-digital art, immersive media and XR. By establishing the Area for Virtual Art (areaforvirtual.art) together with Pausanio, sound:frame is creating a platform for presenting, experiencing and discussing digital art and culture on an internationally networked level.

Area for Virtual Art — areaforvirtual.art / sound:frame. Immersive Art / Eva Fischer, Angie Pohl, Marijn Bril, Stefanie Schmitt, Maximilian Prag, Marlene Kager, Martina Menegon, Enrico Zago, Matthias K. Heschl — soundframe. at / Pausanio. Agentur für digitale Kulturkommunikation / Holger Simon, Madita Wierz — pausanio.com/ PARTNERS: Kultur Wien, Vienna Business Agency, Lost in the garden / Artists: Martina Menegon, Depart, Elena Romenkova, Maximilian Prag, Marlene Kager, Enrico Zago, and others
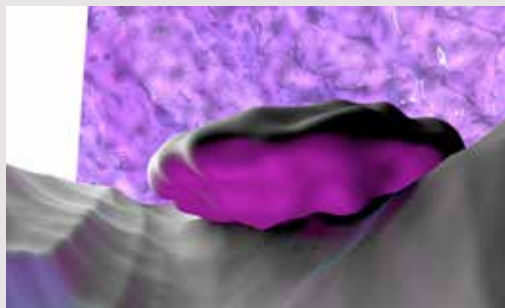
Maximilian Prag | areaforvirtual.art

GARDEN PROFILE

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The Wrong (ES)
The Wrong TV (online)

The Wrong was born in 2013 as a collaborative effort to create and promote digital art & culture, launching a global art biennale open to participation. The Wrong Biennale happens online, offline: Online happens in pavilions — virtual curated spaces in any accessible online media where selected artworks are exhibited. Offline happens in embassies, institutions, art spaces, galleries, and artist run spaces in cities around the world. An extended team of curators appoint themselves to feature what they like best of the new digital art scene today. Artists also appoint themselves via open calls and routers. Since 2013, more than 5,500 artists and curators have officially participated in The Wrong Biennale.

"Counting its viewership in the millions, The Wrong just might be the world's largest art biennale — the digital world's answer to Venice."
The New York Times

The 4th edition bloomed from November 1st, 2019 until March 1st, 2020, featuring +2300 artists +210 curators +150 online pavilions +100 embassies +320 events +120 locations around the world, and all over the Internet. In March 2020, following the end of the 4th edition and in the midst of the COVID-19 pandemic outbreak, The Wrong announced new biennale editions for November 1st, 2021, November 1st, 2023, and November 1st, 2025 — and added two new strains: The Wrong Website — an online website featuring a daily feed of digital art and culture links and *The Wrong TV* — an online TV platform live-streaming digital art and culture.

"Anyone interested in the field of digital art ought to pay attention to The Wrong."
Christiane Paul, new media curator for The Whitney Museum of American Art

At the Ars Electronica Festival 2020, The Wrong presents an online linear live streaming video exhibition featuring a selection of digital artworks curated by David Quiles Guilló.

Curators and artists: https://biennale.thewrong.org/2019-2020
Team: David Quiles Guilló, Graziela Calfat, Alejandra Raschkes, Jennifer Talbot
Council: Ben Grosser, Erica Lapadat-Janzen, Florian Kuhlmann, Guilherme Brandão, Miyö Van Stenis, Jon Cates, Pablo Hannon, Carla Gannis, Moises Mañas, Patrick Lichty
With support from: CMCV — Consorci de Museus de la Comunitat Valenciana — Generalitat Valenciana (ES)
SESC SP — Sao Paulo (Brazil)
SOIS CULTURA awards 2019
CARGO

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This Garden is part of the STARTS programme.

VENT gallery (AT)

Rebecca Merlic — The City as a House

Vienna-based VENT gallery promotes international and local rising artists in contemporary visual arts, curated in solo and group exhibitions as well as performative formats. VENT gallery's program is focused on researching the artificial meaning of media by implementing technologies from the late 20th and 21st centuries into the artistic process and analyzing their social potential. VENT gallery focuses on the artistic and curatorial exploration of futurality. Futurality describes incidents of the future that are already inscribed into the present as diffuse phenomena of so-called "hyper-objects."

Vast amounts of pictures, sounds, videos and 3D scans are organized as environments in Rebecca Merlic's *The City as a House*, in the form of an interactive visual novel. A work about the experiment of a white European 30-year-old heterosexual human living in Tokyo without inhabiting a private apartment over a period of time. A speculative exploration of the possibilities of abolishing known forms of habitation. In 1903 Hermann Muthesius said: "Japan is in many respects the country that comes closest to one's dream of paradise." The current situation in Tokyo allows for the emergence of a turbo-dense, capitalism-driven space generator for satisfying one's personal longings and needs. Is a new form of nomadic living not only being constructed in digital and virtual space, but also in concrete space? Shifting privacy in non-domestic spaces can lead to different architectural consequences. *The City as a House* depicts an illusion of private ownership of a place we call home and transfers it into the cityscape where the human occupies a certain amount of space while moving or resting depending on time and need. What does it mean to be freed from craving a nest? A strategy of successfully surviving without being bounded. It proposes a new form of society. The next self-improvement of humanity or going back to our roots. A visual novel built with a Game Engine to open up digital space for the human user to relive the experience and open up new spaces.

Processing: Vivien Schreiber / Sound design: Manuel Riegler / Artist talk: Manuela Hillmann / Curator: Manuela Hillmann, Philipp Pess

The City As A house, © Rebecca Merlic

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Ars Electronica Journeys

As is true for all cultural institutions, Ars Electronica was confronted with the question of how to creatively maintain its responsibilities given the challenges posed by the coronavirus. It quickly became obvious that our main objective was to ensure that the festival still functioned as a community-platform that was easily accessible to the public.

Because of this, we decided to collaborate with a large number of partner institutions across the globe to host a decentralised festival across many locations. *Ars Electronica Journeys* is an entirely new format which evolved in the midst of rethinking the festival. Artists, researchers and creative producers were invited to prepare video journeys, providing interactive guided tours without the audience's physical presence. Beyond that, the journey guides can really invite the viewers into their "world" by not just offering exclusive insight into their fields of expertise and artistic practices, but sharing surroundings relevant to their work — be it their labs, inspiring public places, or their favorite walking routes to mull over ideas. All of the journeys are realized in different frameworks: journeys within the Regional STARTS Centers project focus on innovation and collaborative practices; while the European ARTificial Intelligence Lab journeys put a spotlight on cutting-edge topics and developments in the realm of artificial intelligence. Finally, the journeys within EMAP present exciting residencies at the intersection of art and science.

AI LAB JOURNEYS

These video commissions are co-funded by the Creative Europe Programme of the European Union in the framework of the European ARTificial Intelligence Lab.

Mimi Onuoha (US)

In early 2020, Jess Myers and I participated in Safar, a performative conversation in public space. Hosted by art duo aghili/karlsson, the event involved a live streamed conversation between us as we moved from the center of Stockholm to the duo's studio on the edge of the city. In reflection of our physical journey, the trip found the two of us conversing about margins, technology, architecture, blackness, and the spaces that we — and others like us — find ourselves constantly moving within and between. This conversation is a follow-up to that one. This time, rather than taking a physical journey, Jess and I will set ourselves up on a Brooklyn to discuss themes of our work over tarot cards. The journey that our conversation takes will be tied to the major arcana of the deck. By staying in one place, we reference numerous things: the international moment created by Covid-19 that has forced so many people to stay in one place; my recent work *The Future Is Here!,* which focuses on machine learning labor carried out within domestic spaces; and the power-geography of the world that has shaped our own work, individually and collectively. As we stay in one place, we will address questions of migration, coloniality, space, and what it means to work under conditions that are curtailed — and made possible — by all of these.

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Maja Smrekar (SI): !brute_force

Responding to the coronavirus pandemic, the *!brute_force* project focuses on the future of market-driven diagnostic wearables and AI-based health monitoring technologies. A human and dog performer climb through an installation of platforms and empty spaces. Both wear Electrocardiograph ECG/EKG diagnostic wearables, used for the medical monitoring of chronic heart and respiratory conditions. These are gathered within a Neural Network, whose goal is to synchronize the heartbeat of the human with that of the dog. On the one hand, the installation represents the canine and human bodies under surveillance capitalism, as abstractions within total corporate knowledge and control of bodily function. On the other, the installation also suggests paths of resistance, by imagining the coexistence of the two species in a state of joint physical activity.

Mika Satomi (JP/AT):
Artificial Intelligence and its False Lies

In this tour, Mika walks you through her process of making *Artificial Intelligence and its False Lies*, from the first questions she had and how one led to the next, to interviewing scientists and finally teaching herself how to make an artificial neural network. She also attempts to explain how neural networks work, because she was shocked to learn there is no actual intelligence inside the black box! She invites two experts, an AI researcher Diana Serbanescu and a craft and techno culture theorist Daniela K Rosner to have a dialog with her on some of the concepts she is exploring in her work.

Nye Thompson (UK)

For my new work */artefact*, I took possession of a large area of Mars, using Google Earth and satellite survey data to build a supertall border wall around my claim.
In this video, I'll chat with curator Lucy Dusgate who originally commissioned the work, and our germ-neutral network-enabled conversation will be broadcast across my Martian territory. We'll talk about my art thinking process generally, and in terms of this new work specifically; including how the pandemic came to influence its eventual form. We will also discuss interdisciplinary collaboration, a vital part of my artistic practice.

Rocío Berenguer (ES)

In 2030, a human-plant hybrid guides us on a trip through the past, unveiling the origins of G5, the first inter-species political summit. The event was initiated by IOFLE, the Inter-species Organisation for The Future of Life on Earth. Its founders are thought to be the artist Rocío Berenguer and IA collaborator, IAGOTCHI.
This project will compose various images of the G5 summit, with a narrator—expressed as a voice or with subtitles—as guide. A short interview with the scientist who worked on the development of IAGOTCHI, the artwork based on an AI chatbot, will be included.

Mika Satomi, © Ingo Randolf   © Nye Thompson   © Rocío Berenguer Coex

Cecilie Waagner Falkenstrøm (DK): Centaur

How can we better comprehend the challenges and possibilities of artificial intelligence in art? And how do human-technology hybrids transform artistic practice?
This video tour scrutinizes such questions and suggests that the increasing usage of machine learning in artistic practice calls for a re-examination of the artistic relationship between human and non-human actors. In this video journey, artist Cecilie Waagner Falkenstrøm will reflect upon her artistic practice, utilizing machine learning (RNN, NLP, Reinforcement Learning) to create the modern dance piece, *Centaur*.
Audiences will be able to follow the creation of the piece, listen to Cecilie and modern dance instructor Pontus Lidberg discuss their thoughts on how machine intelligence transforms artistic practice, and watch rehearsals where the AI persona David takes the lead in instructing the dancers.

Sarah Petkus (US): What Matters Now?

In the wake of the global COVID-19 pandemic, daily life has been disrupted and given room to change; from the comfort of routine to the energy that fuels the creation of electronic and robotic work. While staying safe in her personal laboratory in Las Vegas, Nevada, technologist Sarah Petkus has been using this time to re-evaluate what it means to be a content creator and artist in this unique era where humans are limited by the constraints of physical isolation, yet connected in abundance through virtual platforms and social media. As the lines between private and professional life blur, she hopes to find new forms of meaning amidst the uncertainty.

Špela Petrič (SI): In the eyes of the algorithm, we are all already plants.

In conversation with Agnieszka Wolodzko, a philosopher and author who also runs a biolab at the art academy in Enschede, NL, Špela Petrič shares fragments of insights and dilemmas that have arisen from the interdisciplinary *Plant-Machine Project*. While peering into the messy background of prototyping new works and (remotely) installing exhibitions, they speak about the potential of the vegetariat to create alliances with algorithms that would counter the hegemonic sphere of interest and replace it with the erotix of care.

© Sarah Petkus

Špela Petrič, Vegetariat: Work Zero
© Hana Josić

Tega Brain (US), Sam Lavigne (US): At the Abandoned IBM Complex, Endicott NY

This conversation will be between myself, Tega Brain, and one of my long-time artistic collaborators Sam Lavigne. We will visit the site of the now abandoned IBM complex located at Endicott, NY. The plant closed over 13 years ago; however, IBM's presence remains in a toxic plume in the groundwater, which is still impacting the health of Endicott's community today. We have chosen this superfund site as it tells a story of the material legacy of AI and contemporary computing

today. We have both examined emerging uses of AI in our creative work, Tega looking at the context of environmental inquiry in projects like *Deep Swamp* and Sam has examined histories of computing and policing (something also relevant to IBM's history) in works like White Collar Crime Risk Zones.

We are currently collaborating on a new work looking at media manipulation around the issue of climate change.

Theun Karelse (NI), Ian Ingram (US)

Ian Ingram and Theun Karelse are taking you along on a fieldtrip in parallel locations. Theun in the Netherlands, Ian in California. Theun will explore the relevance of fieldwork programs (such as Random Forests) and in-situ prototyping to artistic practice and Ian shows what consti-

tutes a field experiment, in a virtual safari to some habitats that serve as "training forests" for machines such as DeepSteward. Some additional footage may be featured from earlier fieldwork sessions to give a broader impression of the experiments and methodology.

slow immediate (CN/US): The Wandering Mind

Our work has always been a search for planetary connection. Quarantine shifted the dynamics of the search. Our project with AILAB, the Wandering Mind, is a sound experience that guides the dreams of a sleeping audience, its source material drawn from planetary-scale sensing and orga-

nized by an AI system. From home confinement, we mined the internet for field recordings, tuned radios, and climbed to our Brooklyn rooftop to point antennas at passing satellites. Our isolation crystalized for us how much deeper our search can run, how vivid and connective dreams can be.

Tega Brain, Sam Lavigne © Chris Waits   © Theun Karelse   © slow immediate LLC

EMAP RESIDENCY JOURNEYS

Daniel Hengst (DE): blooming loves

Skip-the-line entrance, a collaborative guide to a speculative berlin; Discover a whole new Berlin. Join us on this journey and visit four local artists. During unforgettable visual presentations, you will learn how these artists work and with whom, what they see as necessary to leave the old city and build a new one on swampy ground. Be inspired and discover previously invisible and non-existent attractions. Skip the lines at this popular site.

Kasia Molga (PL/UK): How to make an Ocean?
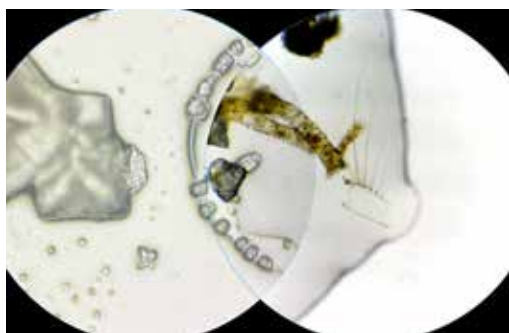
Can human tears sustain sea life? Kasia Molga will narrate her journey from the conception of the project, inspired by dealing with personal grief; through the impact of COVID-19 on her initial idea; through the crazy set up of a make-shift wet-lab; to learning how to cry on cue; her efforts to keep tiny sea creatures alive in her tears; and attempts to develop an AI moirologist — a crying bot to help us all shed some tears. There will be conversations on ritual, environmental anxiety and technology with fellow artist, professort Teresa Dillon, while Margate and the North Sea will provide some context and an atmospheric backdrop.

Forms of Ownership (INT): Viral Fiction

Money and law shape much of our everyday life. In a hyperbole of social sculpture, our artistic practice is anchored in approaching these systems as artistic and creative mediums in themselves. Working critically within the frameworks of these systems, we believe art is a way of thinking that is not limited to art itself but rather can occur in any field. In this way, artistic thinking is always inter-disciplinary and can lead to action in the face of socio-political challenges.

María Castellanos (ES), Alberto Valverde (ES): Beyond Human Perception

The artwork is a video installation that allows the audience to visualize the reactions of humans and plants to a common stimulus: live music. The installation is the result of several sessions where the brain activity of humans was measured jointly with electrical oscillations in plants, using a sensor developed by the artists.

The Fast Fourier Transform allows us to extract data from plants and humans and compare both. Finally we visualized the data through a graphic representation generated by an algorithm created by the artists, which allows us to find patterns between both living beings.

Stefan Laxness (UK): Identity and Aesthetics in an Rewilded Europe
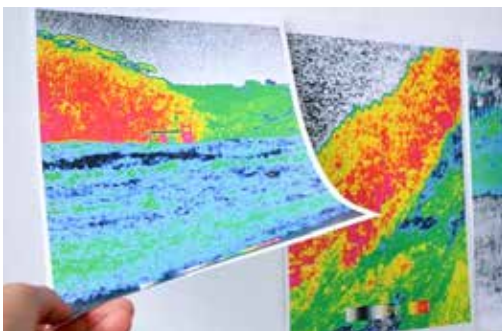
Stefan Laxness presents his investigation into the possibility of a rewilded Europe. Surveying a cross-section of rural Spain through geographic information systems and on-site sensing techniques, the investigation identifies spatial conditions which reveal shifts in territorial occupation considering systemic challenges: land abandonment, depopulation and climate stress. By understanding rewilding as a process of negotiation and transformation, Stefan seeks to reveal the latent potential of our rural areas and explore our relationship as rewilded citizens with architecture, land and wilderness.

STARTS JOURNEYS

BeAnotherLab (INT): Between

As a collective practice, Beanotherlab exists in the spaces between disciplines, communities, geographies, and methodologies. Distributed, but interdependent. This tour presents a meditation on the uncertainties and sensitivities inherent in transdisciplinary collaboration. Guided by the metaphor of the stars/universe in continual expansion, we discuss the borders between disciplines as sites of emergent possibility. An invitation to listen to an interrelated narrative where sometimes you need different words to say the same thing, and familiar words gain new meaning.

© James Read

Charlotte Jarvis (UK): On the Eve of Uncertainty

© The Hubble eXtreme Deep Field

Charlotte is an artist who has grown her own tumor, recorded music onto DNA and is currently on a quest to make 'female' semen. She has had ten international solo shows and featured in over one hundred and fifty group exhibitions. She has been resident artist at a number of universities and scientific institutions, won the Bioart and Design Award NL and the Alternate Realities Commission UK. Charlotte is Research Tutor on Information Experience Design at The Royal College of Art.

Giulia Tomasello (IT): Alma — On The Way

Alma is a wearable biosensor designed to monitor vaginal fluids. We strive to support and educate women about their intimate health through technology. Giulia Tomasello, designer and co-founder of Alma, will guide you through the research and prototype development at the Fraunhofer IZM TexLab in Berlin. This journey is supported by Re-Fream and EU Horizon 2020. We want to thank all the women that have participated in the Alma meets Flora survey and in the co-design workshops. You helped us develop the educational tools and methodologies required to shape the conversation around intimate female well-being and health in our society.

© Giulia Tomasello

Karen Palmer (UK): The Future Crashes into the Present

© Antonio Moras

As the Storyteller from the Future, Karen Palmer takes the viewers on a journey through a series of broadcasts beamed back from the future, warning us of what's to come through her immersive film experiences. The broadcasts show the artist in conversation with a behavioral psychologist, an elite parkour coach and a techno activist to shed insight into the methodology and purpose of her work at this particularly crucial time, with some of the dominant themes being fear, surveillance, race, digital civil liberties and AI.

M Eifler (US): Prosthetic Memory

When I tell you I have memory loss, you'll likely say "I forget things all the time! A name, my keys, where I parked, constantly."
But do you remember being a sticky wild-eyed kid? Or maybe you have a story from your early 20s you love to tell, laced with seedy details.
I have none of that. Instead of biological memory, I have been experimenting with alternative archives. Part material — paper paint, video, audio, sketchbook, and ink. Part math — assistive intelligence, computer vision, and machine learning. Come in. I'll show you around.

© M Eifler

Morphing Matter Lab (US): Morphing Matter is ?

As a physical embodiment of AI, morphing material is an emerging concept in science and technology. However, solely technological-driven solutions are often short-sighted, biased, and sometimes misled.

We use our own voice and creations to interpret and reinterpret the meaning of morphing materials. When our physical bodies are separated by a global pandemic, our minds are still together. Through the video, morphers from Morphing Matter Lab hope to bring audiences out of reality for a moment, to create a hopeful world where morphing matter can contribute to solving the social, environmental and political crises we are facing.

Pei-Ying Lin (TW): Communication with the Invisible

Uncertainty is everywhere. It is what we experience when facing the unknown, but also when trying to communicate or negotiate with the invisible. It also shows up during the artist's process of a creating a project. Pei-Ying Lin's journey explores this aspect by exposing the process of creation of her project "Proposal of Collaboration with the Viral Entities." Starting with an introduction to the project montaged with keywords and sketches, denoting the elements that make up the core of the project, she follows up with a contact improvisation dance accompanied by a monologue inspired by viruses, our society and their interactions and communications, where dancer Hsin Yu Chang will be responding with physical movements. The last part shows a dialogue between Pei-Ying Lin and her scientific collaborator Miranda de Graaf to discuss how we can get into the mind of viruses, and a discourse with Prof. Robert

Pei-Ying Lin. Model: Yi-Ling Wu. From project Tame is to Tame.

Zwijnenberg, a philosopher in art and science, which discusses artists during this time of uncertainty. Pei-Ying Lin creates a series of inspirations which aim to demonstrate some of the aesthetics of her endeavor to communicate with and understand viral entities and our mental process of building an understanding of uncertainty.

Robertina Šebjanič (SI), Gjino Šutić (HR): Adriatic Garden

Adriatic Garden will take viewers on a journey of the Adriatic Sea. *Adriatic Garden | aqua_forensic 2.0* combines two locations on the Adriatic Sea with citizen science workshops on climate change and water pollution, underwater video / sound program, discussion panels and an exhibition program that includes the values of care, kindness, compassion, environmental justice, action-taking, and cooperation with the Adriatic Sea and its creatures.

Project framework: *aqua_forensic* is an ongoing art science research project by Robertina Šebjanič (SI) and Gjino Šutić (HR).
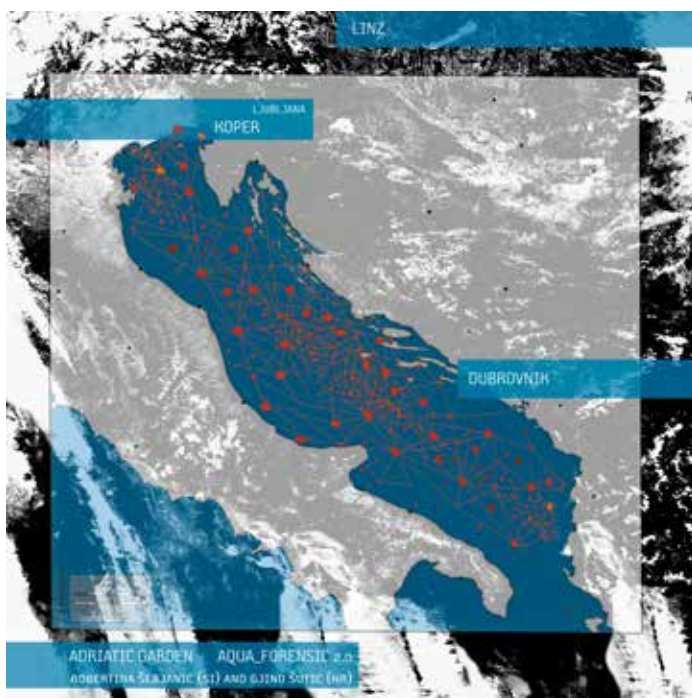
© Gjino Šutic

Eebo (AT/UG): Eebo Video Tutorial

Eebo is a video platform in Uganda which aims to help creators market their content to viewers who pay for access to their work directly. For users to access said content without internet cost, its strategy is to open up as many public WiFi hotspots as possible. The tutorial will take the viewer through Eebo's history, from the office where the team is working in to the public WiFi hotspots, to interviews with location owners who host Eebo boxes to asking Eebo users for their opinions. The video tour will also introduce local content creators, and ask them how they use the platform, what it means for them to be able to sell their digital goods to end consumers directly and how that affects their day to day and creative process. In the end, viewers will also find out what their challenges are.

Prof. Diethard Mattanovich (AT), Prof. Ingeborg Reichle (DE), Anna Dumitriu (UK), Alex May (UK), Sonja Schachinger (AT), Wolfgang Giegler (AT), Michael Sauer (AT), Günter Seyfried (AT): Fermenting Futures

Fermenting Futures is an art and science project developed by the Institute of Biotechnology at the University of Natural Resources and Life Sciences, Vienna (BOKU), and conducted in collaboration with the Department of Media Theory, University of Applied Arts Vienna (Angewandte), as outreach for arts-based research. The project will introduce some of the thousands of yeast species and their characteristics, as well as synthetic biology methods to create new yeast strains with exceptional capabilities to make our lives better while preserving the planet. In a residency at BOKU the British bioartists Anna Dumitriu and Alex May will transform some highlights of this research into sculptural artwork.

© Diethard Mattanovich

Ai Hasegawa (JP): A Journey into Ai Hasegawa's Practice

In this video, Ai Hasegawa talks to collaborators, scientists and experts about her projects around science, sexuality, life, politics and institutions. She discusses her approaches to *Human X Shark, (IM)POSSIBLE BABY, The Extreme Environment Love Hotel, Shared Baby, I Wanna Deliver a Dolphin,* among others.

© Ai Hasegawa

GUIDED TOUR

Barnaby Steel, Marshmallow Laser Feast (MLF) (UK) / Matthias Günther, Fraunhofer Institute for Digital Medicine MEVIS (Fraunhofer MEVIS) (DE)

The Tides within Us

Barnaby Steel from Marshmallow Laser Feast, in collaboration with Prof. Matthias Günther and scicom-team members, Fraunhofer MEVIS, will take us on a unique trip into the human body. We will take a look behind the scenes, showing how artists and scientists profit from their collaboration and advance their practice. We start the tour at the MEVIS MRI lab, then we take a look into the MLF studio where medical data feeds an artistic vision. Together the partners have been working on a long-term collaboration *The Tides Within Us.* This project aims to challenge the notion of the boundary between our bodies and our environment. The skin creates a barrier, an illusion of separation between self and other. *The Tides Within Us* is due to premiere in the UK at a major art event during autumn 2020. After a Q&A session for all, registered visitors can take part in an online workshop with scientists Sabrina Haase and Dr. Hanne Ballhausen, using the web-based tool Insight Inside and interacting with medical images on their computers.

Marshmallow Laser Feast, Fraunhofer Institute for Digital Medicine MEVIS

Marshmallow Laser Feast in collaboration with Erik Ferguson

KEPLER'S GARDEN

POST-POSTCITY: Ars Electronica at JKU

Gerfried Stocker (AT)

Farewell to POSTCITY . . .

In 2015, the Ars Electronica Festival used POSTCITY as a venue for the first time. With an impressive area of almost 100,000 square meters, unique architecture, gigantic halls, deep and branching catacombs, and expansive roofscapes, it immediately sparked enthusiasm and marked an evolutionary pivot for the festival. There is no question about the transformative impact the space at POSTCITY had on the structure and atmosphere of Ars Electronica. Over the next five years, both would become inextricably linked into the new signature of the event, as the many festival formats distinctly connected to areas and floors at POSTCITY attest.

Kicking off in 2015 with *POSTCITY — Habitats for the 21st Century,* the festival explored what constitutes a modern urban sphere in light of the Digital Revolution tackling the topic from five different angles: future mobility, future work, future citizen and future resilience. The 2016 edition, *Radical Atoms — And the Alchemists of our Time* stepped even further out into the future, to feature astonishing projects interlinking the digital and physical domains, and opening up a completely new way of looking at the exchanges between technology and nature. In the wake of an artificial intelligence boom owed to companies like Facebook, Uber and Co., the 2017 festival *AI — the Other I* examined the imminent relationship between machines and human beings, with an emphasis on ethical issues in the advent of rapidly evolving machine learning systems. In 2018, *Error — the Art of Imperfection* took a closer look at the concept of "error" from various perspectives; in the conviction that a sense of imperfection — an elemental trait to our understanding of humanity — is essential in a world of ever-increasing precision. Throughout its five years at POSTCITY, the festival expanded quite a bit, peaking at last years' 40th anniversary *Out of the Box —*

The Midlife Crisis of the Digital Revolution, which highlighted the fascinating history and successes of the enterprise. It featured 1,449 artists and scientists from forty-five countries and a total of approximately 110,000 visitors — a more than worthy end to an era. Still, to this day we are zealous about this brilliant space, and thankful to the POST AG for enabling this development.

. . . and off to new shores: the Ars Electronica Festival at Johannes Kepler University

Finding fresh collaborations — or strengthening existing ones — plays a vital role when exploring new shores. This years' inauguration of the new Ars Electronica Festival site at the JKU campus is an exciting step towards an even more intense and fruitful partnership with the local university. In many ways, this is a very logical development, considering the thematic affinities between both institutions and the international orientation so intrinsic to the realms of art and science. Both share a clear commitment to science, and a fact-based, responsible way of dealing with each other, as a basis on which to develop a significant, cross-institutional statement for science and art in light of current and future challenges.

JKU's stunning location will also shape the festival's spirit and form, much like the POSTCITY did in its time. Since its ground-breaking ceremony in October 1966, JKU consistently evolved its course program and grew considerably in size. The campus now has an area of 364,000 m², encompassing 27 buildings as well as a beautiful park with a duck pond — the perfect setting to offer not only a variety of programs and formats, but to experiment creatively with the surroundings. In the winter semester of 2019/20, the university had about 3,300 employees and 19,493 enlisted students, almost 15 percent of the latter with an international background. In combination with the many scientists, artists and other

interested people attracted by the Ars Electronica Festival each year from all over the globe, the new location promises to be an open-minded, knowledge-oriented, innovation-driven and collaborative environment for the participants and festival visitors. This year, in contrast to previous festivals, the on-site program of *In Kepler's Gardens* at JKU campus will be smaller due to precautionary measures for coronavirus, and will focus even more on mediation and guided tours. The extended partnership between Ars Electronica and JKU will be further expressed within the local festival program, especially in the presentation of cutting-edge projects by the Linz Institute of Technology (LIT): "Responsible technology"– the values and mind-set promoted by Ars Electronica couldn't be better framed than in this condensed self-description of LIT's visionary approach.

Finally, it goes without saying that the JKU campus program will be seamlessly integrated into the local-physical networked events hosted by the festival in cooperation with partners in more than 120 cities worldwide. *In Kepler's Gardens* thus initiates the new period of the Ars Electronica Festival at JKU, in the spirit of diverse forms of collaboration, celebrating the pluralism inherent to art, science and society.

In 2020, *Kepler's Garden* will be the venue for three exhibtions:
- JKU LIT @ Ars Electronica
- Garden Exhibition
- STARTS Exhibition

Gerald Bast (University of Applied Arts),
Meinhard Lukas (Johannes Kepler University)

Manifesto Innovation through Universitas.

The University of Applied Arts, in alliance with Johannes Kepler University, aim to bring something new into the world and to mediate university education through dialogue. To do so, they are introducing the joint manifesto Innovation through Universitas.

The more it seems like the world is coming apart at the seams, the more important it becomes to search for what holds it together. This impetus has driven academia for centuries, propelling science and the arts to new heights. Only those radical enough to get to the bottom of things will discover something fundamentally new. These are individuals who are dissatisfied with derivations of what we already know and what is familiar. They stand for eruption instead of deduction. This is the only way to unhinge the world. Archimedes' statement rings true today and continues to serve as a guideline in modern times.

Discovery was once a harmonious act, simultaneously involving science and art. The *uomo universale,* or universal man of the Renaissance, re-discovered the world through comprehensive education, a critical spirit, creative power, and a humanistic attitude. He helped himself to all of this knowledge and the arts as if they flowed out of the same wellspring. He was only interested in the gist of the matter. Any questions regarding access, methods, and media were of secondary importance, because he could follow any and all paths and master all techniques. He was connected to Virgil by the longing to recognize

rerum cognoscere causas, the cause of things. Beyond any reminiscing on the history of art and science, ideas on education and research during the Renaissance deserve our attention today.

Humboldt's concept of *universitas* is also becoming increasingly fitting again, during a time marked by granular, nearly atomized knowledge and increasingly meaningless specialization. The humanistic educational canon enriched by the development of digital competence (and not mere skills) can, and indeed must, be the European educational system's answer to meet the challenges coming from East and West. In quantifying the knowledge universities generate, this statement cannot be without consequences. The fixation on citations, reputational rankings and surveys, external funding, the number of students actively taking exams, and other quantifications fall short of the mark. Civic responsibility and social relevance must be the dominant variables. Universities are, first and foremost, society's intellectual and scholarly centers. By virtue of their autonomy and resilience, they must play a leading role in shaping social discourse.

Those who advocate for more *universitas* must not reduce science to mere truth or art to beauty. Science and art mutually benefit each other there where — despite their differences in perspective, findings and methods — converge and ultimately intermingle with each other. Knowledge and sensuality, ratio and emotion — as well as empiricism and imagination — can intertwine to fuel and inspire each other. So let us bring something new into the world by transcending parameters and becoming involved in a dialectic of science and art, a synthesis of truth and beauty, and a symbiosis of knowledge and creativity. Let us accept the enormous challenges of our time for the benefit of a humane and diverse society. These are the aspirations with which the University of Applied Arts and Johannes Kepler University aim to forge an alliance in support of innovation through *universitas*. May this alliance also serve as the momentum to broaden perspectives in a so-called knowledge society and re-think the increasing economization of knowledge.

Complete version:
www.jku.at/en/news-events/news/manifesto-innovation-through-universitas/

JKU LIT @ ARS ELECTRONICA

Linz Institute of Technology, Johannes Kepler University

Christopher Lindinger (AT), Gerald Bast (AT)

Creative Cohesion

The digital revolution, demographic changes, and the climate crisis addressing the complex, conflicting fields of our time requires an epistemic landscape that is conducive to traversing academic parameters. Crossing the borders between disciplines should be considered a starting point for possibilities — even essential as to interlink them — rather than an act of deconstruction. The *Innovation through Universitas* calls for a new, transdisciplinary university culture. It signals the beginning of an alliance to support creative innovation between Johannes Kepler University Linz and the University of Applied Arts Vienna, systematically entwining art and culture with science and technological design to encourage and inspire symbiotic progression. It is a call to action, and an appeal to supporting transdisciplinary university collaboration and creating procedures and 'real-world' labs that can incorporate experimental approaches, both large and small. Tapping into the transformative potential of various disciplines in order to acquire concrete insight into the future of research and education requires pioneering approaches and unique individual projects. Turning an idea into a reality throws into relief what can be perceived and institutionalized as added values. Among this year's goals is a call for proposals to support projects at the interface of art and science, as well as to create "Transformation Labs".

The Linz Institute of Technology at the Johannes Kepler University published a special, two-stage open call for submissions, selecting a total of twelve "transformational projects" aimed at transfusing science and art. These will be on display during the 2020 Ars Electronica Festival. The call's second phase focused on taking researchers' ideas and intensifying discourse with artists. When it comes to observing just how art and science interact, the "Transformation Projects" have been extremely insightful and compelling, demonstrating that initiatives centered on bringing together art and science require applied creativity. Knowing that a certain artistic work will soon be part of the Ars Electronica Festival and prominently displayed to a wider audience

not only changes the speed at which decisions are made, but also how they are made. Thinking about how a layman — who is unaffiliated with the scientific community — will perceive a project is incorporated into the initial concept and has a lasting influence on the design process.

An additional consideration is knowing that artistic ideas repeatedly provoke and incite scientific and academic problems that, in the context of research, may seem unusual or even far-fetched and improbable. *Pangolin Scales* is a project in which users control a scaled, armored coat using their brainwaves. When activating a certain area of the brain, certain scales on the armored coat move. In order to meet the artistic requirements, a new type of brain-computer interface featuring a total of 1,024 channels was created, capable of capturing data with a never-before-seen level of resolution. The flowing, fluid boundaries between science and art shift perspectives, inspiring innovative methods, developments, and solution strategies. A security loophole at the JKU's Science Park 2 building serves as a starting point for a composition piece titled *Exposed Building.* A weak point in the building's networked security technology has affected the Science Park's electronic locking system and the system has been taken over. By controlling the buzzers built into the door locks, the building is transformed into a walk-through, polyphonic, sound-emitting body. The cacophony of sound revolves around how vulnerable "smart" buildings are, and again reminds us of subsequent risks.

Art opens up an entire new realm of possibilities to convey scientific research and its relevance. *AI Truth Machine* uses artificial intelligence to detect deception. An interactive, mock courtroom serves as a 'reality' laboratory. Visitors are questioned by an AI truth machine and asked to lie during questioning. The interrogation results raise questions as to whether or not artificial intelligence can replace judicial decision-making processes, and focuses on both hazards and potential of verifying the truth via machine.

Robots Talking to Me is a four-part series focusing on the impact that art and design has on the repertoire of research by not only radically re-defining the relationship between man and machine, but emphasizing fundamental changes in our work environment. Visitors involved with a virtual-reality puzzle game titled *Serum 13* work with a machine partner that provides recommendations on decisions to obtain a life-saving serum. In an effort to analyze the psychological parameters of communication and build confidence between the human and AI partner, the players have to decide whether or not they want to believe what they are being told.

A second step to develop transdisciplinary prototypes and implement joint project ideas involves creating "Transformation Labs" for scientists and academics at Johannes Kepler University, and for artists at the University of Applied Arts. *Full Dome* is an immersive research and presentation dome serving as a crystallization point for lab activities, opening up visual and emotional levels of perception with stunning intensity. Two "Transformation Lab" projects will use the *Full Dome* as part of the 2020 Ars Electronica Festival. *Cross Perception* is a project that allows audience members to experience the algorithmic bias of artificial intelligence and to explore the question

of what experiences and expectations shape the audience member's perceptions.

Just as certain information is inevitably discarded during machine learning procedures in order to model and compress data, humans also look for simple explanations to multifaceted sensations and sensory impressions.

In order to mutually access various subject areas and scientific disciplines, the Johannes Kepler University and the University of Applied Arts will physically move closer together. Both institutions will become part of the Center for Arts and Sciences located in Vienna at the former Postal Savings Bank.

Designed by Otto Wagner, the Savings Bank building will provide unique spatial proximity to support transdisciplinary, scientific and artistic synergies. The program will also include joint lecture series for extant degree programs, as well as developing study and research formats to interpret art and science as an entity, without questioning their respective, independent identities. Supporting transdisciplinary efforts in research and education also raises a question as to how academic performance is evaluated and assessed, taking alternative ways to measure success that perhaps do not include the number of publications and impact factors into consideration. Removing disciplinary constraints drives progressive research, moving away from the more traditional, subject-specific sets of rules, and serving as a gauge for student employability. The correlation between art and science in tertiary education supports core skills for future professions that include creativity and non-linear thinking, as well as flexibility and social intelligence. Dialogue between science and art is changing the research mindset and, in times of unpredictability, uncertainty and fluctuating cohesion, provides a new, vital foundation for contemporary universities to evolve beyond the cumulative boundaries of tradition from past decades.

The broadening of methodologicals horizons, interdisciplinary advancement of knowledge and dissolution of traditional patterns of behavior are consistent with the complexity shown by our present-day networked systems. Characterized by tendencies towards specialization and fragmentation, structures dating back to the industrial age continue to be broken down as part of the contemporary knowledge economy. Transdisciplinary action is not an end in itself, but rather, a powerful tool enabling universities to fulfill social responsibility by meeting current challenges head-on.

Linz School of Education (AT)

STEAM Popup Lab

Since the boundaries of school subjects are rather artificial and hardly mirror the diversity of knowledge needed t understand important matters in depth, STEAM Popup Lab aims to blur those borders and highlight the importance of collaboration between the sciences. STEAM Popup Lab offers the possibility to create your own path by moving within a net of educational experiences, where you can choose which direction to take. It is a virtual journey to understand the meaning of patterns all around us. Patterns are everywhere, from fractals in nature to blood vessels in the human body, through the oscillating signals produced by the sensors of a phone. You can control robots, fold origami patterns, measure the signal of a playground swing, be part of a live chemistry lab session, and more.

© Alicia Hofstätter

Linz School of Education, Johannes Kepler University
Supported by Land Oberösterreich

Andreas Stelzer (AT), Rudolf Scheidl (AT)

Magic Darts
or, when every throw is a perfect hit

Darts is a popular game, but difficult to master. In this version of darts, players always hit the bullseye. What looks like witchcraft is revealed to be a mechatronic system: a novel microwave sensor network detects the approaching dart, algorithms compute its trajectory and continuously estimate the place and time of impact at the dartboard. Ultrafast hydraulic actuators enable the dartboard to move the target into position in a few hundredths of a second. Such technologies will affect our future daily life: in autonomous cars, with microwave radars allowing us to see in the dark, with fog or dust; when algorithms need to estimate the motion of potential obstacles; or in exoskeletons, where hydraulic actuation enables ultimate compactness, low weight and energy consumption far beyond the limits of current technologies.

Institute for Communications Engineering and RF-System, Johannes Kepler University, Institute of Machine Design and Hydraulic Drives, Johannes Kepler University / Supported by Land Oberösterreich

CAD-Rendering, from Florian Wolfslehner

Institute of Robotics, Johannes Kepler University Linz (AT)

Robots in Action
Fast and sensitive!

Robotics in general, and industrial robotics in particular, are perceived as unknown but omnipresent all at once. Robots are controlled machines; created by humans to help humans. Their control is getting more and more intelligent, and exceeding human capabilities. By means of selected examples, the Institute of Robotics at Johannes Kepler University will showcase what modern industrial robotics means, and that it can be fun. Two industrial robots will serve drinks; one will fill up a cup and the other will serve it on a tray. The catch is that the first robot will fling the filled cup through the air while the second robot balances a tray with four, fully filled cups. In the second demo, two collaborative robots will solve the Rubik's Cube.

© Inst. of Robotics, JKU

Institute of Robotics, Johannes Kepler University

Judith Igelsböck (AT), Friedrich Kirschner (DE), Sarah Buser (CH), Mónica Rikić (ES), Leoni Voegelin (CH), Tomás Montes Massa (CL), Laura Zoelzer (DE)

Enacting Innovation

Enacting Innovation is a participatory staging of the social fabric surrounding contemporary innovation practices. Participants will negotiate the roles and situations that are frequently encountered in innovation processes and act out conflicts with each other and the technical infrastructures typically employed within such contexts. The simulation is inspired by social scientific research on "innovation scripts" — the recipes followed in dealing with the omnipresent societal and economical pressure to prove innovative ability. The aesthetic dramatization of these innovation scripts aims to make innovation dynamics "experienceable" to the festival audience and provokes thinking about our powers and powerlessness when it comes to steering and interfering with processes of societal change and renewal.

Institut für Organisation, Johannes Kepler University
Studiengang Spiel und Objekt, Hochschule für Schauspielkunst Ernst Busch
Supported by Land Oberösterreich

©Friedrich Kirschner

LIT Robopsychology Lab, Johannes Kepler University Linz (AT)

Robots Talking to Me

How should robots communicate with people? What voice makes AI assistants sound trustworthy? Do we even have to listen to robots or should we always be in command ourselves? Under the title *Robots Talking to Me*, the *LIT Robopsychology Lab* presents four installations that give tangible expression to questions of human-machine relationships and invite participation: In the virtual reality game *Serum 13*, players immerse themselves in the world of a biotech lab. Tricky tasks must be solved to produce a saving serum. An AI assistant is on hand to provide support, but the question remains: When to trust the AI, when to decide for yourself? *CoBot Studio* also takes you into virtual space. In the production halls of Rubberduck Inc., an industrial robot's communication signals have to be interpreted and rubber ducks have to be sorted. It's about understanding in human-robot teams. *Chimera* is a mobile collaborative robot that physically interacts with the audience. The project *Vote Panel—The Future We Want* invites you to vote on fundamental questions about the design and use of intelligent machines. For each question that is addressed on one of the haptic panels (e.g. Should robots simulate emotions?), visitors can give a pro or con vote via a web interface. Intermediate results are displayed on the panels, thus capturing the voters' mood in real time.
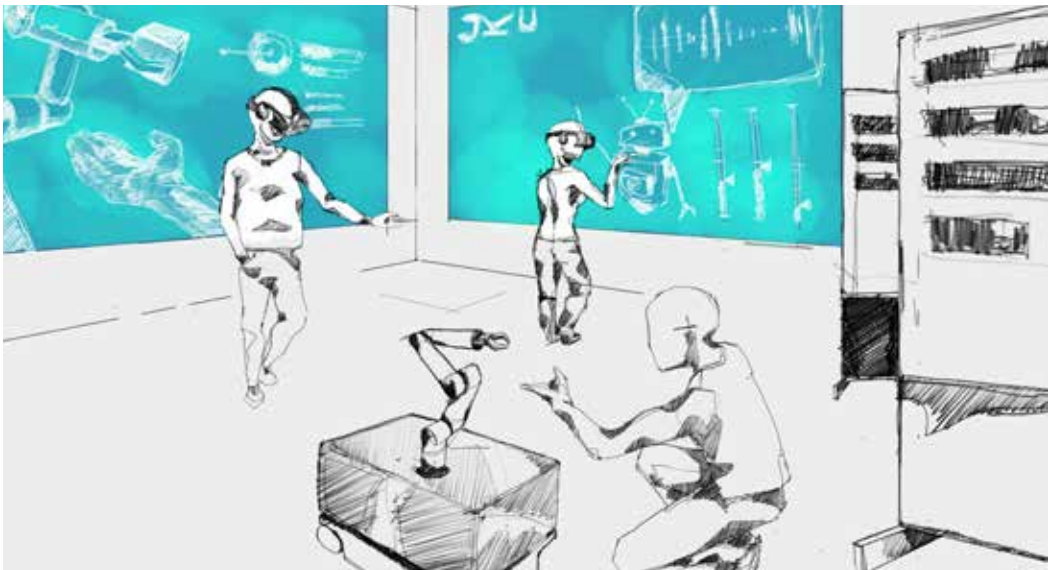
© LIT Robopsychology Lab

AI Truth Machine

The installation *AI Truth Machine* deals with the chances and challenges of finding truth through a machine. In a fictitious courtroom, the aim is to determine who is better suited to distinguish the truth from a lie in a court case: An artificial intelligence or a judge? Before being questioned by the *AI Truth Machine*, a visitor is asked to lie about a given topic. In contrast to a judge, the machine provided by *Converus®* determines the truth in a completely different way. The AI-supported truth-finding process differs from the judicial interrogation methodology in the extremely precise analysis of eye movements and pupil dilation during an interrogation. After completion of the questioning, the result is presented and the question is to be clarified whether an AI can actually replace a judge.

© Shutterstock

Digital Government in a Box

© LITLawLab

The installation *Digital Government in a Box* shows the mode of operation, potentials and limits of a digitalized public administration. The visitors interact with the *Digital Government* via a futuristic input terminal, all while visual effects enhance the experience. Accompanied by a short film, the visitors experience certain digital administrative processes in the box. The topics addressed are the networking of data stored in state registers for (partially) automated administrative processes, the autonomization of official decisions through the use of machines and the tension between data protection and data transparency. The installation stimulates reflection on the possibilities and risks of digital administration, on efficiency, citizen friendliness and fundamental rights limits of digitization. It aims to make current tasks for legal research visible and to point out differentiating solutions.

Mathias Gartner (AT), Vera Tolazzi (AT)

The Transparency of Randomness

The Transparency of Randomness is an interactive installation through which visitors can directly experience the complex interplay of randomness and stochastics in current mathematical and physical research.

27 transparent boxes, floating in space, continuously generate random numbers through dice. Through a variety of natural materials, the random number generation process is influenced by the complexity of nature and its structures. The ensemble of randomly generated numbers forms the basis for a real-time calculation that demonstrates the impressive role of randomness in scientific research. Immerse yourself in randomness and become an active part of the installation with your self-generated random number.
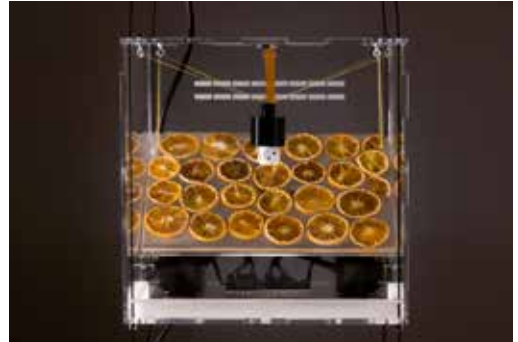
© Vera Tolazzi

Leon Kainz (AT)

dancing water
Visible Electrostatic Energy
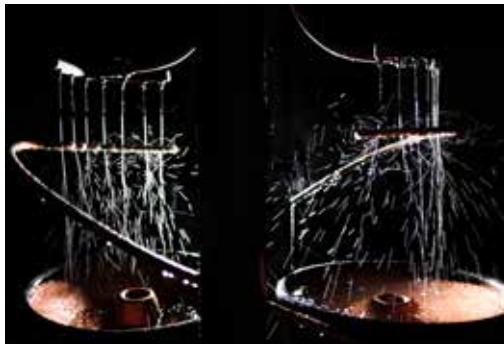
© Su-Mara Kainz

This installation is based on a simple physical principle: the generation of electrostatic charges using water. The charged water droplets whirl in dynamic tracks around copper rods and react to nearby bodies. The physical phenomenon underlying this installation is called electrostatic induction, wherein the same charge carriers repel each other, and different ones attract each other. It enables the energy of the falling water droplets to be converted into electrostatic charges. The objects have no need for electronics or hidden energy sources; only the water pump needs electricity.

Johann Höller (AT), Thomas Lorenz (AT), Florian Gruber (AT), Ursula Niederländer (AT), Tanja Illetits-Motta (AT), Raphael Blasi (AT), Andreas Rösch (IT), Stefan Küll (AT)

Treeversity

Treeversity focuses on the relation between complex data sets and the potential of data visualization to convey complex information at a glance. JKU's database contains approximately 268,000 enrollment records on 153,000 students, faculties, courses, rooms, exams, schedules and so on. A mirror of the University's inner workings, diligently recording successes, failures and developments. A portrait of its life...

Treeversity illustrates this life as a tree. Courses, grades, and exams become branches, creating different types of trees. Fully grown or still nascent, withering or growing erratically.

Each tells a story of the human behind it. You can imagine someone studying full-time, or balancing work, study, and children all at the same time. Realizing a bad choice or having found their destiny. Together, the trees reveal more. In all of the studies, what are the conditions, the evolutions, the successes, and drop-outs?

TreeVsit, © Lorenz

Treeversity shows the university as a living forest, providing an instrument to analyze its mechanisms at the same time.

Institute of Digital Business, Johannes Kepler University
Ambientartlab: Thomas Lorenz, Florian Gruber
Supported by Land Oberösterreich

Michael Roland (AT), Michael Mayr (AT), Robert Holzinger (AT), Markus Vogl (AT)

Exposed Building

© Michael Mayr

The slick surfaces of floors and walls conceal a baffling array of pipes and cables that provide a building's essential logistics and infrastructure. A building even has a certain "intelligence" due to the emergence of networking and automatization.

The building evolves into an organism, kept alive and communicating with us through these channels. At the same time they expose a vulnerability. When we open its shell, through a maintenance hatch or a control cabinet, we gain access to all sorts of vital parts of the building, in this case the electronic locking system of the office rooms. By controlling the buzzers built into the door locks, we transform the Science Park 2 building into an orchestra and it resounds like a huge walk-in instrument. The installation playfully provokes thought about the vulnerability of modern technology and its growing risks for society.

Institute of Networks and Security,
Johannes Kepler University
Supported by Land Oberösterreich

Institute for Machine Learning, LIT AI Lab, LIT Robopsychology Lab,
Johannes Kepler University (AT); Inseq Design (AT)

K — JKU's Interactive Robocar

K is a likeable little robocar: small in size, but very smart on board!

Named after JKU's famous patron, Johannes Kepler, it drives itself autonomously on changing terrain, can predict the movement patterns of pedestrians and playfully interacts with its environment. To correctly assess demanding situations and derive fast driving maneuvers, an aggregated use of technologies such as SLAM (Simultaneous Localization and Mapping), Reinforcement Learning and Image Recognition is needed. Via its LED-equipped shell and nonverbal cues, *K* communicates inner states and intentions to the people around it. Our robocar might get annoyed if you block its path for too long but, for the mostl part, *K* is in a good mood.

K optionally shares its camera view and a visual representation of its inner perceptions in real time with an external screen. Audience groups can thus "see through the eyes" of the robocar and develop a better understanding of modern AI

Foto Skizze Robocar

methods. With *K*, research at JKU in the fields of AI, Autonomous Driving and Human-Robot Interaction is made tangible to all.

Melanie Baumgartner (AT), Florian Hartmann (AT), David Preninger (AT)

The Elephant in the Room

© LIT Soft Materials Lab and Division for SoMaP

New trends, ranging from bio-inspired robotics to personalized healthcare and monitoring, create undreamt-of possibilities for a worthwhile future. Innovation that is sustainable is innovation that remains. With this vision in mind, *The Elephant in the Room* presents how technology can progress ecologically. Robots from biodegradable and edible materials become state-of-the-art through human-machine collaboration. The soft, nature-inspired designs imitate living beings in material, form and movement, and thus pave the path to a smart, sustainable future.

Can we sustainably develop technology by design? Facing ever-growing amounts of e-waste — 50 million tons of it in 2019 alone — sustainability must become a principle of research and development.

Thomas Faseth (AT), Harald Pretl (AT), Christoph Guger (AT), Anouk Wipprecht (NL)

The Pangolin Scales

1.024 Mini Brain Sensors to control a Fashionable Dress

The Pangolin Scales demonstrates the world's first 1.024 channel brain-computer interface (BCI), which is able to extract information from the human brain with an unprecedented resolution. This information is used to control the Pangolin Dress interactively, and will be shown live on a model during the Ars Electronica Festival.

The 1.024 channel BCI will also be used as an input device for the BR41N.IO Designers' Hackathon during the Ars Electronica Festival. *The Pangolin Scales* is realized by a cooperation between researchers from the Institute for Integrated Circuits at JKU, the brain-computer interface experts from g.tec medical engineering GmBH and high-tech fashion designer Anouk Wipprecht.

Thomas Faseth, Institute for Integrated Circuits, Johannes Kepler University
Harald Pretl, Institute for Integrated Circuits, Johannes Kepler University
Christoph Guger, g.tec medical engineering GmbH
Anouk Wipprecht, fashion-tech designer
Supported by Land Oberösterreich

g.tec neurotechnology GmbH (AT)

BR41N.IO Hackathon

The Brain-Computer Interface Designers Hackathon

A BCI provides a direct link between the brain and an external device. Twenty years ago, BCIs could only spell or move computer cursors. Today, they are being used in many different fields of neuroscience, such as motor rehabilitation for stroke patients, assessment and communication with comatose patients, device control for disabled people, cognitive training and neuromarketing. Machine learning, dry electrodes, wireless electrode caps and other technologies are making BCIs more powerful and practical for a growing number of users.

The BR41N.IO Brain-Computer Interface Designers Hackathon Series has been created to show these current and future developments, and the unlimited possibilities of BCIs in creative and scientific fields, bringing together programmers, engineers, designers and artists. Each team must design and build a wearable BCI-headpiece that can measure brain activity in real-time to create any sort of interaction. The hacking projects use EEG electrodes and amplifiers, and challenge programmers to code an interface that enables them to control devices, robots or applications, post messages on social media, make paintings, or enact a myriad other applications only with their thoughts. BR41N.IO also challenges creative minds to design a BCI headset with 3D printers, handcrafted materials and sewing machines. BR41N.IO aims to promote awareness of artificial intelligence, life science, art and technology, and how these can merge into innovative and exceptional BCI systems.

IFG-LIT (AT)

How to Become a High-Tech Anti-Discrimination Activist Collective

New technologies have penetrated all aspects of our lives and promise a wide range of improvements and efficiencies. Contrary to general perception, though, the algorithms on which these technologies are based are neither neutral nor do they treat everyone equally. They are as biased as the structures, institutions and developers that make them, which means racism and sexism are mostly unconsciously but systematically inscribed in their functions and outputs. The project addresses this problem and asks how discrimination in the development and application of technology can be overcome. Two lecture-performances by Safiya Umoja Noble and Lisa Nakamura question how digital media (re)shape our perception of ethnicity in particular, and identity in general. They uncover systemic racism and sexism in new technologies and provide perspectives on how we can achieve alternative and equality oriented technological developments. Four participatory workshops with experts from different fields — Adriaan Odendaal, Adriana Torres Topaga, Andrea Maria Handler, Astrid Mager, Doris Allhutter, Hong Phuc Dang, Karla Zavala, Martyna Lorenc, Nushin Isabelle Yazdani — will implement analysis as practice.

We would like to facilitate a creative conversation and mutual exchange between experts, facilitators and workshop participants.

FULL DOME

Martin Kusch, Director | Fulldome / VR & AR Lab
Ruth Schnell, Head Department of Digital Arts, University of Applied Arts Vienna (AT)

Fulldome / VR & AR Lab

University Research Infrastructure Environment

Since its inception in 2013, the Fulldome / VR & AR Lab at the Department of Digital Arts in Vienna directs and participates in an ensemble of artistic research projects, with a particular focus on the research and development of new digital applications for Fulldome, virtual reality, and augmented reality environments. Blurring the boundary between the physical and virtual worlds and allowing users to experience a sense of immersion, these media environments have become increasingly pervasive and influential in our daily lives. Questions and experiments on holistic audiovisual spatial experiences and on topics that are decisive for the future development of our society are central to the research lab. Since the inauguration of the Fulldome / VR & AR Lab, students, teachers, and researchers from many disciplines have been benefitting from the interdisciplinary exchange and knowledge-sharing around these new methods of capturing, synthesizing, and re-envisioning our world.

The dome installed at Ars Electronica is part of the Lab's infrastructure.

Applications and usage examples:
- Development of new artistic grammars in the field of immersion
- Research of new narrative image and audio concepts
- New concepts and formats in the fields of virtual reality, interactivity, artificial ntelligence, gaming, online communities and social networks
- Interdisciplinary platform for new creative processes
- Interactive 360˚ virtual walkthrough to produce a new quality of physical experience
- Research and practical experiments in perceptual research

© Krämer Senwicki

© Sebastian Roy

A compilation by the Department of Digital Arts, University of Applied Arts Vienna (AT)

Fulldome Program: Future Room and Liminal Spaces (re-edited) 360˚ film screening

The Fulldome Program of the Digital Arts Department at the University of Applied Arts Vienna presents experimental immersive works in collaboration with the University's Science Visualization Lab, Trans-Media Academie Hellerau, and the transdisciplinary performance company, kondition pluriel. *Future Room* and *Liminal Spaces* (re-edited) reveal the artistic potential of the fulldome, as does the 360˚ screening of works by researchers, teachers, and students.

From abstract generative animations to politically relevant statements, the immersive experiences in the fulldome program of the Department of Digital Arts represent a diversity of artistic positions. The *Future Room* is a participatory immersive installation for a 360˚ fulldome environment based on a speech recognition system. Audience members are wrapped in a cloud of information as they voice their choices from an array of subjects: Artificial Intelligence, Education, Energy, Finance, Genome Editing, Migration, Politics, Religion, and Work. The re-edited version of *Liminal Spaces* is comprised of animations that treat the dome as an intermediary membrane between the inside and the outside. The 360˚ film screening section presents short films and animations, most of which were produced in collaboration with the Department of Digital Arts, University of Applied Arts Vienna. Works by Martin Reinhart/ Virgil Widrich (AT), kondition pluriel (CA), and the Science Visualization Lab, University of Applied Arts Vienna (AT) will be shown, among others.

Participants/Collaborators:
The *Future Room* was created by the Department of Digital Arts (Fulldome & VR/AR Lab) at the University of Applied Arts Vienna, in collaboration with kondition pluriel in the framework of the HRSM Project, Socially Aligned Visual Art Technology and Perception (SAVATAP). A cooperation project of the University of Applied Arts Vienna (PI Gerald Bast), the Department of Digital Arts (PIs Ruth Schnell, Martin Kusch) at the University of Vienna, the Department of Basic Psychological Research and Research Methods (PI Helmut Leder) and the Austrian Research Institute for Artificial Intelligence (PI Robert Trappl), funded by the bmbwf. Concept and idea: Gerald Bast, Martin Kusch, Ruth Schnell, Peter Weibel; artistic concept and realization: Martin Kusch, Ruth Schnell.
Liminal Spaces was created by the Department of Digital Arts at the University of Applied Arts Vienna, in collaboration with kondition pluriel, Ruth Schnell, and the Trans-Media-Akademie Hellerau, Dresden. The 360˚ film screening section presents works by Laurus Edelbacher / Johannes Lampert, Roman Hansi, Thomas Hochwallner, Patrick K.-H., kondition pluriel, Stefan Krische, Martin Reinhart / Virgil Widrich, the Science Visualization Lab, Peter Várnai, and the live performance *Transient Topologies* by MONOCOLOR.

Cross Perception
work in progress

Collaborative project of the University of Applied Arts Vienna and Johannes Kepler University Linz) in the context of the cooperation project TRANS-FORM, together with Johannes Kepler University and Donau University Krems, funded by the Austrian Federal Ministry of Education, Science and Research.

A limitless space. Everything moves — light, shapes and colors. Human and machine let their sight wander and try to recognize something. The human beings search for orientation, the device calculates. It has been optimized for this purpose and fed with data.

The machine recognizes an object, imagines how it sounds out loud. The sound influences the human expectation: Machine and human perception become intertwined. The machine is not always right; its pool of experience is limited. It transmits its bias to humans.
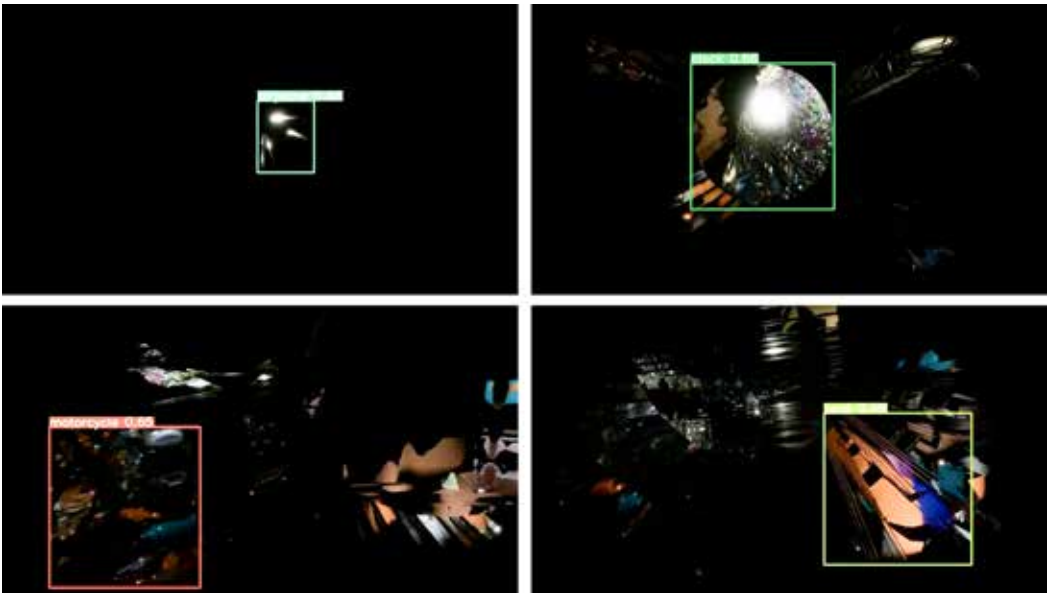
Department of Digital Arts, University of Applied Arts Vienna (AT);
Institute of Technical Mechanics, Johannes Kepler University Linz (AT)

site-inflexion
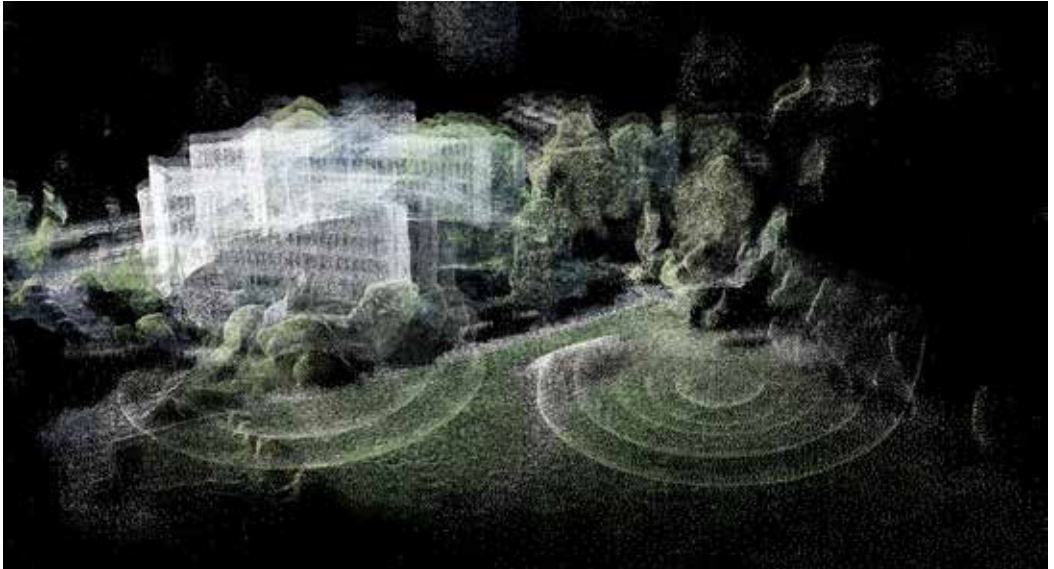
© Essl Hucek

Collaborative art and science project in the framework of "Innovation durch Universitas" (University of Applied Arts Vienna and Johannes Kepler University Linz) and TRANSFORM Project, together with Johannes Kepler University and Donau University Krems

site-inflexion is a cross-disciplinary collaboration between the Department of Digital Arts, University of Applied Arts Vienna and the Institute of Technical Mechanics at Johannes Kepler University Linz. Artists and scientists from both universities, actively engaged in creating media art and/or pursuing innovative interdisciplinary research, joined forces to create an interactive multisensory environment for a mobile architectural dome structure. The two research units intertwined their artistic and scientific research methodologies and strategies to develop *site-inflexion,* an immersive experience in a fulldome environment. The purpose of the project was to create a tangible audiovisual composition revealing the inextricably connected nature of space and sound. Acoustic parameters manifest in visual distortions, allowing users to experience the spatiality of sound through the multisensory perception of our (urban) environments. This production involves real-time visualization and sonification software, ubiquitous computing, sensor networks, tracking technologies, photogrammetry, 3D-scanning, microphone arrays, laser-scanning vibrometers, pre-rendered material, and mobile locative technologies.

GARDEN EXHIBITION

Mathieu Zurstrassen (BE)

god is dog spelled backwards

god is dog spelled backwards is a 360° kinetic artwork, and a tribute to Guy Debord's *La société du Spectacle*, first published in 1967.

"In 2019, I finished this kinetic sculpture which it meant a lot for me to complete. It had almost spontaneously earned the title: *god is dog spelled backwards*. The choice of title seemed at first, to me, only an obvious orthographic evidence, an artifact intended to divert the attention from the relevant. It was also a nod to the Fluxus movement, for which I've always had a deep fascination. That being said, I learned a little later—while trying to find any reasonable argument for this uncanny choice—that it had been actually used for the first time in 1967, to name a three-minute film directed by Dan McLaughlin. The film features 3000 years of art history in just under three minutes. At a rate of eight works of art per second to original music by Beethoven (5th Symphony). The artwork battery-operated and was at the basis of a short movie project in which I would move the device in various contexts and take short, 15-second videos. This is a way to share the importance of the context in which an artwork is displayed to the public."

Mathieu Zurstrassen (BE)

Above The Below
_ /bəˈloʊ/

_ /bəˈloʊ/ is an exterior sound installation, featuring a pipe emitting an audio file emerging from the ground. The audio file is a lecture from the book *How to Analyze People on Sight*, written in 1921 by Elsie Lincoln Benedict and Ralph Paine Benedict. The morphology of the artwork forces the listener to assume uncomfortable positions to listen to the file. It takes a while to understand the seven hour file is, in fact, a lecture of a book about the analysis of *poses & posture*s, and for the listener to grasp they are probably being analyzed by someone else. In the words of the Benedicts: "For life is largely a problem of running your own car as it was built to be run, plus getting along with the other drivers on the highway. From this book you are going to learn which type of car you are and the main reasons why you have not been getting the maximum of service out of yourself."

Above The Below, © Zurstrassen

Mathieu Zurstrassen (BE)

Elsa on the Moon

Elsa on the Moon is a kinetic sculpture tribute to Elsa Von Freytag Loringhoven, eccentric baroness and contemporary of Marcel Duchamp; ambiguously attributed with the creation *Fountain*, in 1917. Or was it Louise Norton? The fact is that, in recent years, *Fountain* — already charged with a sulphurous reputation — also poses the question of the exclusivity of creation. At a time when we are starting to reveal the involvement of the other "genre" in contemporary creation, the creator seizes History as an element in motion, changing with every perspective. In an effort to somehow give shape to time, *Elsa on the Moon* acts as a pendulum clock that jumps every 30 minutes. Like a small leap in a known and controlled landscape, it inaugurates a joyous reflection on creative veracity by focusing on the creation rather than its author(s). A perfectly balanced Elsa slowly jumps as if she were freed from terrestrial gravity.

Elsa on the Moon, © Zurstrassen

Sebastian Wolf (DE)

lovesmenot

lovesmenot is meant to hint at the often-neglected value of human action. It deals with an eternally relevant issue — automation as a blessing. The technization of our every day is exciting and leading humanity forward; however, the value of human labor, the value of craftsmanship and the arts are often forgotten. The human element, poetry, emotions are optimized away. In this sense, automation does not always yield the best possible result. This work tries to reflect that; in the most poetic way it mechanizes a deeply human action that is meant to answer one of the purest human questions "does he/she love me?"

lovesmenot © Yagin Si

Simone Barlian (AT), Jan Phillip Ley (DE), Theresa Muhl (DE), Kerstin Reyer (DE), Sophie Netzer (DE), Lena Bammer (AT), Tobias Saatze (DE)

Lochtopia feat. SISI

In ever faster, ever larger cities, private space is becoming smaller and smaller. We mostly move anonymously through public space. How can this anonymity be broken and how can these places be reclaimed for the community? Cities are organized, manifested memories that have accumulated over a long period of time and come alive through physical interaction. The Internet acts as their digital counterpart and offers new spaces of possibilities. To visualize and experience these accumulated memories is only possible within communities, their stories and images. The project Lochtopia feat. SISI poses the question: how to connect concrete and digital urban spaces? In performative space scenarios, visitors can appropriate public space with the help of digital space and record these manipulations of urban space in a digital, space-related archive.

© Sophie Netzer

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Christina Gruber (AT)

Zugzwang
The Compulsion to Find a Common Baseline in Sound

Zugzwang — German for "compulsion to move" — is a situation found in chess and other turn-based games where one player is put at a disadvantage because they must make a move when they would prefer to pass and not move.

In this case, it explores how a non-human centered approach towards the use of technology can help us to tune in with our companion species & environments. Sound can connect and, depending on the vantage, received, propagated, and perceived. The attempt to tune-in with our environments opens possibilities to critically discuss questions around listening, talking, and connecting with all our companions, living and non-living. Listening doesn't merely extend to caring for each other, but to eavesdropping on other species to prevent threats. But though sound is omnipresent, we have problems understanding it. Miscommunication and distortion are constant. Can listening once again become a central asset to

© Christina Gruber

learn about our environment? Though access to machine learning allows us to interpret planetary sounds, will this prevent further misunderstandings? How can we avoid a too human-centered perspective and start to think as a connected network, resonating on Earth?

AMRO — Art Meets Radical Openness, servus.at Research Lab

Domas Schwarz (AT)

Derotation

Derotation shows two objects which are rotating in the opposite direction. The video of a windmill is displayed on a rotating display and both rotations happen at the exact same speed. As you see the rotation of the mast around the center, it seems that the rotor blades are standing still. The speed of the animated rotor blades depends on the speed of the stepper motor. The microcontroller and tablet get the synchronized data by wireless lan connection as they react to different wind speeds. The power consuming usage of the motor concurs with the renewable generation of energy through wind turbines. The whole process
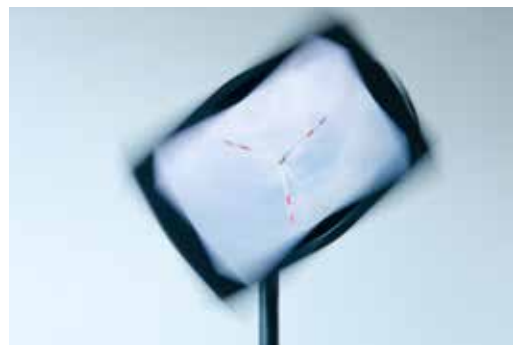
© Domas Schwarz

can stand for consciousness and responsibility of our ecologic footprint, but also for the problem of saving electricity.

Kunstuniversität Linz / Timebased Media
Markus Schmidinger

Sunjoo Lee (KR), Ko de Beer (NL)

Machine in Flux — Wood

A documentation and cartography of time and environment inspired by the growth mechanism of the tree's annual rings. The machine sensitively responds to changes of light, wind, temperature, humidity and sound — and inscribes these influences using ink on paper. It starts by drawing a circle, then follows its own line and continues to draw the next line. The spiral motion enables the machine to autonomously grow its own drawing which resembles the tree's annual rings. Through time a unique, unforeseen pattern emerges. The finished drawing shows where and when the light had been shining, temperature fluctuations, the direction and strength of the wind, and so on, through the delicate differences in the countless lines. It is an exploration into the smallest programmable building blocks that make up complex natural phenomena, and discovering the capacities of machines to emulate nature.

© Sunjoo Lee

Felix Lenz (AT)

Political Atmosphere

Political Atmosphere is the result of a several--months-long research process of tracing the invisible connections between flight turbulence, climate change and war. About a century ago, Lewis Fry Richardson — a British meteorologist and peace researcher — theorized that the same methods he used to forecast atmospheric turbulence could be applied to predict political turbulences like conflicts and war. By considering contemporary climate science, this installation further explores his hypothesis in the context of the Anthropocene. The complexity of these relations is made tangible by means of a data-driven mechanical siren and an ADS-B antenna, which allows for receiving, processing and visualizing the surrounding flight traffic. Each flight slowly accelerates the latent build-up of potential until a threshold is passed and a mechanism releases the siren. The roar of the siren, both literally and metaphorically, has become a part of reality in conflict-torn areas. At last, it is starting to echo back on western society.

© Lukas Preisinger, Werkstätte Digitale Fotografie

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Jip van Leeuwenstein (NL)

A Diverse Monoculture
Dionaea Mechanica Muscipula

The project *A Diverse Monoculture* questions the future relationship between mankind and nature: is it possible to deploy robots to find a new balance within our ecosystem? *A Diverse Monoculture* is a family of several robot species, which together form a hive of new predators. These predators are used in an attempt to restore the balance within our ecosystem. The introduction of the robot predator within the ecosystem offers all the advantages of the predator without a loss of control. The first robot predator in the family is the *Dionea Mechanica Muscipula*, the creature is designed to attract and digest oak processionary moths. The *Dionaea Mechanica Muscipula* is developed to reduce the population of oak processionary moths, which are an increasing plague. These moths are active at night and attracted to light. The robot will lure in nearby moths with its light, situated in his mouth. The mouth acts as a trap, which contains the curious moths.

Some moths are allowed to remain in the mouth since they spread pheromones that attract other moths. The other moths are processed toward the stomach of the robot where a chemical reaction of the Micro Fuel Cells will power the robot.

Ilona Bradford, Bram van Leeuwenstein, Bart Verburg, Texas van Leeuwenstein

Marlene Reischl (AT)

Still There

Still There is a video installation dealing with irritation as a state. Situations in which the perceivable does not appear to be clearly assignable can cause discomfort, uncertainty and also fascination. In an attempt to insert an inconsistent fact into your own logic, strange in-between stages are produced that may seem eerie, due to their abstract aesthetics. Manipulated through Frame Blending, the computer transforms the images it has been given to generate new intermediate ones by itself.

Lukas Truniger (CH), Itamar Bergfreund (CH), Bruce Yoder (US)

Ethereal Fleeting

A continuous series of clouds, generated by a silvery machine-like sculpture, float over their surroundings and then slowly dissolve into thin air. This seemingly natural phenomenon can be observed in strangely repetitive patterns. Its formation is programmed and conceals an algorithmic poem, coded in the winds. The air is used as an ephemeral storage medium, its content gradually dissolving over time. This is a metaphor for our modern societies, where we are constantly — both consciously and unconsciously — writing our stories in the atmosphere, and manifesting energy into tangible, if transient, forms. This installation is an attempt to synthetically reproduce a natural marvel outside its expected context. Though it might seem doomed to failure, it raises various questions regarding how we interact with our environment, and our desire to imitate — and eventually control nature.

© Lukas Truniger

Jef Montes (NL)

Marinero
Tailored by weather

Inspired by the contrast of the sea and plastic pollution, *Marinero* is intended to create an architectural blueprint that transforms organically over the course of time due to different weather conditions. The blueprint is one woven square that forms the basis for diverse variations. All produced Marinero fabrics are used (no waste). Because the finishing is already incorporated within the woven pattern, the materials take their shape from the various conditions rather than using traditional cutting and tailoring techniques. The vision is to design a new kind of production system resulting into adaptive garments that grow with us individually. The weavings have a warp of monofilament and a weft of integrated variable threads. In addition to weaving, we will also experiment with knitting techniques. The combination of these threads causes friction and results in dynamic shapes during different

© TEAM PETER STIGTER

meteorological conditions such as: rain, heavy wind or drought.

Yinan Liu (NZ), Jermaine Leef (NZ), Uwe Rieger (DE/NZ), Holly White (NZ)

Kōrero Paki (Our stories of the legends)

A cultural journey performed through 3D holographic sculptures on mobile displays

Kōrero Paki takes key moments from the Maori mythology and transforms them into 3D holographic sculptures displayed on personal handheld devices. The Kōrero Paki project uses an anaglyph stereoscopic display method to create holographic mini sculptures. Viewed with simple red/cyan cardboard glasses, these sculptures are perceived as hovering above the surface of a smartphone and appear to be dancing in the viewer's hand. The audio-visual content consists of five chapters. These are presented in the form of abstract digital sculptures designed to remind the viewer of "holographic carvings." Using a simplified motion capture process, a performer transforms the drawings into animated narratives. The overarching story includes the creation, the journey from Hawaiki, the significance of the whale, the ceremonial welcoming onto the Marae, traditional weaponry, and performing arts. Placed

at the intersection of visual arts, performance, and creative technologies, Kōrero Paki is a collaboration between the arc/sec lab and Manaia M.

arc/sec Lab: Yinan Liu (NZ), Uwe Rieger (NZ), Kathy Yuan (NZ)
Manaia M: Jermaine Leef (NZ) and Holly White (NZ)
Artwork by Maori Erstich (NZ) and Te Ahuora Macfarlane
Performing Artist: Eds Eramiha
The project is funded by Creative New Zealand and supported by the University of Auckland

© Yinan Liu, Uwe Rieger

Yasuaki Kakehi (JP), Daisuke Akatsuka (JP),
Juri Fujii (JP), Yoshimori Yoshikawa (JP), Joung Min Han (KR)

Air on Air

As we blow and make soap bubbles using our breath, we sometimes feel our presence within the floating bubbles. This work is a participatory physical installation that connects distant lands online with bubbles. The breath blown by an online participant is detected by a microphone on the tablet or the PC and transmitted to the installation site as data. A bubble machine at the installation site then creates soap bubbles based on the strength and length of the breath data. The bubble machine is also equipped with a webcam, and online participants can see the bubbles as if you are blowing soap bubbles in person at the venue. At the installation venue, multiple machines line up, each releasing bubbles based

on the breath collected by online participants. This online installation allows participants to look at the sky in a remote location across a distance. And it also gives them a way to communicate to the remote location "physically" through soap bubbles in these times of restricted mobility.

Project Members: Yasuaki Kakehi, Daisuke Akatsuka, Juri Fujii, Yoshimori Yoshikawa, Joung Min Han, Special Thanks: Wataru Date Yasuaki Kakehi Lab., The University of Tokyo

© Yasuaki Kakehi

STARTS
EXHIBITION

STARTS is an initiative of the European Commission to foster alliances of technology and artistic practice that effectively implement European policymaking to nurture innovation and that benefit the art world as well. The focus is on people and projects that contribute to mastering the social, ecological and economic challenges this continent faces. The STARTS Prize is awarded annually to innovative projects at the interface of art, technology and science that have the potential to contribute to sustainable economic and social innovation.

This year's exhibition of selected winner and STARTS projects showcases current best practice approaches for responsible innovation in the fields of bioengineering, ecology, artificial intelligence, policymaking as well as communication and media technologies.

_ Design by Decay, Decay by Design: Andrea Ling (CA)
_ EDEN — Ethique — Durable — Ecologie — Nature: Olga Kisseleva (RU)
_ c o m p u t e r 1. 0: Soft Monitor: Victoria Manganiello (US), Julian Goldman (US)
_ Perception iO: Karen Palmer (UK)
_ plasticpreneur: doing circular (AT)
_ SOCIALITY: Paolo Cirio (IT)
_ Topographie Digitale: DataPaulette (FR)
_ Hybrid Living Materials: The Mediated Matter Group (INT)
_ aqua_forensic: Gjino Šutić (HR), Robertina Šebjanič (SI)
_ Re-Textile 3D: Ganit Goldstein (IL)
_ The Wrong: David Quiles Guilló (ES)
_ CONTAIN: OpenCell (UK)

Design by Decay, Decay by Design: Ally Schmaling

EDEN: Olga Kisseleva studio
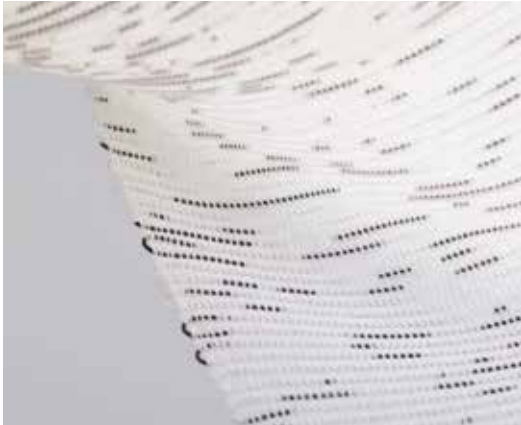
c o m p u t e r 1.0: Victoria Manganiello

SOCIALITY: Paolo Cirio

Perception iO: Karen Palmer

create
your
world
2020

garden of talents

How are experts actually created? The individuality of each person arises from innumerable possibilities, which seemingly develop into concrete interests as if by chance. Is an interest already a talent, or does the intensive examination of a certain topic become one? Is talent really inherited? Whatever the case may be, talent should be encouraged. If left hidden for too long, it will wither and die. But giving a talent the right kind of importance is often the real challenge in a young person's development. If too much pressure is exerted, interest can fade. If too few opportunities to try it out are given, uncertainty arises and weakens self-confidence. One thing is certain: everyone has talents, and their diversity creates a wealth we want to be able to share.

© Philipp Greindl

© Philipp Greindl

Autonomy and Democracy

Self-determination and independence are important developmental steps in the life of a person. One needs and also wants to take responsibility and acquire independence. Coupled with the subjective talents of each individual, this results in different needs, to which different educational systems must regularly readjust in order to enable collective decisions and further development. These elements are cornerstones of democratic processes and fundamental to our social growth. This year's *create your world* festival invites young people and the young at heart to create social and creative closeness — with physical distance. An exchange network will share projects, ideas and talents. This platform for education, experiments and different future scenarios will show a great variety of young experts, all of whom can learn from each other.

PRIX ARS ELECTRONICA

u19—create your world Exhibition

YOUNG CREATIVES AND YOUNG PROFESSIONALS

This year's u19 exhibition will invite all winners to exchange ideas and projects with each other. Their "homebase" will be the physical exhibition of the projects, where the winners can explain these to other artists and visitors.

They will share their talents and show the audience of Ars Electronica Festival their view of possible future scenarios. In 2019, the Prix Ars Electronica's u19—create your world category was divided into two sections. First, ideas and projects could be submitted to YOUNG CREATIVES (up to age 14). This sub-category impressively demonstrates how children can help shape the present and future from their own perspective. For YOUNG PROFESSIONALS (14—19 years), innovative lateral thinkers who have developed an artistic or critical project for the world of tomorrow are in demand.

© Philipp Greindl

Award Ceremony

The award ceremony of the category u19—create your world is the real highlight of the create your world festival. All 24 winning projects are awarded here. This year, the event serves as a kick-off for the subsequent networking opportunities within the create your world festival.

future walk

Bettina Gangl (AT), Birgit Pölz (AT), Helmut Doblhofer (AT), TeilnehmerInnen Virtual Office FAB Linz (AT)

The young people at the Virtual Office have thought about autonomy and how automated processes and AI will influence our future lives. Through different strategies, they will visualize their fantasies, dreams and fears. They share their thoughts and future visions in an augmented reality walk.

robodrum

The *robodrum* project is a robotic setup consisting of 4 KUKA robotic arms equipped with drums, which doesn't aim to replicate a human performance exactly, nor to be better or faster than one. Instead, it becomes an algorithmic system that allows visitors to leave acoustic traces. Rather than playing in front of one big audience, the robots tirelessly play for many small ones, with each group adding to the previous data. This is enabled through Ableton Live's capture technology, which can take human input, analyze it, and turn it into a loopable drum pattern. Creative Robotics (UfG Linz) developed a system to connect the audio software with industrial robots, so that musical tasks can be intelligently assigned to multiple machines. Through the gentle support of technology, one can create complex loops without needing training or even the physical capabilities to do so, while becoming an experimental output device for experienced musicians.

Creative Robotics, UfG Linz (AT): Johannes Braumann, Amir Bastan, Martin Schwab
Ableton AG (DE): Andrew Robertson, Brian Smith
Technology: Ableton Live using Capture and beat detection technology with Ableton Push
4x KUKA Cybertech nano KR6R1820 robots
Supported by KUKA Roboter CEE
The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

© Johannes Braumann

ACTION LAB

Participatory Science against Pollution
Leibniz Institute of Freshwater Ecology and Inland Fisheries (DE)

Pollution is one of the most critical contemporary environmental challenges. To tackle it, everyone must be involved. The ACTION Lab offers a chance to engage with cutting-edge citizen science projects that are not only addressing pollution, but also working within the ACTION project to make citizen science participatory, inclusive and citizen-led. Join us to explore light pollution, noise pollution, air pollution and hands-on mitigation of bioplastic pollution.

Street Spectra — Join the Streetlights Hunting!

Lucía García (ES)

Turn your smartphone into a scientific instrument using a cheap diffraction grating. The *Street Spectra* citizen science project lets you get surprising pictures of the colourful spectra produced by the streetlamps in your neighborhood. The information gathered in this project will help characterize light pollution sources in your city so that experts can assess the impact of the global switch-out of older street lighting to new LEDs.

Tired Moths and Quiet Stars

Sibylle Schroer (DE)

The Tatort Streetlight project works with citizens and schools to research the effect of the design of street lamps on flying insect populations. Join the team at Brandenburg maker-hub Verstehbahnhof, where local teenagers will be gathering data about pollution; before touring the four Tatort Streetlight locations and learning how to identify flying insects.

© Lucía García

© Sophia Denn

Loss of the Night

Helga Kuechly and Chris Kyba (DE)

The *Loss of the Night* team explains how light pollution affects our view of the night sky, and how our experience can be transformed into data. The presentation will kick-off a 24-hour global observation, where teams around the globe will tune in to show us what the night sky is like in their location, with the help of the Loss of the Night app.

Sonic Heritage of Inner City Barcelona

Marc Aguilar and Víctor Jiménez (ES)

Bit Lab Cultural Cooperative work on Noise Maps with residents of Raval to gather audio recordings using audio moths placed around the city, and learn how to best investigate urban noise.

Schools and the Science of Air Pollution

Sonja Grossberndt (NO)

Together with teachers and students, the team from NILU shows us how to make low cost air quality sensors, and how to best use them to investigate air quality.

What is Noise? Interdisciplinary Discussion

Marc Aguilar and Víctor Jiménez (ES)

The team behind Noise Maps invite international experts in noise and sound to discuss our attitudes to noise, its effects and affect, and our agency in shaping soundscapes in this panel discussion with time for audience questions.

Bioplastics and the New Materiality of Waste

Idil Akdos (NO)

How do we dispose of new materials safely? The CitiComPlastic team investigate how bioplastic waste can be safely transformed into compost. Join them to discuss how new materiality interfaces with environmental issues, and how we need to change our practices, structures, policies and perspectives to address this.

© Bit Lab Cultural SCCL

© Nuria Castell

© Laura Martinez

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Conferences
@ create your world

Symposium "Perspektiven politischer Bildung"

The spirits I called—Artificial Intelligence and its impact on Society, Democracy and Education

Artificial Intelligence (AI) is omnipresent, without us always being aware of it. It has been making our daily lives easier for many years, and it can manipulate humans. Can it become a danger to democracy? This symposium will explore how artificial intelligence already influences our lives, where AI has already "thought along" or even taken over thinking completely.

An event produced jointly by the Upper Austria Teacher-Training College, Upper Austria Chamber of Labor and Ars Electronica

The Civil Society of the Future

From Acute help in the Crisis to the Driving Force in Social Innovation
Unabhängiges LandesFreiwilligenzentrum ULF (AT)

When, if not now, should we talk about the future of civil society?
As with the refugee conflict in 2015, the corona crisis of 2020 highlighted the role of civil social engagement. Once again, it became clear how much the initiatives, associations, NGOs, NPOs and individuals we consider as "civil society" can do. But now that we have overcome the first shock of the crisis, we must start to shape the much talked of world after—or rather, alongside—corona.

It is necessary to develop instruments and strategies from the many new, creative forms of civil society that have emerged during the acute phase of the crisis, and that will help promote sustainable social innovation. Our symposium with experts, activists and decision-makers will focus on what these approaches might be, who and what it takes to establish them and, last but not least, what we can all actually expect from the "civil society of the future".

CoderDojo

CoderDojo Linz (AT)

The *CoderDojo* is a club for children and young people who want to learn programming and have fun doing it. In regular meetings, they learn how to write code, develop websites or program games and apps. Children and teenagers between the ages of 8 and 17 get connected with each other and with mentors who themselves work in coding. Since the concept of a dojo is all about learning, no previous knowledge is necessary and participation is free of charge. The community around the coding dojos has grown large in recent years, and it has since begun to meet online.

© Philipp Greindl

Tourismus von morgen

Ars Electronica, Oberösterreich Tourismus (AT)

Within the framework of the long-term project "Tourismus von morgen" (Tourism of Tomorrow), submissions from the pool of the Prix Ars Electronica category *u19—create your world* were selected for a commissioned project together with the organization Oberösterreich Tourismus. They invited young artists to explore what tourism could mean for the next generation. What will the world look like if we fast forward fifty years?

If we already assign certain intelligences to machines and our realities continue to change rapidly, how will we communicate with each other as individuals, pass on knowledge, share experiences? What will inspire us, what will we draw strength from, what will we want to free ourselves from and what will calm us down? What will challenge us and what will teach us?

Master Class Audio Design Goes Interactive

Master Class Audio Design @ St. Pölten University of Applied Sciences (AT)

In the age of digital technologies, the world of audio design has come to encompass a spectrum of professional profiles and orientations so broad that it is hard to keep track of.

It includes everything from traditional music production — be it in the field of recording technology or creative musical interpretation — to live sound on film sets or at stage events, and sound design developments in the area of video games and industrial research. The Master Class Audio Design allows students to experience a wide range of audio designs. This is made possible by focusing on four projects which all students design, develop, plan, implement and evaluate independently over the course of four semesters. From this year's semester projects, three were selected to be presented at the Ars Electronica Festival.

//Soundescape

Thomas Maislinger (AT), Stefan Nebel (AT)
A MIDI based music-adventure game introducing players to modal music scales. In order to fit the given musical background structure, randomly generated melody pitches must be chosen within the appropriate musical mode. A metronome helps find the right timing for hitting the keys on the attached MIDI keyboard. The project is based on Unity 3D including Audiokinetic WWISE.

Rumbler

Dominik Lanterdinger (AT)
A software tool to quickly create ready-to-go rumble sounds, it provides a sonic basis for electronic music producers in the genres of industrial and warehouse techno. The tool itself is an Ableton Live audio effect device using Max for Live.

Schallabsorber

Lukas Zeiler (AT), Theresa Kühmayer (AT)
The aim of this project is to call attention to the ever-growing amount of textile waste in our society. The European Union produces more than 5.8 million tons of textile waste each year, of which only 1.5 tons are recycled. All remaining waste is incinerated. Our redesign of the common porous absorber combines functional sound absorption and sustainable thinking. Instead of using foamed plastic, we construct with wood and regional textile waste such as old towels, clothes and cloth.

//Soundescape, © Thomas Maislinger

Schallabsorber, © Lukas Zeiler

Tagtool Connect: Hybrid Online/Offline Projection Art Jam session

Tagtool Crew / OMAi (AT)

For their fourth appearance at Ars Electronica Festival, OMAi present the first public online multiplayer Tagtool session, with selected international artists joining forces over the internet to create spontaneous projection art. Tagtool is an app that transforms a multitouch tablet into a live visual instrument. By connecting a digital projector, artists can paint and animate collaboratively on walls or over entire buildings. Tagtool is used by creatives around the world, has received multiple awards, and was featured by Apple in videos shown at the WWDC keynote in 2014 and 2016. During the corona pandemic, OMAi upgraded the existing functionality for local multiplayer sessions to work over the internet. Now artists can connect from their studio (or sofa) and perform for an audience on the other side of the world. This also facilitates hybrid performances, where some artists perform locally, and others join virtually. At Ars Electronica Festival, OMAi will host a hybrid outdoor projection session with live contributions from several experienced Tagtool artists working remotely from their home countries. For those who can't make it in person, the event will be streamed on Twitch. Join the jam!

Lichtgedichte First Multiplayer Session Bridge, © OMAi GmbH

#festivalstories

Young filmmakers, young talents, young professionals are asked to film mini-documentaries that capture their perspectives and impressions of the festival's themes. Instead of one general documentation of the festival, eight short stories will be produced, including different slots and protagonists.
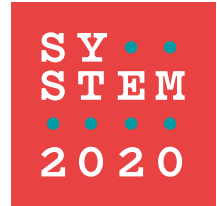
Reparatur der Zukunft
Österreich 1

With the *Repairing the Future* initiative, Ö1 wants to address the questions of 20 to 30-year-olds and give their ideas more space. Ars Electronica is presenting two projects around this theme:

© Lunghammer, TU Graz
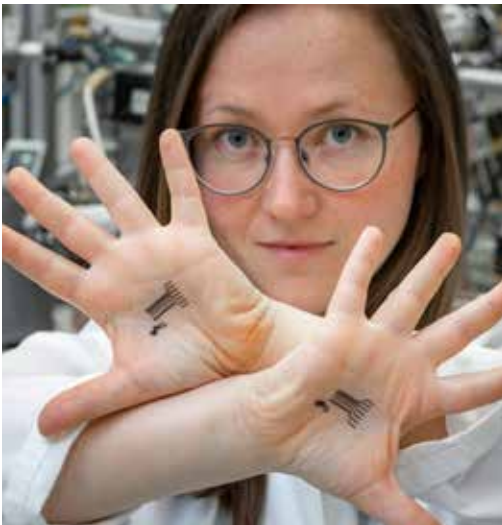
Smart Tattoos
Katrin Unger (AT)

It is a challenging task to design a flexible pH sweat sensor that is bio-compatible, has skin-like elasticity and is sustainable in acidic environments. In this project, polymer electrodes are ink-jetted or screen printed on temporary tattoo paper and coated with a bio-compatible pH responsive hydrogel via initiated Chemical Vapor Deposition. Such sensors have a remarkable sensitivity to pH. This novel combination allows for a very thin sensor, excellent conformal adhesion to the skin and great pH sensitivity which, in combination, open the door to a wide range of interesting applications.

Code Poetry

Cornelia Travnicek (AT)

The Vienna Code Poetry Slam was established in 2015, inspired by a similar event taking place at Stanford University. Code Poetry celebrates the fusion of human and machine language, the inherent poetry of technology and the poetic possibilities technology opens up for art. It is also a means of self-empowerment for writers, enabling them to be meta-creators of digital art and placing them at the top of the creative process at a time in which computer programs are already generating certain kinds of texts for everyday usage. Cornelia Travnicek, a computer scientist employed at a research center for virtual real-ity and virtualization and a renowned writer and poet herself, started a cooperation between the Lower Austrian writer's association Literaturkreis Podium and the student body of the Technical University of Vienna, which led to the first Viennese Code Poetry Slam being held in the Festsaal of TU Wien in 2015. Admission of contributions to the Code Poetry Slam is open to everybody, just as it is at a typical poetry slam but, due to technical issues, code poetry must be submitted online in advance. The code poetry is then presented at the event and the audience chooses a winner for the night.
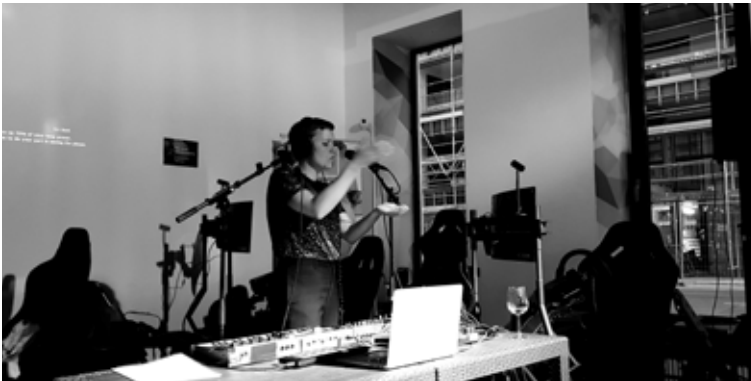
© Didi Drobna

© Didi Drobna

CONFERENCES, LECTURES, WORKSHOPS

Conferences

Home Delivery
Ars Electronica x Digital Cross Over

We're coming to you! If you cannot come to the Ars Electronica Festival because of the global lockdown, the festival will come to you. Home Delivery is a full day conference with a focus on global pandemic responses. Digital platforms, contents and approaches which have evolved from the pandemic crisis — emerging from the network and made manifest through it — will be presented. Nothing seems more important at the moment than to connect and maintain intensive intellectual, artistic and human contact, exchange and dialogue. Part of this format are the panels *Business Models for Online Contents* and *Get.Inspired* — presenting interesting, diverse practices and approaches with a focus on digital and virtual projects, virtual events, platforms and contents.

2020 — Finally Digital?!
Blockchain.art
curated by Christina Steinbrecher-Pfandt (DE), Renger van den Heuvel (NL)

2020 started with a bang that made the art industry pivot away from its established codes of conduct almost overnight for sheer survival. From the exchange of courtesies to remote work structures, old customs required immediate redesign in response to the crisis. As a result, the online space gained even more significance as the only platform for business and commercial transactions, affecting even the art industry and its age-old reliance on in-person interaction. However, across the art industry's network of galleries, artists, institutions, auction houses, and biennials, the speed of adaptation and ability to process the ongoing iterations in order to find a customized response has varied dramatically.

The conference will feature notable members of the art industry and their assessments of the art world's digitization progress over the past year.

COVID-19 Crisis

Scenarios and Prospects for the Future: How to Proceed?
Walter Ötsch (AT)

The COVID-19 crisis is not only a natural phenomenon: it is also a social one. It underscores how vulnerable individual countries are, and whether and how they are able to respond to the pandemic. Beginning in spring 2020, society, politics, media and the economy have been under unprecedented scrutiny: Do they have the strength to act appropriately? It is clear that, in economic terms, this is the biggest crisis in 100 years. The question of how things can continue — not only economically — moves many: What scenarios are possible? We invite people from the fields of philosophy, sociology, economics and media studies to take part in a public discussion of these questions and to offer suggestions for the future of our society.

Introduced and moderated by Walter Ötsch, Professor of Economics and Cultural History at the Cusanus Hochschule für Gesellschaftsgestaltung.

Autonomy — Democracy

how our perception of AI is already changing our society, our view of democracy and how we deal with public opinion
Curated by Renata Schmidtkunz (AT) and Gerfried Stocker (AT)

> **"What's frightening about AI isn't terminators and super intelligent machines: it's the way AI works to centralize knowledge and power in the hands of those who already have it and further disempower those who don't."**
> **Meredith Whitaker**

The symposiums addresses questions of how to deal successfully and sensibly with "the digital", to use it as our tool, but also learn not to let everything be "pushed in our face". Self-determination and personal responsibility, curiosity, creativity, empathy, are therefore central key competencies, especially in the digital age — probably just as important as programming. In the end, it is not about defending against AI, about preventing it, but on the contrary, it is about empowering us, as a society and as individuals, to benefit from the promising possibilities of this technology. The symposium is curated by Renata Schmidtkunz, a journalist, filmmaker, Protestant theologian and presenter at ORF. She is especially known for her Ö1 series of talks.

AIxArt&Society

Ars Electronica x Artificial intelligence Lab

A series of panel discussions will be presented as part of the European ARTificial Intelligence Lab this year.

Every evening, there will be one panel dedicated to a different topic, aiming to elucidate and educate about the impact of AI on society. The panels will bring AI related scientific, technological and artistic experts together in order to contribute to a critical and reflective debate beyond the technological and economic horizon of artificial intelligence.

The European ARTificial Intelligence Lab is co-funded by Creative Europe Programme of the European Union.

AIxHumanity

Ars Electronica x Amnesty International Austria

Machines can accomplish repetitive tasks with absolute precision. With recent advances in artificial intelligence, they are also gaining the ability to learn, improve and make autonomous decisions, in order to fulfill that were previously thought to depend exclusively on human expertise, creativity and intuition.

This means algorithms, artificial intelligence, machines and robotics hold potential that interrogates our current understanding of humanity. What challenges and opportunities does this entail?

How can artificial intelligence be used to protect and increase human rights? What are the responsibilities of industry, research, politics and civil societies? In cooperation with Amnesty International, this panel will address precisely these questions and discuss them with experts.

The New Real: Experimental AI and the AI Lab

Ars Electronica x Edinburgh Futures Institute

The New Real explores the boundary between the real and the artificial as we attempt to emerge into and understand the so-called New Normal. Individual and collective resilience is predicated on the wider use of networked, online tools and environments by the majority of the population in a huge diversity of professional, domestic and leisure settings. At the same time, the crisis is unfolding in a context in which trust in data-driven online content and interaction are being challenged like never before.

The New Real is presented in partnership with Edinburgh International Festival, as a project of the Edinburgh Futures Institute that takes on the vast sweep of these issues through the lens of two particular online artistic inquiries. A space for discussion and debate will be created in response to experiences of the pandemic.

AIxEcology
Ars Electronica x Austrian Council for Robotics and AI

The panel on *AIxEcology* will focus on the importance of computer-controlled systems for ecology and the environment. Artificial intelligence can be used to save water, stop species loss or detect plants in the field. By optimizing the monitoring of ecosystems, a significant contribution can be made to reduce the risk of climate change and counteract it, as more and more projects try to fight it through data and artificial intelligence. However, the enormous potential of AI also carries great responsibility, including ethical and social issues, but also security and control risks, as in, for instance, the question of how systems can be protected from unauthorized access.

AIxDemocracy by IMPAKT: Radicalization by Design
Ars Electronica x IMPAKT

Social media platforms are feeding the raw material of youth culture directly into the nationalist populist insurgency that is currently sweeping through the planet. Evoking the fear of an existential enemy at the gates of Fortress Europe — or more often, an enemy within — this new political style is especially successful in the online culture wars. *Radicalization by Design* will discuss the question of whether our media are radicalizing us. In connecting us, are social media also tearing us apart? How do trolls, conspiracy theories, memes and fringe platforms impact politics today? The panel discusses issues of freedom of speech, extreme speech and deplatforming.

AIxUncertainty
Ars Electronica

The *AIxUncertainty* panel focuses on the limitations and uncertainties artists face when developing their work in the frame of AI.
What are the challenges for collaboration at the intersection of AI and the arts?
What progress can be seen, and where is it failing?

What problems do artists face?
What frameworks must be created for artists to access their latest research? This panel will draw insights from leading experts in the field to critically discuss possible new developments and opportunities.

AIxMusic Panels
Ars Electronica x AIxMusic Gardens

Under the title *Artificial Stupidity,* this year's AIxMusic panel will discuss the (de)mystification of the hype around AI through its role in music. Additionally, we have invited high-level partner institutions, including IRCAM, the Royal Institute of Technology of Stockholm (KTH), BOZAR, Open Austria and Sónar+D, to host panels on the intersection of AI and music. The program focuses on challenges and future directions for the link between computers and art. What are its actual possibilities and limitations when AI is used for music composition, production and performance?

The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

Women in Media Arts
Ars Electronica

In 2016, Ars Electronica launched one of the largest online databases for women in media arts. This database, first dedicated to the women pioneers of Ars Electronica, was then opened to all female artists working with digital means as a tool for artistic expression. A whole program focus was thus established and will be presented this year in two panels.

The Women in Media Art: Telematic Performance
Alexandra Murray-Leslie (NO), Claudia Schnugg (AT)

This panel will investigate approaches in telematic collaborative art production and telematic art reception through the voices of four artists and researchers experienced in the cutting/edge production of telematic performances and collaborative music production.
Alexandra Murray-Leslie (co-founder Chicks on Speed) and Claudia Schnugg will trace the beginnings of the female tradition in telematic art and present the All Women's Networked Jam Session. Tina Frank will illustrate the effect and technical influences of the visual components of A/V performances. Ximena Alarcón will contribute insights on liminal space from a migrant's perspective, and Anat Ben David will provide specific insights from the vantage of music production. The panel will be opened by representatives of the city of Linz who will inform about activities and measures of equality in Linz.

FEM
Women in Art, Science and Technology

The panel *On Roots and Fruits* is a collection of talks from some of the founding members of *FEMeeting: Women in Art, Science and Technology* on the impact of its conferences and other community activities, and their perspective on the future development of women in art, science and technology. *FEMeeting* aims to disseminate projects carried out by individuals who identify as women to contribute to (a) the development of research methodologies in art and science and (b) the development of collaboration strategies that can increase knowledge-sharing and bring communities together.

Key Notes
Ars Electronica

In this edition of Key Notes, the focus will be on extraordinary female visionaries that are forming the very world we are inhabiting now and for generations to come. Thought leaders in the digital ethics of AI and bridge-builders with business will give insights on current research, artistic projects, and experiments.

with Christina Agapakis, Jonah Bryson, Lynn Hershman Leeson and Neri Oxman

Future Humanity Journey
A day in 2040 — What would our day look like in 20 years?

In this project, four experts from diverse backgrounds were invited to discuss the future of humanity, from global-scale issues to more subtle daily joy. This discussion is integrated into a short film that shows an imaginary day in 2040. The final scenario and video presenting the highlights of the session will be shared at the festival. The audience is also invited to further discuss and expand on the vision of the Future Humanity Journey.

The Civil Society of the Future
From Acute help in the Crisis to the Driving Force in Social Innovation
Unabhängiges LandesFreiwilligenzentrum

When, if not now, should we talk about the future of civil society? As with the refugee conflict in 2015, the corona crisis of 2020 highlighted the role of civil social engagement.
Once again, it became clear how much the initiatives, associations, NGOs, NPOs and individuals we consider as "civil society" can do. But now that we have overcome the first shock of the crisis, we must start to shape the much talked of world after — or rather, alongside — corona. It is necessary to develop instruments and strategies from the many new, creative forms of civil society that have emerged during the acute phase of the crisis, and that will help promote sustainable social innovation. Our symposium with experts, activists and decision-makers will focus on what these approaches might be, who and what it takes to establish them and, last but not least, what we can all actually expect from the "civil society of the future".

STARTS Day
Innovation at the Nexus of Science, Technology and the ARTS
Ars Electronica x STARTS

The Science+Technology+Arts = STARTS Initiative is a program of the European Commission to encourage synergies between the arts and technology that support the innovation industry and society. STARTS promotes the inclusion of artists in research and innovation activities throughout Europe. The STARTS Day offers insights into collaborative practice at the intersection of art, technology, science and industry. Different discursive formats, presentations and networking sessions showcase extraordinary work, including projects implementation, methods and impacts. This year's program covers a broad spectrum of topics, ranging from the potential of Art Thinking in the STARTS field to best practice examples of collaborations between art, science, industry and research; shedding insights into urban manufacturing and the future of fashion design, and tackling the role of artists in envisioning the future of cities and urban planning.

This event is realized as part of the STARTS Regional Center project and co-funded by the European Commission.

© Jürgen Grünwald

© vog.photo

STUDIOTOPIA —
Science. Art. Anthropocene.
Ars Electronica x STUDIOTOPIA

Society may be reeling from a series of unexpected economic and existential crises, but many ominous and all-encompassing global catastrophes are still ahead.
The Sustainable Development Goals adopted by the United Nations in 2015 offered strategies to face these looming challenges by providing a "blueprint to achieve a better and more sustainable future for all." To act on this blueprint, we require diverse expertise and experimental and innovative approaches.

STUDIOTOPIA is a European initiative that seeks to activate the collaborative and interdisciplinary expertise required to face these future challenges by implementing an inverse art and science residency model. Scientists from diverse disciplines responded to an open call to work alongside and learn from leading European artists. At this year's Ars Electronica, future problems will be explored and future solutions hypothesized with the broadcast beginnings of a 17-month conversation between artists and scientists.

Expanded Animation 2020:
Appeal of the Analog
Ars Electronica x Upper Austria University of Applied Sciences
Hagenberg Campus

In collaboration with the Upper Austria University of Applied Sciences' Hagenberg Campus, the 8th Expanded Animation symposium carries on a process launched in 2013: to map the wide-ranging domain of animated worlds of imagery beyond well-trodden paths. The symposium stays the course originally set at its inception, and presents theoretical positions and perspectives from the art world, the R&D field and the industrial sector. Its mission: To function as a driving force advancing interdisciplinary discourse. This year's symposium, under the title *Appeal of the Analog,* offers several panel discussions on current trends in the extended field of computer animation.

Prix Forum
Ars Electronica

The Prix Forum is a platform for sharing cutting-edge art forms and elucidating their role in society through talks and discussions by this year's Prix Ars Electronica winners and jury.
This year's Prix Forum the following themes in each category will be discussed:

What is "+" of Interactive Art in the Age of Uncertainty? (Interactive Art + Category)
What does community mean to you and how do you try to leverage communities to drive social change? (Digital Communities Category)
What is "Animation"? — How do you "Animate" the work? (Computer Animation Category)

DIRTY LIVES BETTER
Speech of the Ministry for Homelandtrash and International
Affairs followed by press conference
Barbara Ungepflegt (AT), Elsbeth Wallnöfer (IT)

© Jana Enz

Since December 2017, Barbara Ungepflegt has been Minister for Homelandtrash and International Affairs. She takes care of dirt, waste and best relations between foreigners, animals and dumplings. Pollution is necessary and inevitable if the rampant cleanliness mania in Europe is to be stopped. First steps have been taken. Barbara Ungepflegt makes sure there is more dirt and filth, declaring war against everything clean. This is the only way for people to grasp the *DIRTY LIVES BETTER* program that the minister and her team are striving for. *DIRTY LIVES BETTER* is a major package of measures that Minister Barbara Ungepflegt and Elsbeth Wallnöfer, chairwoman in the home country, have put together to lead civilized society into a bright dirty future. The Minister will present the *DIRTY LIVES BETTER* program at the 2020 Ars Electronica Festival.

Best Practices for the Conservation of Media Art from an Artist's Perspective

Rafael Lozano-Hemmer (MX)

For the past five years, media artist Rafael Lozano-Hemmer has been developing a system of procedures to help his studio deal with the maintenance of hundreds of computerized artworks that are in collections around the world.

In this talk, Rafael will go over the main methods to accomplish this, in the hope that other artists will adopt them and create realistic expectations for potential collectors. This presentation will outline what media artists may choose to do on the subject of conservation in order to i) simplify their lives, ii) generate income, and iiii) take ownership of how their work will be presented in the future.

Networked Archives

Ars Electronica

In a world in which we increasingly rely on online content, media art archives and platforms are no exception. The Networked Archives panel addresses their role in making media art accessible online, and highlights various approaches to the field. As archives and metadata are central issues and the base for the digital content sector they are evolving into important online value chains. How can archives be monetized, contribute to the developments in the media art markets and form base for online platforms? Following short presentations of the panelist's current projects and thoughts on the topic, these questions about accessibility and attractivity, added values and joint efforts needed will be discussed. Before the panel, a talk will be given by Rafael Lozano-Hemmer, who will reflect on the role of the artist in the process of archiving media art and later join in on the debate.

Perspectives of Political Studies
Upper Austria Teacher-Training College

The spirits I called — Artificial Intelligence and its impact on Society, Democracy and Education

Artificial Intelligence (AI) is omnipresent, without us always being aware of it. It has been making our daily lives easier for many years, and it can manipulate humans. Can it become a danger to democracy? This symposium will explore how artificial intelligence already influences our lives, where AI has already "thought along" or even taken over thinking everywhere.

An event produced jointly by the Upper Austria Teacher-Training College, Upper Austria Chamber of Labor and Ars Electronica

STEAM INC.
STEAMhouse, Birmingham City University

STEAM thinking is a process promoting collaboration between the arts, science, technology, engineering and maths.
It is an integrated approach to education, propagated from STEM, that acknowledges how the artistic qualities of creative and critical thinking are indispensable to innovation. Diverse innovative STEAM approaches in higher education from across Europe are explored within the *STEAM INC* project, with best-practices presented at this year's Ars Electronica.
The conference offers inspirational examples of integrative and interdisciplinary education and explores how they be could be further adapted and implemented within other educational and cultural contexts.

Symposium UNCANNY FRIENDS
Department of Media Theories (Gloria Meynen), University of Art and Design Linz, in collaboration with IFK Vienna (Internationales Forschungszentrum Kulturwissenschaften) and the Working Group Data and Networks, Gesellschaft für Medienwissenschaft

From delinquent to influencer, the profile has had a surprising career. Hardly a day goes by without a new one. They are touched all the more eerily when, through AI, their digital doubles awaken to a second life. Robots that resemble humans too much instill fear and terror. Like us, but never familiar, they inhabit the "uncanny valley", a metaphor defined by roboticist Masahiro Mori in 1970. Today, the uncanny valley has almost disappeared. What remains is a suspicion: that the ghosts and the undead are not only the robots, but ourselves as well. Fifty years after Mori, the symposium invites us to walk through the "uncanny valley" again. It is not the androids that seem uncanny to us, but the always-on interfaces, the Siris and Alexas who make contact with us, unasked and unnoticed, recording and doubling life until their expiration. Lectures, readings and performances question the uncanny doubles between man and machine, face and interface, fact and artifact, data and speculation.

Workshops

Digital Cross Over Workshop
International Music + Media Centre x Ars Electronica

Digital Cross Over is a cross-sector project within the Creative Europe funding programme of the European Commission. As part of this project, Ars Electronica will organize an expert workshop to discuss and explore the current challenges faced by creative and cultural industries today. Who pays for the content created by cultural and creative professionals? How do I reach my target group in the digital age, and how can I learn from other industries who are or have been facing similar challenges? The invited experts will elaborate on best practices for tools, platforms, methods and frameworks for digital content and how these can be monetized for both institutions and creators.

Digital Cross Over is co-funded by the Creative Europe Programme of the European Union.

AIxMusic Workshop Program
Ars Electronica

With the aim to facilitate audio production, we invited partner institutions to give a hands-on workshop on artificial intelligence and music. During a hackathon, forty participants divided into six groups will be faced with different challenges. Philippe Esling, from IRCAM, will present techniques for lightweight AI, a demonstration of embedded technologies and a 64 Kb competition. The Royal Institute of Technology of Stockholm (KTH) will be hosting an interactive music lesson, where the *machine folk music school* teaches an AI-generated folk tune in the aural tradition.

The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

BR41N.IO Hackathon
The Brain-Computer Interface Designers Hackathon
g.tec

The BR41N.IO Hackathon brings together programmers, engineers, designers, artists and/or enthusiasts, who collaborate intensively as an interdisciplinary team. Each team must design and build a unique, playful and wearable headpiece that can measure useful EEG signals in real-time to create any sort of interaction. The hacking projects use EEG electrodes and amplifiers, and challenge programmers to code an interface that enables them to control devices, robots or applications, post messages on social media, make paintings, or enact a myriad of other applications only with their thoughts. BR41N.IO also challenges creative minds to design a BCI headset with 3D printers, handcrafted materials and sewing machines.

How to Become a High-Tech Anti-Discrimination Activist Collective
Institute for Women's and Gender Studies, Johannes Kepler University Linz

New technologies have penetrated all aspects of our lives and promise a wide range of improvements and efficiencies. Contrary to general perception, though, the algorithms on which these technologies are based are neither neutral nor do they treat everyone equally. They are as biased as the structures, institutions and developers that make them, which means racism and sexism are mostly unconsciously but systematically inscribed in their functions and outputs. Two lecture-performances and four workshops address this problem by asking how discrimination in the development and application of technology can be overcome.

Project concept and organization: Doris Weichselbaumer, Waltraud Ernst and Julia Schuster, Institute for Women's and Gender Studies, Johannes Kepler University Linz, www.jku.at/ifg

Art Thinking Program
Hakuhodo (JP) x Ars Electronica (AT)

Art Thinking Forum — Humanizing Technology

"Art is a catalyst for shaping a better future society."

The Art Thinking Forum is a platform for discussing the role of art in the future through cutting-edge examples of creative chemistry between various disciplines and art, and sharing expertise on how to utilize art for a better society.
Art Thinking is a process to question common sense that each one of us has a compass for through practice and dialogue. In the age of uncertainty, when the conventional wisdom of the world has been turned on its head, *Art Thinking* is becoming more and more important.
Ars Electronica has always been interested in the impact of new technologies on our lives, in discussing the cultural and social challenges we face, the role of humans, and how we have the potential to shape our future. Meanwhile, Hakuhodo has used its *sei-katsu-sha* inspired creativity to create new value for society by staying in step with our changing values over the decades.
What does *Humanizing Technology* look like to help humans be human, rather than human-centric, in pursuit of convenience and efficiency? This symposium invites activists who are practicing *Art Thinking* in art, industry and society to talk about the roles and benefits of art from their perspectives.

Creative Question Challenge

"Creating Questions for the Future."

The *Creative Question Challenge* (CQC) is a new brainstorming format in which speakers explore and present creative questions in a 30-minute dialogue.
In the year 2020, the world is facing many challenges due to the virus called Covid-19 and the distortions caused by it. In the new, uncertain future of our everyday lives, there is the need for a space to discuss the essential questions for the future, rather than easy solutions to problems.
The CQC brings together two speakers from different disciplines and backgrounds, with a facilitator called Catalyst to create questions for the world to ponder within a 30-minute time limit.
The CQC's online platform doesn't only provide a live experience of CQC's taking place around the world, it also provides access to previous CQC's. In addition, reactions to those CQC's, or actions on the questions generated, are also visualized and encourage new participation.
The CQC is based on the Future Innovators Summit (FIS), which has been held at the Ars Electronica Festival since 2014. Both FIS and CQC were incubated in collaboration with the Japanese communication and design company Hakuhodo. Ars Electronica and Hakuhodo are working together to promote *Art Thinking,* through experiments such FIS and CQC.

ART THINKING   DESIGN THINKING
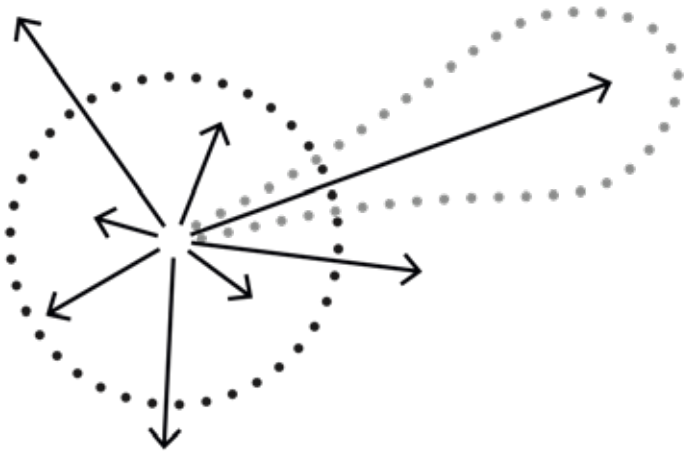
Future Innovators Summit Tokyo @ Tsukuru Ozaki /
Ars Electronica Tokyo Initiative

The AIxMusic Festival, a
S+T+ARTS flagship event, is
organised by Ars Electronica
and the European Commission.

AIxMUSIC

Last year's launch of the AIxMusic Festival at the extraordinary site of St. Florian Monastery was a huge success. It proved to be a promising starting point for a platform that doesn't only address important issues on the ethical and creative dimensions of artificial intelligence, but also brings together great minds from a variety of disciplines on an international scale. As a forerunner and early adopter of technology, music is the ideal medium to spark a debate around these topics. Thus, for the second time, Ars Electronica is organizing the AIxMusic Festival in collaboration with the European Commission as part of the STARTS initiative. In 2019, the program was focused on artistic improvisation through artificial intelligence to provoke human encounters and emotions, and to giving a broad overview of the historical and theoretical dimensions involved in the interplay of music, composition and technological progress.

This year, the AIxMusic Festival provides deep insight into the latest research and artistic practices developed in conjunction with artificial intelligence, with special attention to its potential to facilitate networked remote collaboration among musicians. In light of the difficult situation presented by coronavirus, digital information and communication tools became crucial solutions for artists to interact and perform at all. However, it is also clear that artificial intelligence harbours even greater possibilities for a networked approach to music, which is why Ars Electronica wants to contribute to the steady research and development of the field, by actively encouraging interdisciplinary experiments with this technology. Due to the hybrid structure of the festival this year, the program includes on-site performances in Linz and other locations worldwide that will be streamed or showcased entirely online. The online platform invites different professionals — artists, musicians, composers and researchers — to discuss human-machine interaction alongside concerts and performances, conferences, workshops and online exhibitions.

THE MAIN GOALS OF THE AIxMUSIC FESTIVAL ARE:

_ to bring together artists, creators, computer scientists, philosophers, industry people and policymakers.

_ to explore the complex and fascinating relationships between culture and technology.

_ to celebrate the human spirit, creativity and ingenuity, as they find their expressions in the arts, as well as in science and technology.

_ to better understand the impending disruptions and forces that will result from new developments, and the increasing presence of autonomous digital systems.

_ to develop the necessary skills and strategies to stay ahead and in control of ongoing changes, especially as relates to new applications of machine learning in many areas of our daily life.

_ to comprehend and strengthen the synergies and potentials of STARTS (Science Technology and Arts) collaborations as a source for discovery and innovation.

_ to initiate new ideas and alliances towards a specifically "European way" for a culture and humanity-driven development of AI technologies and applications.

Yuri Suzuki (JP)

The Welcome Chorus

The Welcome Chorus is an interactive installation comprised of 12 interactive horns situated on the Southern Terrace beside the entrance to Turner Contemporary, inviting visitors into the gallery space. As a collaborative work, it utilizes Artificial Intelligence to create a sonic experience for the visitors. There are two ways to engage with the Welcoming Choir. First, with local musicians' help, lyrics and melodies were created at workshops to generate the sound library. These were then fed into the AI for output at the Turner Contemporary. The second method is to encourage visitors to speak into the sculptures, which will generate musical feedback from the AI. The AI will recognize tonal changes in the voice, tempo and specific words, then produce a short melody based on the visitor's entry. Every few minutes, the Welcoming Choir performs a short piece based on the previous hours' input. This continual engagement creates unexpected moments as visitors enter and exit the gallery. Every moment is unique.

Kerstin Ergenzinger (DE)

Pluvial

Pluvial is a sono-tactile architecture that follows the associative and physical quality of rain noise. It connects the listening body with a sonic, animated and partly self-organizing instrument. An acoustic environment arises that unfolds in time and space. The eighty-channel sculptural instrument consists of self-made, digitally controlled drums that work according to the String-Drum principle and use the shape memory alloy Nitinol as instrument string. Their metallic resonance tubes lift and lower at the heat-sensitive, kinetic nitinol strings, sending and knocking swelling rhythms and rushing harmonies through space. In analogy to the phenomenon of rain, these string drums are driven by random on-off voltage pulses, which in turn are modulated by the density and intensity of collected precipitation measurements on the world's oceans. The physical body of the drum cloud acts like a set of bandwidth filters. In addition, each drum is equipped with a feedback pendulum allowing the rhythms of the individual drums to diverge further.

The Welcome Chorus, © Kate Radiomargate

Pluvial, © IvoFaber, KIT Duesseldorf

SPLEEN MACHINE, © Alex Braga

Alex Braga (IT)

SPLEEN MACHINE

Alex Braga explores the relationship between future, art, society and technology, between mankind and machines.

SPLEEN MACHINE documents years of Alex Braga's research in the field of AI, and the creation of a new musical instrument called *A-MINT,* which is the keystone to so-called "Augmented Music". In *SPLEEN MACHINE,* a robot seems stuck in a mystic crisis and begins to pray. Though exponentially more efficient than humans, machines will never succeed in connecting to a metaphysical world, were the meaning of life itself is shaped. That is why humankind will always be the centerpiece of our sustainable development, and why

machines will never replace us.

But beware: nowadays spiritual gestures are becoming meaningless for humans as well. If we let go our humanity, we also reliquish our grasp on the beauty and meaning of life. This has been defined as the new Digital Humanism. We are the guardians of the Meaning of Life. Machines are the force to help us forge the future.

Alex Braga: concept — music — visuals
Music AI software: Alex Braga — Francesco Riganti Fulginei — Antonino Laudani
Visual AI software: Alex Braga — Francesco Riganti Fulginei — Antonino Laudani — Massimiliano Nicolardi
Robot: Istituto Italiano di Tecnologia, Nikos Tsagarakis

Artemi-Maria Gioti (GR), Szilárd Benes (HU)

Bias, for bass clarinet and Interactive Music System

A neural network, trained to simulate my own aesthetic judgments, is responsible for the computer's decisions during its interaction with the musician: i.e., whether it will "mirror" the sounds played by them, propose new sound material or simply remain silent. The title *Bias* refers not only to the subjective nature of aesthetic judgments, but also to machine learning algorithms making arbitrary or erroneous assumptions about data. The ambiguity in the title is a comment on the unattainability of objectivity, both in human judgment and in data-driven models. On a second level, *Bias* explores the relationship between human and machine agency by blurring the boundaries between them and blending human and computational decision-making. By training a neural network to predict my aesthetic preferences, I aimed to create a new hybrid agency that is based on, yet departs from, my own aesthetics. The decisions made by the computer during its interaction with the musician cannot be entirely attributed to my own preferences, as these are "distorted" through AI bias. The result is a hybrid human-machine agency that shapes the performance in dynamic and, at times, unpredictable ways.

Wobbly (US), Jennifer Walshe (IE)

MOREOVER

An infomercial for products with limitless potential, delivered in six luscious, yet incomplete, episodes.

Tune in for the 2020 *MOREOVER* infomercial reveal, unboxing and presentation. What is *MOREOVER?* A route to your best self, via your raw and worst selves. *How* is *MOREOVER?* Because content. *Who* is *MOREOVER?* Like other high-profile CEOs, Vallendrome-based Wobbly aka Jon Leidecker has enough imagination to hope to live forever, according to three different people who heard him say so. From the London HQ, Jennifer Walshe, a personhood repeatedly filmed "boarding a yacht" performs the *MOREOVER* mantra. "You can think it, you can feel it, but you can't say it. Do. Not. Say. It."

Camel Zekri (FR), Marc Chemillier (FR)
Gnawa Machine

This duo was formed in Athens for the *ImproTech 2019 Festival,* which is dedicated to improvisation with intelligent digital systems. The challenge of *Gnawa Machine* is to integrate the computer in a particular cultural context, that of the Gnawa Brotherhood in North Africa, of which Camel Zekri is a member. His modal guitar playing is accompanied on keyboard by Marc Chemillier, assisted by the Djazz system, which learns automatically by expanding its memory and follows the tempo thanks to a score- following algorithm.

The guitar is then transformed into a controller equipped with motion sensors. It controls a second system, Le Cercle, which dialogues with the first one. The two machines listen to each other and improvise on what the other is playing. Djazz records with long-term memory, while Le Cercle captures small fragments on the fly.

ImproTech Festival, IRCAM & CAMS-EHESS (Djazz software, http://digitaljazz.fr), LISILOG (Le Cercle software)

ℌexorcismos AKA Moisés Horta Valenzuela (MX)
Neltokoni in cuícatl

Neltokoni in cuícatl (Talismans in Poetry) is a multichannel audio/visual poetry performance driven by a disembodied AI system consisting of three generative deep learning models trained on precolumbian sonic forms, poetry and imagery.
The iterative performance presents a multisensory experience of the symbiosis between artificial neural networks and ancestral technologies of spirit; acting as a form of resistance towards colonial practices of language erasure by representing vernacular knowledge and forging new mythologies within artificial intelligence art production systems.
By understanding the cultural nature of computational technology, *Neltokoni in cuícatl* proposes cultural representation as a strategy for reconsidering the cultural homogenization brought forth in the age of AI and algorithmic mediated culture.

Lead Artist: Moisés Horta Valenzuela AKA ℌexorcismos

Gnawa Machine., © Jeff Joly

Neltokoni in cuícatl, © Moises Horta Valenzuela

Yishu Jiang (AT), Ali Nikrang (AT), Daniela Mülleder (AT)

Running Off the Senses

© Nancy Horowitz   © vog.photo

It is still a strange feeling when AI-generated music triggers emotional reactions in us. Despite the inability of AI systems to feel human emotions, they are able to create music that sounds natural and emotional. This is achieved by learning relevant statistical patterns that AI systems can find in large collections of music samples. This performance with Yishu Jiang and Ali Nikrang (violoncello and piano, respectively) focuses on AI-composed music, with human-composed music as counterpoint. The performance is meant to emphasize the strange feeling of being emotionally manipulated by AI. The compositions in this performance also include results from a newly developed AI composition system called *Ricercar: An AI-based Music Companion,* developed by Ali Nikrang at the Ars Electronica Futurelab.

Ali Nikrang (AT), Martin Honzik (AT)

Somnium

To be moved deeply by the atmosphere of a place, or by music, is a feeling every human being can relate to. As an experience, it is not only a testament to our perception of the world, but the manifold emotions that come along with it, often contradictory and opaque: every beautiful moment implicates the melancholy of its transience.
Somnium is an installation playing with the ambience of the stunning location at the JKU TNF-tower and hymns, a musical form specifically written for the purpose of adoration or prayer. Together with the visitor an artificial intelligence

(AI) observes the inspiring surroundings at the tower which invite the viewers to contemplate and enjoy the situation. Meanwhile the AI "interprets" the Anthem of Europe by Beethoven, The Internationale, the National Anthem of the Republic of Austria and the Anthem of Upper Austria, turning the moment into a bittersweet reflection on the current situation of democracy and the condition of our planet in general. What are the hymns of today? Are there any? What does farsightedness mean in our complex world? *Somnium* is also a visionary novel by Johannes Kepler, considered by many as one of the first works of science fiction. What are our outlooks, our visions today? The installation sparks an interplay between the "perception" and "interpretation" of the AI and the associations of the individual visitor, leaving open questions about today's relationship between humanity and machines. The AI-based music composition system used here is called "Ricercar: An AI-based Music Companion" and is being developed by Ali Nikrang at Ars Electronica Futurelab.

Ali Nikrang (AT)

How Machines See Music

A deep neural network usually contains a very large number of parameters — millions or even billions — that are learned during the training; a complexity that's needed for the nonlinear internal representations of the input data. This installation visualizes some aspects of the inner life of a deep neural network for music composition called *Ricercar* that is being developed at Ars Electronica Futurelab.

Ricercar is trained with 25000 pieces of music and can compose music. In this case, however, the network will not compose, but be fed with an existing piece of music as input. We observe the reaction of the neurons in each layer as the music continues, showing us every moment in the piece in which neurons are activated and react to it. Finally, a so-called "similarity matrix" shows the similarity between the activated neurons at any point in time with any other. In other words, it shows reveals which parts in the piece are similar as they produce the activation of similar neurons. The result is a novel way of visualizing music, which shows the higher-level structures of a piece of music (e.g. its repetitive structures). It also shows us, once again, that music is not only pleasant to hear, but also contains beautiful hidden visual structures that can span the entire piece.
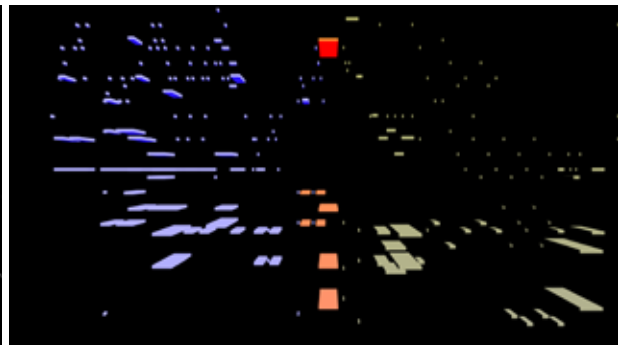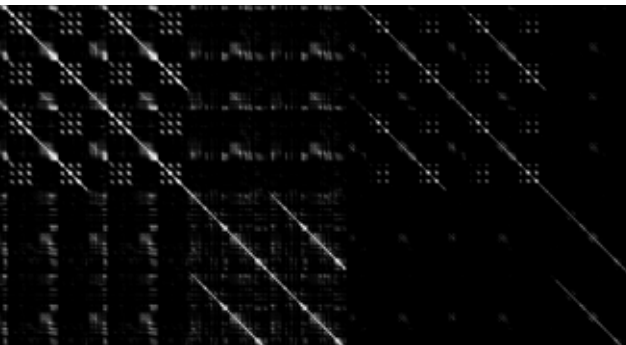
Johann Sebastian Bach, Goldberg Variations No. 11. Visualization shows the activation maps of two selected layers in the *Ricercar* composition system. © Ali Nikrang

Ali Nikrang (AT)

Ricercar: An AI-Based Music Companion

Ricercar is an interactive AI-based music composition system being developed by Ali Nikrang at the Ars Electronica Futurelab.

Ricercar refers to a musical form of the Renaissance and Baroque which means "search" in Italian. Composers used it for pieces in which they experimented with a theme or musical idea to discover qualities such as permutation, possibilities in variation and harmonic potential.

Ricercar: An AI-Based Musical Companion follows a similar idea. It aims to create an intuitive interface between human artists and an AI-based composition system, in which human users and the AI system can collaboratively discover the potential of a musical idea, given to the system by the users or initialized by the system itself. The interaction takes advantage of the benefits of artificial creativity, as well as the human ability to personalise and control the system's output.

THE BIG CONCERT NIGHT 2020

Fidelio Freedom Project
In cooperation with Bruckner Orchestra Linz

The Big Concert Night in collaboration with Bruckner Orchestra Linz has been an integral and unique part of the Ars Electronica Festival for over a decade. Each year, it provides unique opportunities to explore and cross boundaries —an encounter between musical worlds. Like many other program formats of this year's festival, the security measures imposed by COVID-19 strongly affected its design and presentation possibilities. Despite all, and after several years of successful collaboration with the conductor Markus Poschner, it was possible to develop a project that completely lives up to the unique format of the Big Concert Night in its interweaving of musical styles and epochs and the interaction of artists from different genres. The necessity of the spatial distances between the visitors as well as performers, and the fact that the festival is conceived as continuous hybrid between on-site and online, led to a new design principle for staging the project. The extensive grounds of the JKU Campus transform into a performance area for musicians and actors. The audience's attention is not focused on a central stage, but surrounded by dialogue and interplay of artistic elements.

Fidelio Freedom Project

At the center of the project is Beethoven's Fidelio, the great opera of liberation. In reference to the current global conflict situations and the thematic focus *Autonomy—Democracy* of this year's Ars Electronica, the *Fidelio Freedom Project* embarks on a journey through cultural history. Motifs originating from antiquity are taken up, revolving around resistance and the struggle for justice, but also addressing solidarity, mutual support and the responsibility of the individual. Markus Poschner and his Bruckner Orchestra are joined by two outstanding actors—Karl Markovics and Maria Hofstätter—along with the jazz formation of Bastian Jütte, Harald Scharf, Hugo Friedrich Siegmeth and Nguyên Lê. Additionally, this evening will feature the musicians Rupert Huber, Roberto Paci Dalo and AGF.
Chosen texts and quotes originate from Pico della Mirandola, Olympe de Gouges, Rainer Maria Rilke, Johanna Dohnal, John Milton, Martin Luther King, Henry David Thoreau and Eckart Winkler.

Interference — Christina Kubisch and Katharina Ernst

The second part of the Big Concert Night brings Christina Kubisch and Katharina Ernst on stage with their Project *Interference*. A piece that combines instrumental sounds with the sounds of electromagnetic fields and digital elements to create a virtuoso interplay of human and machine.

The Big AI-Jam — AI meets musical diversity

Finally, Ali Nikrang — composer and AI researcher at the Ars Electronica Futurelab — will present his AIxMusic project. He has developed an advanced AI composition software and invited musicians from the international network of festival partners to create their individual musical response, interpretation or improvisation. This evolved into a major network project within the framework of the Ars Electronica Festival 2020, resulting in nine musicians performing their contributions live.

A project by Ars Electronica and Bruckner Orchestra Linz
Orchestra: Bruckner Orchestra Linz
Principal conductor: Markus Poschner
Texts: Karl Markovics, Maria Hofstätter
Live music: Rupert Huber, Roberto Paci Daló, Nguyên Lê, Harald Scharf, Hugo Friedrich Siegmeth, Bastian Jütte, Christina Kubisch, Katharina Ernst, AGF
Big AI Jam Live: Ali Nkrang, Yishu Jiang, Daniela Mülleder, Josef Klammer, Rupert Huber, Roberto Paci Daló, Ars Electronica Futurelab

The Bruckner Orchestra Linz

An orchestra in tune with people, with the times, and with their challenges

The Bruckner Orchestra Linz, which can look back on a history and tradition spanning more than 200 years, has over the past decades developed into one of Central Europe's leading orchestras. It is not only the symphony orchestra of the province of Upper Austria but also serves as the theater orchestra for the musical productions of the Linz Landestheater (provincial theater). As a musical ambassador for Upper Austria as well as for the ensemble's namesake, the Austrian-born composer Anton Bruckner, the BOL embarks regularly on international tours. Since Markus Poschner took over as Music Director in the fall of 2017 — immediately delivering a sensational performance at the Concert Night of the Ars Electronica Festival — the orchestra has gone through an opening-up process that generates many new formats, seeks unexpected venues, finds surprising ways to convey music, and above all produces artistic events whose urgency and intensity make them both popular and critical successes. Markus Poschner and the BOL have crafted their own distinctive way of playing Bruckner's music, which is expressed in a unique, Upper Austrian sound dialect that can be heard on their recent recording of Bruckner's Symphony No. 8. As of 2020, the Bruckner Orchester Linz for the first time has its own concert series at Linz's Brucknerhaus, and since 2012 has had a series at Vienna's Musikverein. The Bruckner Orchester Linz was named "Orchestra of the Year" at this year's Austrian Musiktheaterpreis gala.

Text: Norbert Trawöger – Artistic Director Bruckner Orchestra Linz

Christina Kubisch (DE), Katharina Ernst (AT)

DOUBLÉ plays Interference

Interference is a piece about different rhythmical structures controlling each other. In the first part, Christina's recordings of electromagnetic waves of all kinds – such as security barriers, light advertisements and server rooms from Bangkok to NYC, from Berlin to Shanghai – lord over the drums; while the old dependency on metronomic forms is questioned in the second part, which develops into a revolutionary role reversal for the third and last segment, where the playback track no longer leads the drummer, the machine no longer sets the mood. A human sense of timing is re-established, the computer becomes like a band member, listening and adapting; and while Christina is detecting electromagnetic fields live on stage with her especially developed technology that translates electromagnetic waves into audio waves, Katharina bends the possibilities by following — and being followed by — BeatSeeker.

Drums: Katharina Ernst
Electromagnetic sounds: Christina Kubisch

© ORF musikprotokoll, Martin Gross

CONCERTS & PERFORMANCES

Tobias Euler (DE), Thies Mynther (DE), Veit Sprenger (DE)

Moon Machine Field Trip
A mechatronic exploration of song and counterpoint

The composer Thies Mynther (also known from bands such as Phantom Ghost and as a collaborator of Chicks on Speed), the theater maker Veit Sprenger (Showcase Beat le Mot) and the visual artist Tobias Euler (founder of the legendary Jonny Knüppel in Berlin) have developed an interventionist music machine, initially built in honor of the outstanding musician Moondog. *The Moon Machine* is a mobile music island, a bricolage with pneumatic instruments and mechatronic sound machines, sun umbrella, signal horns and acoustic collision warning devices. Built in 2019, the three artists continue to explore its performative possibilities in different contexts. After exhibitions and shows in Münster and Hamburg, the Ars Electronica is the third station of the device's journey. Based on Moondog's works and his instrument inventions such as the Trimba or the Dragon's Teeth, the artists complement the composer's canon with their own melodies, poems and musical experiments.

A Production of Thies Mynther and Veit Sprenger in Coproduction with Theater at Pumpenhaus Münster, Flurstücke Festival and the Kunsthalle Münster, supported by Fonds Darstellende Künste.

Moon Machine Field Trip

Acts of Substitution without Bodily Contact, © Volkmar Klien

Corona Improv Sessions

The Telharmonic Orchestra (AT) feat. Richard Garet (US) & Daniel Neumann (US/DE)

Acts of Substitution without Bodily Contact
Making Music in the Age of Quarantine

In times during which group meetings, let alone rehearsals, are impossible; making music together is possible only in media space. But the technical medium interfacing between human bodies resists as much as it enables. It allows communal music-making without meeting, acts of substitution without bodily contact or risk of infection. And it is through these acts of substitution that the media itself shifts into focus. The membrane interfacing is also impenetrable. The ear is quick, and the net quite often slower than hoped for. More importantly: can souls really touch while their bodies don't? Sitting at our interfaces, we listen to the slightly delayed sonic acts of others and–alone, in the glow of our screens–we react to them. Together, we seek out replacement therapy for the inebriating act of making music together. We hope for the best.

The composers/musicians of the Telharmonic Orchestra are: Paquito Chiti, Martina Claussen, Isabella Forciniti, Volkmar Klien, Tobias Leibetseder, Michael Mikolasek, Kamran Moharramzadeh, Katharina Roth, Astrid Schwarz, Peter Trabitzsch
feat. Richard Garet & Daniel Neumann
The Telharmonic Orchestra is supported by:
Gits.at / Institute for Composition, Conducting and Computer Music at Anton Bruckner University Linz / Anton Bruckner University

Corona Improv Sessions

The *Corona Improv Sessions* is a series of intercultural, performative, audio-visual telematic jam sessions that began on March 20, 2020, and continued every Sunday during the global lockdown, between a group of co-located students and artists. The sessions became a vehicle for developing enduring artistic and personal connections, and creating new spaces at a moment of cultural and political retrenchment.
The group that emerged from these jams will perform in person — both in Linz and telematically. The performances at Ars Electronica Festival will offer telematic improv sessions by a core group of performers together with pioneers of telematic performance and luminary guests.
Using software developed specifically for the Ars performances to facilitate real-time collaborations in digital performance and expanded screen practices, the participating artists explore the dynamics of co-located performativity. They embrace rather than resist latency, to produce a novel visual Musiking in which virtuosity is eschewed. Nonsynchronous performance thus creates emergent, aleatory musical and visual forms.

Tina Frank, Alexandra Murray-Leslie, Thies Mynther, Atau Tanaka, Melissa E. Logan, Panja Göbel, Cat Hope, Øyvind Brandtsegg, Tina Havelock Stevens, Mari Bastashevski, Mikalsen & Marhaug, Anat Ben David, Einar Grinde, Nina Haarsaker, Catharine Cary, Krõõt Juurak, Diana Lindbjerg, Unnur Andrea Einarsdottir, Dinu Bodiciu, Håvard Gismerøy Ekker, Sina Marie Haave, Junda Auguste Andriuskeviciute, Evelina Bartuseviciute, Salma Mastour, Dunia Isabel Vazquez Juarez, Nadia Buer Haugen, Agnes Dalgård, Dong Zhou, Ada Hoel
www.theatreofmaking.net/coronaimprovsessions

Maki Namekawa (JP/AT), Dennis Russell Davies (US), Cori O´Lan (AT)

Pianographique

Pianographique is an ongoing artistic collaboration of the two pianists Maki Namekawa and Dennis Russell Davies with the digital-media artist Cori O'Lan.

In their work, which they started in 2013, the artists aim to create an intimate connection and balance between the three decisive levels of experience in their live concerts: the piano-music itself, the physical presence and performance of the musicians and the visual accompaniment which is therefore not a pre-produced video or animation but generated in real-time based on comprehensive audio-analysis of the music as it is being played.

In a way, the special graphics software becomes a brush, which is placed in the hands of the musicians and is guided by their playing.

The trio is an often-seen guest at the Ars Electronica Festivals and has performed at numerous international locations such as New York, Tokyo, Abu Dhabi, Brussels and many more.

This year they are joined by Gregor Woschitz who has developed the real-time visualization for the *6 Macbeth Pieces* by Kurt Schwertsik which have been chosen for this year's program to celebrate the 85th birthday of this eminent Austrian Composer.

Pianographique will be presented at two locations of this year's festival: The Ars Electronica Center's Deep Space 8K with a solo recital by Maki Namekawa and on the festival's main performance stage in the newly built Kepler Hall on the JKU campus with Dennis Russell Davies and Maki Namekawa performing together.

The program for *Pianographique* in the Deep Space 8K:

Philip Glass:
_ *Pasacaglia for piano solo*

Joep Beving:
_ *Ab Ovo*
_ *Midwayer*
_ *Hanging D*

Elliot Goldentha:
_ *Gigue Diabolique*

All pieces will be performed by Maki Namekawa and accompanied with real-time visualizations by Cori O'Lan.

The program for *Pianographique* in the Kepler Hall:

John Cage:
_ *Suite for Toy Piano* (Toy-Piano: Maki Namekawa, Visuals: Cori O'Lan)
_ *The Seasons* (Piano: Dennis Russell Davies, Visuals: Cori O'Lan)

Philip Glass:
_ *Elergy for the Present* (Piano: Dennis Russell Davies, Visuals: Cori O'Lan)

Ludwig van Beethoven:
_ *3 Marches for piano four-hands op.45* (Piano: Maki Namekawa and Dennis Russell Davies, Visuals: Cori O'Lan)

Kurt Schwertsik:
_ *6 Macbeth Pieces for Piano four-hands* (Piano: Maki Namekawa and Dennis Russell Davies, Visuals: Gregor Woschitz)

EUROPEAN PLATFORM FOR DIGITAL HUMANISM

European Platform for Digital Humanism

Projects

- ● EMAP
- ● European ARTificial Intelligence Lab
- ● STUDIOTOPIA
- STARTS
- ● Prize ● Ecosystem ● Regional Centers
- ● Immersify
- ● spaceEU
- ● SySTEM 2020
- ● Beyond Quantum Music
- ● Digital Cross Over
- ● Creative School
- ● STEAM Inc
- ● OSHub

Edinburgh Futures Institute

Chester Beatty Library
Science Gallery at Trinity College Dublin

FACT

Leiden University

Todays Art

Birmingham City University

Science Gallery at Kings College London

University of Arts London: Central Saint Martins

Heretic

University of the Creative Arts

Gluon

European Schoolnet

IRCAM

izneo

TRACES

Dedale

le lieu unique

Antre Peaux

Cap Sciences

Cité de l'espace

Marché du Film – Festival de Cannes

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INOVA

Município de Figueira de Castelo Rodrigo

Zaragoza City of Knowledge Foundation

Ciência Viva

Parque de las Ciencias

● Muntref Centro de Arte y Ciencia
< Buenos Aires

Aalto University

Finnish Museums Association

m-cult

Tom Tits Experiment

Visualization Center C

RIXC

The Culture Yard

Laznia Centre for Contemporary Art

Vrije Universiteit Amsterdam

University of Amsterdam

Waag

IMPAKT

Universiteit Leiden

Ecsite

Technopolis

BOZAR

Michael Culture Association

Universum® Bremen

Institut Incontri - Hochschule für Musik, Theater und Medien

Film University Babelsberg Konrad Wolf

Poznan Supercomputing & Networking Center

Spin Digital Video Technologies

New Space Foundation

Werkleitz Centre for Media Art

Technical University Dresden

WRO Art Center

SCIENCE IN

Frankfurter Buchmesse

European Molecular Biology Laboratory

IMZ International Music + Media Centre

Ars Electronica Linz

Zentrum für Soziale Innovation

Raumschiff

Cluj Cultural Centre

Onl'Fait

Kersnikova Institute/ Kapelica Gallery

Museo scienza Leonardo da Vinci

New Art Center Belgrade

Hexagone La Casemate

Kontejner

Radiona Makerspace

Institute of Musicology SASA

MEET Digital Culture Center

STePS

Center for Promotion of Science

French Tech Grande Provence

Centrica

Muzeiko Foundation

NOESIS

Ellinogermaniki Agogi

LATRA

Onassis Stegi

SciCo

MADE Group

Impact Hub Siracusa

SOU Festival ↗

Bloomfield Science Museum Jerusalem V

Design : ortnerschinko.com

EUROPEAN PLATFORM FOR DIGITAL HUMANISM

While it is true that digital technologies have merely accelerated processes already unfolding across the industrialized world, they have changed our world and our lives radically over the last four decades. From the outset, Ars Electronica has viewed this as a societal rather than a technological development, and Ars Electronica's **European Platform for Digital Humanism** has focused not on technologies but on their impacts. Taking up these developments, the European Platform for Digital Humanism wants to show new pathways to a digital society and invites audiences to imagine a new future: it is time for us to resign our roles as mere consumers and data-generating machines. We must take responsibility for our futures.

Can, or should there be, something like a European way into the digital society, between the "data capitalism" of IT monopolists and the "data totalitarianism" of authoritarian regimes? If so, would a European "data humanism" also be competitive? Could applications of digital technology aimed towards human needs and established social conventions, which respect the autonomy of users over their data, be precisely this competitive advantage? Or, in other words: Is it possible to create a digital society that fosters competition and generates value while also reflecting European values? A good argument can be made to the effect that the success of many digital products and services will shortly no longer depend on whether the processor is a little faster or the screen more colorful, but rather on the confidence the users have in services and on the credibility of the providers. To the extent that digital data will actually be the "new oil," the raw material of the future; the "refinement" of this raw material will soon play a greater role than the material itself. Besides profitability, this also opens up opportunities for social appropriateness in dealing with our data seriously. The cooperation of art and technology is much pined-for, and a large number of EU projects and cooperation initiatives have set themselves the goal of strengthening the role of art, creativity and education in the development of the ideas, concepts and scopes of action necessary for digital humanism. As a platform for art, technology and society, Ars Electronica currently coordinates and participates in several such cooperation projects funded by the European Union in the fields of culture, research and education.

Culture (Creative Europe): European ARTificial Intelligence Lab
Culture (Creative Europe): EMAP/EMARE
Culture (Creative Europe): Studiotopia
Culture (Creative Europe): Beyond Quantum Music
Culture (Creative Europe): Digital Cross Over
Research (European Commission): AIxMusic Festival
Research (Horizon 2020): STARTS Prize
Research (Horizon 2020): STARTS Ecosystem
Research (Horizon 2020): Regional STARTS Centers
Research (Horizon 2020): Immersify
Research (Horizon 2020): System2020
Research (Horizon 2020): OSHub
Research (Horizon 2020): spaceEU
Education (Erasmus+): STEAM Inc.
Education (Erasmus+): Creative School

A Platform for AI Ethics, Fairness and Trust

The latest developments in artificial intelligence are truly are astonishing, and they will advance exponentially with the increasing scientific and economic power that is invested by research and industry. However, artificial Intelligence and machine learning are difficult to understand and trust, not only by general society, nor least because of their implicit biases. In February 2019, McKinsey published that "if Europe on average develops and diffuses AI according to its current assets and digital position relative to the world, it could add some €2.7 trillion, or 20 percent, to its combined economic output by 2030[1]". But how can we ensure that our European education systems, our legal and ethical frameworks — our society, in general — is ready to adopt it by 2030? Innovation in artificial intelligence needs a drastically stronger commitment to increased understanding, trust, legal framework and ethics to allow for its early adoption and the exploitation of its full potential.

In light of this urge, and next to scientific, technological and economic aspects, the **European ARTificial Intelligence Lab** is strongly focused on the *legal, cultural, educational and ethical dimensions* of artificial intelligence. This allows a holistic model, with considerations on human values and elementary questions on what AI should or should not do, as well as how — and by whom AI systems are developed, deployed, used and monitored. From the perspective of 13 major cultural operators in Europe, and led by Ars Electronica, the European ARTificial Intelligence Lab centers visions, expectations and fears we associate with a future, all-encompassing artificial intelligence. While industries are pumping massive amounts of money into cutting-edge technologies to develop intelligent systems, we are connecting artists with research institutions and scientists to fill a gap in dealing with the social components and political questions arising from these enormous technological advances.

An extensive program of activities addressing different target groups at various experience levels was carried out and will be continued until the end of the project. In total, the project realizes 26 residencies, 64 educational programs for audiences, 9 theatre/interactive performances, 115 training and capacity building activities for artists and creative professionals, as well as 22 exhibitions. By addressing AI and its societal implications through conferences and exhibitions targeting art and general audiences, while fostering knowledge of AI with educational and training activities, the AI LAB contributes to a critical and reflective society.

[1] https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Artificial%20Intelligence/Tackling%20Europes%20gap%20 in%20digital%20and%20AI/MGI-Tackling-Europes-gap-in-digital-and-AI-Feb-2019-vF.ashx

Residencies provide an ideal setting for direct encounters and collaborations between artists and AI researchers. So far, 12 residencies were held as part of the AI Lab by different cultural partners in collaboration with scientific counterparts.

The winner of the first Lighthouse Residency at Ars Electronica is **slow immediate** (CN/US), in collaboration with Muntref in Buenos Aires. They will present their residency outcome, *The Wandering Mind,* at the festival this year. Does the Earth dream? Can our dreams mesh?

In *The Wandering Mind*, the pervasive sensing, fiber and neural networks covering our planet meet us in our sleep, drawing source material from vast online stores of field recordings and sensor data. For this year's festival, we ask our AI to dream in the sounds of water and currents, retelling the myth of Tiamat, the sea mother whose life takes a tragic turn when her rebellious children seek power. The story mirrors our modern relationship with Earth's oceans.

satellite on rooftop, © slow immediate

The winners of a collaborative residency with the Edinburgh Futures Institute are **Anna Ridler** (UK) and **Caroline Sinders** (US), with their project *AI Isn't Artificial but Human*. Their work addresses how our world is becoming entangled, with so much of our consensus reality being created by software we hardly understand: financial markets where bots endlessly trade with other bots, social media algorithms that control what narratives we see, even AI deep fakes that make us doubt our own ears and eyes. It becomes harder and harder to sort out where the human influence is in the AI process. We are very interested in this issue of human influence and how it can be understood through a creative practice. Once people understand that they might have agency in a process, it allows them to engage with the subject in a way that they might not have done before.
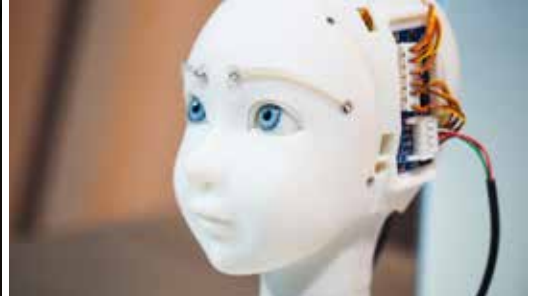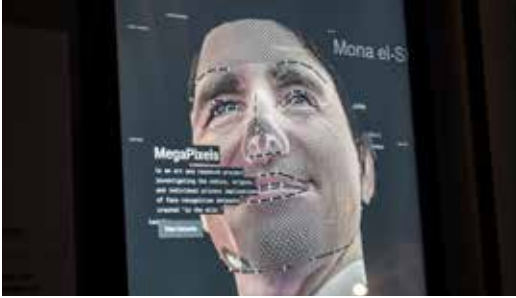
A Platform for Experimentation

Besides providing a platform for ethics, fairness and trust in AI, Ars Electronica wants to contribute to steady research and development progress and interdisciplinary experimentation with this technology. Global events like the current pandemic demonstrate how AI (machine learning mainly) is already leveraged to increase understanding and handling of complex global phenomena and helps in advancing massive challenges, such as the delivery of a vaccine against the coronavirus. AI, however, also requires increased active experimentation, testing and working across disciplines and sectors so it can be exploited to its full potential in both art and industry.

This year, as part of the STARTS initiative, Ars Electronica is organizing the second **AIxMusic Festival** in collaboration with the European Commission. Musicians are especially critical but open-minded and demanding users of AI in creative contexts. In its first edition, the AixMusic focused on improvisation between artists and AI, to activate human encounters and emotions. The 2020 Festival explores a networked approach to music enabled by AI. This year's edition of the AIxMusic Festival highlights the full potential of AI to facilitate networked remote collaboration with music as a particularly intriguing and chal-

lenging example. ICT have a primordial space as a medium to connect and network decentralized partners around the world. The AIxMusic Festival demonstrates the usefulness of digital technology in allowing musicians and professionals to perform in the current, difficult situation.

A networked hybrid edition of the Festival will also be presented this year, and includes on-site performances/events in Linz and others world-wide that will be streamed or showcased purely online. This platform invites different professionals, artists, musicians, composers and researchers to discuss the interaction between humans and machines through concerts and performances, conferences, workshops and online exhibitions.

Participating Gardens: AIxMusic Garden Barcelona, AIxMusic Garden Silicon Valley, AIxMusic Garden Stockholm, AIxMusic Garden Berkeley, AIxMusic Garden Brussels, AIxMusic Garden Paris, AIxMusic Garden Plymouth

Funding Scheme: DG Connect, European Commission
Website: ars.electronica.art/keplersgardens/aixmusic

The AIxMusic Festival, a S+T+ARTS flagship event, is organised by Ars Electronica and the European Commission.

A Platform for Open Access

AI is only one of many emerging technologies in Ars Electronica's catalogue. Starting in 2019, Ars Electronica has also been inviting artists and musicians to work with quantum physics in piloting ways. A central element to this is to facilitate artists with free and open access to ongoing research. **Beyond Quantum Music** is a dedicated Internet portal where the complete library of quantum samples, as well as all previous artistic and scientific results of the Quantum Music project, would be offered to users worldwide and with open access.

The original pilot project Quantum Music, co-funded by Creative Europe, began in August 2015. This highly original and innovative project managed to push boundaries and bring together the distant worlds of music and quantum physics. The main outcome of the pilot project was the interactive multimedia Quantum Music show, featuring new, especially designed hybrid keyboard instruments, a new library of quantum sounds developed from the experiments, and quantum physics formulas and compositions written especially for this show.

Aside from music, the production also contained a visual interactive-educational segment that explained the basic premises of the quantum world to audiences. All performances were accompanied by lectures from some of the most renowned quantum physicists today. The Quantum Music show was performed to sold-out audiences and sparked great interest wherever it was performed. This enthusiasm encouraged us to think of further expanding the project by inviting international artists to write new Quantum Music pieces and design new visuals to include in the performances. The new project, Beyond Quantum Music, is a direct continuation and expansion of the original Quantum Music project, with the purpose of broadening and developing production, educational and artistic aspects of the pilot project. The primary goal of the new consortium is audience development, predominantly in the four partner countries, but also in the broader European context. Its secondary goal is to establish a network of organizations and individuals that would continue to perform and promote connections between quantum physics and art.

Partners: Institute of Musicology SASA (RS), New Art Center Belgrade (RS), Ars Electronica (AT), TodaysArt (NL), Institut Incontri, Hochschule fur Musik, Theater und Medien (DE)
Funding Scheme: Creative Europe
Duration: 01.09.2019—01.08.2022
Website: http://quantummusic.org/

Beyond Quantum Music is co-funded by Creative Europe Programme of the European Union.

Sonica Quantum Music Kino Siska, © Ales Rosa

A Platform for Collaborative Practices

Many of the social, ecological and economic challenges of our time will only be mastered through creative and cooperative approaches. This is illustrated by the enormous interest in targeted programs that open doors from artists to scientists and researchers, and vice versa. We are looking not only for mentors, but also for representatives from science and industry who are seeking cooperation out of self-interest and the urge for societal renewal. European funding programs such as Horizon 2020 and Creative Europe have long since recognized the importance of this interface, and are thus enabling groundbreaking projects such as STARTS or EMAP. They offer artists structured access to interdisciplinary exchange and develop the necessary framework conditions, modalities and IP agreements to facilitate capacity and knowledge building in the field of collaborative practices for all involved parties: artists, scientists and facilitators.

EMAP (European Media Arts Platform), for example, annually awards residency grants to outstanding European media artists and supports research, production, presentation and distribution of media art in Europe and beyond. EMAP's program history goes back to 1995 and is the largest international platform of artistic exchange and residency projects for media artists in Europe. The basic purpose of the program is to enable European artists to collaborate on projects, and consequently to create closer bonds, with European media organizations. EMAP offers an opportunity to work within these bounds as defined by the individual artists, enabling them to develop their projects in a new context, and thereby give something in return to their host organization. This process of encouraging artists' projects and building stronger links between media organizations is enhanced by the rapid development of network technologies and also reflects the moves towards integration taking place throughout Europe.

The European Media Art Platform is a consortium of eleven leading European media art organizations specialized in digital and media art, bio art and robotic art. The residencies are based on European intercultural knowledge exchange between the selected artists, the host organizations and various experts who join to consult, support, or train the artists. The last residency call within EMAP, from 2019, covered two residency periods (2020 and 2021) with a total of 22 residency possibilities. Kasia Molga (UK/PL), who is the residency winner at Ars Electronica in 2020, will present her project "How to Make an Ocean" at the Ars Electronica Festival 2020 and is also part of the EMAP group exhibition, together with four other EMAP-funded artists.

Clams Marco Barotti (DE/IT), © vog.photo

TransPlant May the Chlorophyll be within you Quimera Rosa (ES/AR/FR), © vog.photo

Ars Electronica's contribution to developments in the fields of collaborative practices is also manifested through an inverse residency model and an offer for scientists to be hosted in artist studios. It started in 2017 as the Gluon Scientist-in-Residence program between Ars Electronica, BOZAR and the Serpentine Gallery, designed for a new generation of scientists interested in collaborating with artists. Drawing from posthumanist theories, this initiative seeks to propose new relations between nature and culture at a time of alarming phenomena such as climate change, migration and fake news. In 2019, Gluon, BOZAR and Ars Electronica—together with five other European organizations—were successful in bringing the project **STUDIOTOPIA** to a new, Creative Europe co-funded stage with continental residencies and activity programs. STUDIOTOPIA is a creative journey addressing sustainable development across Europe through the converging views of art and science. This initiative aims to increase collaborations between cultural and research institutions, academia, innovation centers, creatives and European citizens.

In the course of almost two years, STUDIOTOPIA will offer 13 artists and 13 scientists a unique opportunity to collaborate for a duration of seventeen months. Our residency program aims to encourage scientists to exchange ideas, knowledge and methodologies with international visual artists while visiting their studios.

Results, developed concepts, research material or artworks generated during STUDIOTOPIA residencies will be exhibited in partnering venues across Europe. This residency aims to create opportunities for artists and scientists to share their expertise with wide international audiences, curators, art specialists and researchers.

Partners: BOZAR—Centre for Fine Arts (BE), GLUON (BE), Cluj Cultural Centre (RO), Laznia Centre for Contemporary Art (PL), Ars Electronica (AT), Onassis Stegi (EL), Vrije Universiteit Amsterdam (NL), LABoral Centro de Arte y Creacion (ES)

Participating Gardens: Garden Athens, Garden Amsterdam, Garden Brussels, Garden Cluj, Garden Gdańsk, Garden Gijón

Funding Scheme: Creative Europe

Duration: 01.01.2017—31.12.2021

Website: https://www.studiotopia.eu/

Studiotopia is co-funded by the Creative Europe Programme of the European Union.

Norrköping Visualization Center, @ NVAB

Inside Futurelab Immersify (The translucent St. Stephen's Cathedral), © Robert Bauernhansl

A Platform for Next Generation Media and Personalized Content

VR and other forms of immersive media have the potential to disrupting the entire media industry with new user experiences that are more immersive and interactive compared to current video, cinema and TV. In order to reach a mature state beyond the current niche markets, the quality of experience of VR media must improve in several ways. Since October 2017, Ars Electronica has worked on exactly this through the research project Immersify. In order to create media that is as immersive as possible, the expertise of the partners is diverse and includes video codecs, infrastructure, film distribution and high resolution displays. The project, situated right at the intersection of artistic vision, scientific research and technological development, was completed in June 2020. Funding is provided by the EU's Horizon 2020 program.

Immersify developed key tools to create the next generation of immersive media applications. First, by developing advanced video compression technology tailored to the needs of the VR video, Immersify delivers and displays the huge files that appear as a result of increased resolution, frame rate and better image formats. Second, Immersify facilitates the spread of immersive content, as well as its distribution and exhibition by supporting multiple devices and environments such as PC- and mobile-based head mounted displays, multi-display systems, and dome, immersive cinemas and deep spaces. Last but not least, Immersify allows content creators to produce highly personalized content with seamless interactivity by developing the required tools to combine high quality video, 2D/3D CGI, and interactive elements.

PSNC — Poznan Supercomputing and Networking Center

A Platform for Human-Centered Innovation

Whether it's the development of a network focused on serious artistic and creative research into AI technologies, the implementation of cross-institutional frameworks for artist mobility, or the forays into experimentation with cutting edge technologies and music: the central question posed within Ars Electronica's programs is always focused on the human being itself and its relationship to the technologies which impact every aspect of our lives and environment.

This understanding of a societal responsibility to strongly consider how, where and why new technologies come into play aligns very strongly with the core values and ideas of the European Commission's STARTS initiative. Born out of the pioneering work of the ICT Art & Connect program, which successfully demonstrated the potential of connecting artists, researchers and industry partners as a catalyst for innovation, and laid the groundwork for a Europe-wide network, STARTS is a platform aiming to foster alliances of technology and artistic practice that effectively implement European policymaking to nurture innovation and that also benefit the art world. It supports collaborations between artists, scientists, engineers and researchers to develop more creative, inclusive, and sustainable technologies, and focuses on people and projects that contribute to mastering the social, ecological and economic challenges faced by the European continent.

Ars Electronica has been an active partner of the initiative since 2015, hosting and organizing the annual STARTS Prize as leading partner with Waag and BOZAR, contributing to the development of a sustainable and long-term strategy for the STARTS initiative as partner within STARTS Ecosystem, and most recently advancing the agenda of STARTS on a local level in the city of Linz as a Regional STARTS Center.

We are living with an unprecedented level of interconnection and interdependence on a global scale. As the business world rapidly changes and grows more complex, creativity and innovation have become key resources for societal and economic development.[2] Not only has this interconnectedness brought us new forms of media closely linked to technological trends, it has also significantly impacted the role of its users. Our role has changed from being mostly consumers to becoming active producers, actors, prescribers and influencers.

The **STARTS Prize** emphasizes the role of citizens in not only understanding but also actively partaking in innovation, by supporting artists, researchers and designers who develop new ways to tell and experience stories that raise awareness about societal challenges in connection with ICT, and do so more and more often in collaboration with high-level industry and technology partners. The prize aims to enable a targeted stimulation of such multifaceted interdisciplinary collaborations, and to gain deeper knowledge of challenges and strategies developed within these project teams. It also targets projects whose core ideas open up powerful narratives about the challenges brought forth by ICT, have the potential to foster critical thinking, and can be applied in policymaking to raise awareness about the urgent need to develop strategies for sustainable and inclusive innovation.

Each year, the STARTS Prize Jury selects and awards two outstanding projects in the categories of "Artistic Exploration" and "Innovative Collaboration" with a prize money of €20.000 each, that have what it takes to make a significant impact on economic and social innovation. In addition, 10 honorary mentions and 18 official nominations for the prize are singled out and presented in an exhibition, international dissemination and policy events, and for publication in the Ars Electronica Cyberarts catalogue.

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2 Sandberg, B. Art Hacking for Business Innovation: An Exploratory Case Study on Applied Artistic Strategies. J. Open Innov. Technol. Mark. Complex. 2019, 5, 20.

Design by Decay, Decay by Design Andrea Ling (CA), © Andrea Schmaling

EDEN — Ethique — Durable — Ecologie — Nature Olga Kisseleva (RU)

Building and nurturing a successful community or platform requires the development of a strong, sustainable and long-term strategy. Since its start in early 2019, **STARTS Ecosystem** serves as a backbone to the S+T+ARTS (Science, Technology and Arts) movement in Europe by building on results of past and ongoing endeavors of the STARTS initiative, such as the STARTS Residences (VERTIGO), WEAR Sustain and the STARTS Prize. STARTS Ecosystem's goal is to build on the communities of value, networks and tools created over the past five years all across the STARTS initiative, and to use the knowledge, know-how and experience generated in these successful platforms to develop and animate a dynamic ecosystem of creators, artists and innovators. This has the purpose of, on the one hand, engaging and supporting the most recent STARTS Lighthouse pilots Re-FREAM and MindSpaces, which focus on the potential of urban manufacturing as

a sustainable future model for fashion design and the development of new modes of adaptive spatial design, respectively. On the other hand, there are broader aims to develop a solid toolkit for interdisciplinary collaboration, to enlarge the vibrant community of artists and creators to expand the partner network of the STARTS initiative, and to support former participants of STARTS projects in taking their work to the next level through an acceleration and mentoring scheme. In short, STARTS Ecosystem strives towards the development of a new and sustainable Ecosystem for the STARTS initiative that fosters collaborations and innovation between creators, artists, researchers and technologists to promote competitive business models, unconventional products and solutions that have the potential to contribute to an enhanced understanding of societal needs. As part of STARTS Ecosystem, Ars Electronica focuses on providing support and mentorship for the Lighthouse pilots Re-FREAM and MindSpaces, drawing on long-standing experience in setting up open calls for artists, organizing and running residencies, building up strong, ongoing support for the participating creators, and setting up collaborative frameworks with technology and scientific partners. Ars Electronica is also involved in developing a strategy for international opportunities in aid of expanding the STARTS platform, identifying new potential communities and stakeholders, including the Lighthouses pilots in programming proposals and giving them a platform to present their outputs.

Early 2020 saw Ars Electronica representing the STARTS Ecosystem consortium at the School of the Future Festival (organized by Tokyo Midtown in collaboration with Ars Electronica), making use of Ars Electronica's widespread network of collaborators in Japan and introducing its local community of artists, creators and industry partners to STARTS; while a participation in the 2020 edition of SONAR +D will focus on the much-altered landscape of interdisciplinary collaboration in urban development in the wake of COVID-19. During the Ars Electronica Festival, the STARTS Ecosystem consortium will also be hosting an edition of their WeSTART online meetups, a series of online networking events which have become vital in creating space for ongoing discourse in the STARTS community, as physical meetings and collaborations have become difficult to realize due to the pandemic.

Partners: INOVA + (PT), Ars Electronica (AT), GLUON (BE), UCA (UK), IRCAM (FR), French Tech Grande Provence (FR)
Participating Gardens: Garden UK, AIxMusic Garden Paris, Garden Avignon
Funding Scheme: Horizon 2020
Duration: 01.04.2019 — 30.11.2021
Website: https://www.starts.eu/

With many of the STARTS initiative's activities focusing on mobility for artists, researchers and creative producers, the creation of collaborative frameworks with industry and technology partners, and stimulation of creators whose work lies at the nexus of science, art and technology, there arises the question as to how the core ideas of STARTS can be transformed into a solid strategy for engaging stakeholders on a local level and building strong, sustainable, regional communities. This is where the **Regional STARTS Centers** comes in, which intends to expand the STARTS initiative towards a number of European regions. The six partners of the consortium work at

developing a network of players interested in creating local centers in the spirit of STARTS and public activities that strengthen collaborative practices between the fields of art, industry, business, and research. As the creativity and transversal thinking of artists lead to innovative and unconventional ideas and practices, the Regional STARTS Centers believe artists teaming up with technologists are capable of imagining a more viable future for European societies, economically, socially and ecologically. The STARTS pillars promote art as a way to center contemporary reflections around humanist innovations. The STARTS Centers thus embrace the mission of facilitating the implementation of the STARTS pillars in diverse European regions.

Focusing on one of its core strengths, the development of educational programs, workshops and tools to introduce the general public to new technologies and their impact on our lives, Ars Electronica is creating a set of workshops focused on different aspects of the topic of artificial intelligence. The workshops are co-developed with a diverse set of local and international collaborators who have extensive expertise in the field of AI, and will be become part of Ars Electronica's new educational unit, the Future Thinking School. Co-creation also plays an important part in a set of micro-residencies taking place in the framework of Ars Electronica's Regional STARTS Centers programming. German sound artist and technologist Moritz Simon Geist is implementing his TocOne System in the Ars Electronica Center's Open Sound Studio, which will be an ongoing artistic intervention and showcase, but also a workshop tool for the mediators at the center. In a similar vein, Chinese, Berlin-based designer Youyang Song will bring her project—*Cooking New Materials*—to the Bio Lab as part of a two-week residency, where the project will be exhibited and become part of the ongoing workshop programs. Besides these activities focused on education, Ars Electronica is also planning a dense program of Regional STARTS Centers activities at the Ars Electronica Festival focused on interdisciplinary collaboration, which has become uniquely

Impression of the panel Co-Thinking the Renewal of Fashion, POSTCITY, © Jürgen Grünwald

challenging during a global pandemic. Since much of the festival audience will be experiencing exclusively online programs, a series of video journeys on the topic of Art Thinking produced especially for the festival will take viewers on a deep dive into the various forms of interdisciplinary and collaborative practice among artists, technologists, filmmakers and designers such as Giulia Tomasello, Karen Palmer or Charlotte Jarvis. Since working together in close physical proximity as well as travelling for collaborative projects is becoming more and more difficult, a number of online, interactive networking sessions will connect the festival audience with local artists, researchers and creators and international collaborators such as Robertina Sebjancic and Gjino Sutic, who will open up a conversation about the new landscape of collaboration and the question of how innovative digital platforms can be used in creative practices.

MORITZ SIMON GEIST (DE)
TOC ONE
Music Robot System for Education, Recording & Sound Art.

The music robot system *TOC ONE* explores the sound properties of physical objects. It can be used to squeeze sound and rhythms out of almost everything—from music instruments like drums to experimental materials like metal sheets, household items or old car parts. The robotic actuators are mounted on clamps allowing the user to attached them in a free manner to surfaces, objects and instruments and are controlled by MIDI. In a 3-year long research process, robotic music pioneer Moritz Simon Geist teamed up with sound gurus Mouse On Mars to develop this futuristic robotic system. It has been tested and refined in numerous stage and installation surroundings, like the MOOG FESTIVAL, at the MIT Boston or the ELBPHILHARMONIE. With Version 5.0, *TOC ONE* finally leaves the prototyping status. It will not be sold as a product but rather given to single artists and organizations for educational and research purposes only.

© Moritz Simon Geist

Youyang Song (CH)
APeel
Biomaterial Innovation

The project *APeel* is an independently developed technique which aims to process biowaste into a soft yet robust leather-like material. The concept was inspired by observing the life of conventional textiles. There is great potential to use bio-wastes and create brand-new biodegradable materials. Additionally, by recycling, redesigning and remanufacturing, we can create an ecosystem that promotes a sustainable lifestyle.
We use banana and orange peels and soy-milk residues to combine with a natural binding agent as substrate. The resulting composite is fully biodegradable, zero-waste and easy to reuse after the re-cooking process. Moreover, the bio-material has a toughness, durability and water resistance similar to leather. It also preserves a fruity smell, refined texture and feels great to the touch. Our focus is not only practicability but also nature-friendly aesthetics that don't just conserve but help restore the environment. Our material provides new insights and outlooks for modern lifestyles that want to enjoy the products they use daily while respecting the environment.

© Youyang Song

Future Innovators Summit, © Tom Mesic

Making Techno with Music Robots Moritz Simon Geist (DE), ©vog.photo

A Platform for Education
Critical Thinking and Digital Literacy

In 2020, a generation of Europeans born in the dawn of social networking graduated into an era of social distancing and isolation. For many of them, their last days of school took place not in the classroom but on their digital devices. While the circumstances leading to this were most definitely not normal, the student experience of inhabiting and interacting in digital space was. Diametrically opposed understandings of offline and online have completely dissolved for this generation, and 'digital literacy' should therefore no longer be distinguished from, or considered as supplementary to, our 21st century understanding of literacy: a fundamental human right to the basic knowledge and skills needed for a rapidly changing world. If humanity is to face its challenges, it is clear that there must be an informed and empowered citizenry that has a critical and adaptive knowledge of digital technologies. In the **Creative School** project, Ars Electronica is working alongside European partners to support the shaping of such citizens by developing an open access learning toolkit that integrates critical and creative thinking skills with digital cultural heritage.

The Creative School project evolves from previous projects—the Creative Museum and the Making Museum—that explored how new and democratizing digital technologies could foster connections between our cultural organizations and their communities. The Creative School builds on the innovative methods and tools developed in these projects to design new open learning modules for children and school teachers that can respond to the challenges of the 21st century. Adopting strategies from open source cultures and the maker movement, Creative School seeks to further the development of an integrative educational ecosystem that activates teaching and learning resources within cultural organizations.

Open Schooling and Citizen Engagement

The pace of change in society — from technological innovation to global interconnectedness — is rapidly increasing and has fundamentally altered the way people live, work and learn. Moreover, the societal challenges of the 21st century bring with them an urgent need to integrate the knowledge and expertise of different societal actors, and to develop meaningful and inclusive ways of connecting schools, universities, enterprises, civil society, governments and local communities using more innovative, efficient and open methodologies.

The **OSHub.Network** is establishing a European network of Open Science Hubs (OSHubs) in communities that traditionally do not engage with research and innovation due to various barriers: geographical location, socio-economic status, or ethnic minority group background. OSHubs inspire, empower and engage citizens — from school children to seniors — in STEAM (Science, Technology, Engineering, Arts and Mathematics) learning and research opportunities, grounded on collaboration with societal agents.

Local OSHubs will work as mediators in their local communities, positioning schools as active agents for collaboration between civil society, enterprises, research institutes, and families. This is performed by promoting an open schooling approach grounded in community-based participatory research practices: throughout this process, schools and communities identify relevant local challenges, which are then be transformed into pertinent research and innovation projects led by students and teachers, in collaboration with local stakeholders.

Additionally, the OSHub.Network is developing a common methodological framework that allows each OSHub to identify and analyze local needs, issues, opportunities and relevant actors, in order to address socio-economic, geographical, gender equity issues, and untapped growth potential. Inspired by the "Mission-Oriented Research & Innovation in the European Union" approach, developed by Mariana Mazzucato, OSHub.Network will define a set of Open Schooling Missions aimed at addressing relevant local challenges linked to the Sustainable Development Goals. These Open Schooling Missions will then constitute the basis for the creation and development of the open schooling projects, enabling real collaboration across communities.

In the long-run, OSHubs will act as education brokers in their local communities, supporting local school networks to incorporate Open Schooling in their vision and organizational structure, leading to sustainable quality of education. Most particularly, OSHubs will facilitate the bridge between the needs and realities of schools and their local context and resources, as well as brokering for implementing national/regional policies, passing along signals from schools when policies are failing, and advocating for context-sensitive policies.

Integrative and Interdisciplinary Education

Rapid change requires rapid adaptability, and our capacity to adapt is informed by our ability to integrate diverse approaches. To accommodate this, higher education has had to transcend an historically embedded approach to learning that has seen different types of knowledge segregated across disciplinary silos. Policy ambitions throughout Europe and across the world have recognized that knowledge in science, engineering and mathematics needs to be nurtured to engage with rapid technological advances. However, it has also become increasingly evident that art, as a unique and adaptive form of knowledge, should also be combined with our approach to STEM education. Art thinking offers a holistic way of understanding complex connections and can act as a translator between different communities of knowledge. By including art, STEAM education ensures that there is an interdisciplinary switchboard operator actively integrating different approaches to solving the problems we face today.

STEAM Inc is an Erasmus+ knowledge alliance that draws together leading transdisciplinary institutions in Europe to develop a program of best practices in higher education STEAM innovation and curriculum. STEAM thinking is a process that promotes collaboration between the arts, science, technology, engineering and maths. STEAM evolved from STEM, an interdisciplinary and applied approach to education understood to deliver the necessary skills for the high-tech and high-value jobs deemed critical for economic prosperity in the 21st century. This position has increasingly been extended to incorporate the benefits that 'artistic' practice can provide. Approaches that favor a clear application of creativity and imagination, in combination with more typically STEM skills, are considered to be routes to deeper insight and more transformative innovation.

What constitutes creativity and imagination is potentially contentious; though an outlook that focuses on the intersection between the arts and sciences can lead to certain, tangible benefits. These can include techniques for collaborating across disciplines, an ability to consider varied perspectives, and skills in identifying points of common ground. Such competencies are combinatorial in nature and, if integrated into a higher education curriculum, will lead to an acceleration in transdisciplinary innovation.

Whilst arguments for supporting STEM are well rehearsed, STEAM is becoming more and more prevalent in the higher education sector. This is not only as a way of ensuring that students acquire the multi- trans- and inter-disciplinary skills required for the future jobs market, but also to increase intellectual curiosity and, through collaborative approaches, to prime them in developing solutions to multi- aspect global challenges. Furthermore, a higher education institution with STEAM at its center is well positioned to develop new and responsive curricula that move beyond the traditional segregation of faculties and schools found in most European universities.

STEAM Learning Outside the Classroom

Educational programmes have long since left behind the confines of the classroom. Especially in STEAM education, the most innovative teaching programmes are more and more often to be found in environments outside of formal learning. Coder dojos, museums, science centers, maker spaces, think tanks and many others apply their expertise to develop interdisciplinary learning programmes for young people geared towards equipping them with the kind of 21st century skill set needed for a diverse profile. Empowering them and giving them the tools to make it in a future job market full of professions that do not even exist at this time play a key role in these endeavors.

SySTEM 2020 is an EU research project lead by Science Gallery at Trinity College Dublin focusing on exactly these kinds of science learning initiatives, and committed to developing programmes for science learning outside of formal education. A large part of the project is directed at mapping the field across Europe and identifying the most innovative and inspiring approaches to informal learning.

Tackling the scientific literacy and STEAM education of children and teenagers, SySTEM 2020 aims to support our future citizens in a world of fast-evolving science and technology.

The project evaluates a number of transdisciplinary programs to design best principles for educators and examine individual learning ecologies by piloting self-evaluation tools. The resulting study will also map practices in 19 EU countries, including in-depth studies in 8 of them. The input of learners from various backgrounds, including those from geographically remote, socio-economically disadvantaged, minority and/or migrant communities are a core part of the project, with several workshops taking place at the Ars Electronica Center and the Ars Electronica Festival to explore the learning of 9 to 20-year-olds outside schools and universities across the project's three year run time.

© Ars Electronica / Magdalena Sick-Leitner

Besides the ever-increasing number of innovative learning spaces outside traditional institutions of education, another aspect that is becoming more and more important is the development of open source learning and teaching materials. In a society where interdisciplinary education and diverse skillsets are key, we are starting to rely on toolkits that make complex topics accessible in engaging ways and are not only addressed to students and teachers, but can also be used at home by parents looking to spark their children's interest in complex topics.

One such approach is currently being developed by **spaceEU**, an exciting space outreach and education project which aims to spark the interest of young people in STEAM (Science, Technology, Engineering, Arts and Math), and to encourage them to consider space-related careers. The project inspires and broadens young minds, develops a sense of European and global citizenship and, through our shared human relationship with space, aims to foster long-term partnerships between people from different cultural backgrounds and countries.

At this year's Ars Electronica Festival, spaceEU shows how it brought its activities to various digital levels. The exhibition *Step into Space* will be presented in two different forms, online as well as a print@home version. Further online games and space related tours will allow different ways of interaction. Stop by and find out how space science is connected to our daily life, how we can use space science to learn more about the climate crisis and how art can help us get inspired.

A Platform for Promoting Cross-Sector Innovation across Europe

"Innovative technologies can build bridges among different cultural and creative sectors. The role of digital technologies for cultural and creative sectors is at the heart of the Commission's #Digital4Culture strategy.

That is the Commission's strategy coupling culture and digital, using the digital potential to empower the positive economic and societal effects of culture."[3] Ars Electronica provides its long-lasting expertise in bridging (digital) arts, science, technology and society in the frame of the Digital Cross Over project promoting cross-sectorial innovation and advising on best practices projects and methods.

Digital Cross Over is a cross sector project within the Creative Europe funding programme of the European Commission. Its aim is to demonstrate and explore the current challenges facing the creative and cultural industries. Who pays for the content created by cultural and creative professionals? How do I reach my target group in the digital age, and how can I learn from players from other industries who are or have been facing similar challenges? On this page, as well as at digital and events on site, the project partners will present best practices and inspirations, and exchange ideas with representatives and experts on how to successfully tackle the topics and questions that matter today.

These questions are even more important now, due to the situation created by Covid-19, which obliges players in the cultural and creative industries, public and private, to rethink their activities with different business models.

Partners: IMZ International Music + Media Centre (Austria), Ars Electronica (Austria), Börsenverein des Deutschen Buchhandels — Frankfurter Buchmesse (Germany), Centrica (Italy), izneo (France).
Funding Scheme: Creative Europe
Duration: 01.01.2020 — 30.06.2021
Website: https://www.buchmesse.de/en/highlights/theartsplus/digital-cross-over

Digital Cross Over is co-funded by the Creative Europe Programme of the European Union.

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3 CROSS-SECTORAL STRAND: Bridging culture and audiovisual content through digital https://eacea.ec.europa.eu/sites/eacea-site/files/call_notice_guidelines_bridging_culture_and_audiovisual_2019_en.pdf

ESERO Austria (AT), Ars Electronica (AT)

Best of ESERO

ESERO (European Space Education Resource Office) is a project run by the European Space Agency (ESA) and education partners in various European countries to promote the interest of young people in scientific issues (MINT subjects in primary and secondary education). To achieve this goal, ESERO offers teachers a wide range of teaching materials and training programs. ESERO Austria has been active at the Ars Electronica Center Linz on behalf of ESA and FFG/BMK since 2016. ESERO organizes training sessions for primary and secondary school teachers, in collaboration with national partners in STEM subject education. Teacher training events are officially accredited as part of ongoing professional development qualifications. In addition, ESERO Austria is producing accompanying teaching materials to support teachers in conveying space-related content to their students. Experts scientifically and didactically test all materials before they are made available. ESERO Austria is also responsible for handling various student projects on behalf of ESA. CanSat, Mission X and Climate Detectives are managed and processed annually by ESERO Austria.

Ars Electronica, ESA, FFG, BMK

Can Sat: TU Wien Space Team

MissionX, © Martin Hieslmair, Ars Electronica

ARS ELECTRONICA ANIMATION FESTIVAL 2020

in collaboration with the University of Applied Sciences Upper Austria, Hagenberg Campus

Like so many other art and culture events, the 2020 Ars Electronica Animation Festival is faced with a great challenge due to the COVID-19 pandemic. As every year, the entries in the Computer Animation category of the Prix Ars Electronica serve as the foundation for the screening program. This year's 930 submissions once again provide an excellent basis for a survey of current digital filmmaking from the fields of art, science, research, and animation-film schools. All entries were reviewed in a pre-jury round by Victoria Absmann, Juergen Hagler, and Nana Thurner, and some 250 works were prepared for the jury session. In the course of the jury meetings, held for the first time completely virtually, a reduced selection was assessed online by the jury, who then—on a quite unusual jury weekend—determined the recipients of the Golden Nica, two Awards of Distinction, and twelve Honorary Mentions. This year's jury was made up of Peter Burr (US), Birgitta Hosea (SW/UK), Mathilde Lavenne (FR), Erick Oh (KR/US), and Mimi Son (KR).

This year featured an impressive constellation of themes that raise questions about the far-reaching effects of human behavior on the environment as well as about technological developments like social media, deepfakes, and AI. Particularly striking were sensitive, humorous works on these topics that show alternatives to dystopian universes. In its statement, the jury especially stressed the idea of the "female gaze," which was reflected on the one hand in the way female artists regard current issues, and on the other in the manner in which they utilize their technical tools to challenge a system of dominant values.

As has been the case in past years, in 2020 there were a growing number of submissions in the areas of expanded animation, from virtual reality, installations, and art games to projection mapping. There was also an increased use of contemporary technologies such as 3D scanning, generative adversarial networks, and real-time processing. The top prize in this category went to the media artist Miwa Matreyek, and the two Awards of Distinction to the filmmakers Maja Gehrig and Randa Maroufi. This year there was a complete gender balance among the Top 15.

The question now is: how can a cross section of works like this be made accessible to the general public in a time of physical distance? Instead of our usual extensive screening program and various playgrounds, the focus this year is on the Top 15 of the 2020 Prix Ars Electronica from the Computer Animation category and selected supplementary programs. In particular, the Festival turns the spotlight on the people behind the projects. Live interviews, the Prix Forum, and the Expanded Animation Symposium provide the artists with a virtual stage for offering insights into their artistic processes. The exhibition, artist interviews, and lectures, including making-of presentations, are available to an international audience online, either as a live stream or YouTube video, or as a virtual exhibition on the Net. All those who are able to attend the festival in person can enjoy the works as usual in the highest quality and in the best possible setting: in addition to Deep Space 8K, the works can be seen at selected locations in Linz, such as the Open-Air Cinema on OK-Platz. At the same time, programs are projected simultaneously on large screens in London (UK), Portland (US), and São Paulo (BR). These locations function as virtual and real nodes of the Animation Festival, are virtually integrated into the Expanded Animation Symposium, and permit a small group of experts to have an exchange in real life. In addition, a selection of the best current Austrian animations will be shown for the first time.

Electronic Theatre

Since 1987, the Electronic Theatre has compiled a large number of submissions from all over the world, providing an up-to-the-minute survey of animation art in the context of technology and society. It impressively illustrates the dynamic development of artistic computer animation over the past three decades as well as the expansive growth of various fringe areas. A glance at the works selected this year shows a broad range, from animation in the context of performance and installations to real-time animation and multifaceted, subject-based discussions.

The program offers humorous and ingenious commentaries on social media, online dating, data mining, and surveillance capitalism, as well as infographics and data visualizations. A film experiment breaks down a border town into its individual parts, a photographic exploration opens new perspectives on the city of Hong Kong, and another experimental film examines the collective memory of soccer fans. Two Honorary Mentions this year went to VR projects, including a surreal experience based on the childhood memory of the director in Taiwan from around 1970. In an installation with a collage of hundreds of video clips taken in subway stations, the visitor is placed in the role of a voyeur in order to reflect on the cycle of everyday life.

This year's Golden Nica winner combines live performance, sculpture, theater, and animation: the artist places her body at the center of the projection and invites us to reflect on the consequences of material affluence and climate change.

Average Happiness, Maja Gehrig (CH)

The Entropy Gardens, DEPART (AT)
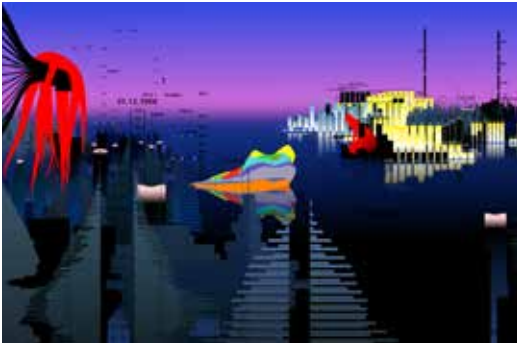
Bab Sebta, Randa Maroufi (FR)

Recursive Truth, Rachel Rossin (US)

Austrian Panorama

In this program, animated-film directors from Austria look at problems of our time. In short films — some fictional, some documentary — they challenge daily routines in our everyday digital lives, examine the impacts of social media and new technologies such as VR and AR, and discuss such absurd ideas as sending everyone back to the lands of their ancestors. An interactive, poetic VR experience investigates the nature of post-digital reality, while a touching animated film looks at the fantastic world of an old woman suffering from dementia.

The spectrum ranges from dystopian visions of the future to empathetic, humorous inner worlds.

Time o' the Signs, Reinhold Bidner (AT)

Deep Space 8K

Erick Oh: Opera

Opera is a cycle of a five-minute animation created by the prize-winning filmmaker and artist Erick Oh. Each section is inextricably linked with the activities of the individual characters, ultimately enabling the viewer to enjoy a complex construction of a vibrant pyramid, regardless of which character they watch first.

Réka Bucsi: Solar Walk

Solar Walk, by the Hungarian animation artist Réka Bucsi, is a symphony between humans, animals, creatures, and inanimate and unknown objects. Her creations move through time and space in a mysterious universe, with every scene displaying the distinctive and playful texture of the animation artist.

Expanded Animation 2020
Appeal of the Analog

For years, computer graphics and animation were plagued with a machine aesthetic and an unsettling artificiality. The movements were wooden, with the animated images oscillating between a plastic look and angularity. There was a complete lack of detail, and the hardware was incapable of producing and depicting even remotely realistic graphics. The production of computer animation requires a great deal of labourious processes, and real time represents a particular challenge. As Lev Manovich commented in 2001, the quality of analog was unattainable, and, thus, the development of an independent language for computer animation was inescapable.

However, although simulation has its problems with spontaneity, complexity and randomness, might there now be ways in which messiness, noise, and dirt could form part of the digital realm? As early as 1993, Peter Weibel postulated in the Prix Ars Electronica Jury Statement that "dirt finally reached the computer" (Weibel, 1993, p. 52), although Ken Perlin had many years before already developed the well-known fractal-noise function "Perlin Noise" to counteract the artificial look of computer-generated images (Perlin, 1985).

Now, a number of years later, digital dirt has arrived in hyperreality, and the question becomes: is the complexity of many simulations already more highly detailed than reality itself? Does digital complexity harbor a new charisma, and can it be generated in real time — that is, faster than can be perceived by the human eye?

Appeal of the Analog

With its eighth edition, bearing the title "The Appeal of Analog," this year's symposium addresses the attraction of animation in the context of performance, interaction, computer games, and audio. The Prix Forum opens this discourse with the recipient of the Golden Nica, Miwa Matreyek, who won first prize in the Computer Animation category with a textbook example of expanded animation. Drawing on the first interactive animations by cartoonists like Winsor McCay, Lotte Reiniger's cut-out animations, and various forms of black light theater, Matreyek interacts with a computer-generated world: with her body, depicted as a silhouette behind a screen, she navigates through mountains of trash, destroyed underwater worlds, and sinking cities. The works of Randa Maroufi and Maja Gehrig, winners of this year's Award of Distinction, also take a critical look at topical issues. The "Artist Position" panel, with Réka Bucsi and Erick Oh, focuses on current themes related to storytelling and animation. The second day opens with the panel discussion "Real Time." Friedrich Kirschner, professor for digital media in puppetry, discusses the interfaces of theater, performance, and animation, the Austrian artists' collective Total Refusal presents its multilayered interventions with computer gaming, and the Vienna-based artist duo DEPART introduces its latest VR installation, which was awarded an Honorary Mention in the Computer Animation category.

The panel "Art & Industry" is presented by Johannes Pfeifer — Lightword Productions on the subject of the design of cut scenes in computer gaming, and Miro Shot, a global collective of musicians, filmmakers, designers, and coders.

Synaesthetic Syntax: Sounding Animation / Visualising Audio

In cooperation with the University for the Creative Arts, Farnham, the symposium examines the interactions between animation and audio from a scientific perspective. Researchers and artists were asked to submit contributions on the subject of Synaesthetic Syntax: Sounding Animation/Visualising Audio. This scientific/artistic survey is kicked off by the media artist Rose Bond, who offers insights into her artistic work in public spaces, followed by three panel discussions on the topics of "Hearing Color Seeing Sound," "In Front of Your Eyes and Ears," "Rhythmic Analysis," "A Return to the Material," and "Movement and Gesture."

"A new media manifesto" panel discussion

Leading thinkers from industry, practice, and education discuss the need and consensus for a "A new media manifesto." Wide-ranging topics such as "The survival of subculture in a global economy," "Long-term projected trends in education," and "A new plurality" will be led by J. Harry Whalley and Laura Lee from www.audio-research.com at UCA, followed by examples of performance and practice.

Speakers
Prix Forum: Miwa Matreyek (US), Golden Nica 2020, Randa Maroufi (FR), Award of Distinction 2020, Maja Gehrig (CH), Award of Distinction 2020
Artist Position: Réka Bucsi (HU), Erick Oh (KR/US), Max Hattler (DE/HK)
Real Time: DEPART — Leonhard Lass and Gregor Ladenhauf (AT), Friedrich Kirschner (DE), Total Refusal — Robin Klengel, Leonhard Müllner and Michael Stumpf (AT)
Art & Industry: Lightword Productions — Johannes Pfeifer (DE), Miro Shot — Roman Rappak (UK)
Synaesthetic Syntax: Sounding Animation / Visualizing Audio: Giusy Caruso (BE), Fred Collopy (US), Eric Dyer (US), Umut Eldem (BE), Jānis Garančs (LV), Bavo Van Kerrebroeck (BE), Sama Mara (UK), Pieter Jan Maes (BE), João Pedro Oliveira (US)
Vicky Smith (UK), Alexander Stublic (DE)
"A new media manifesto" panel discussion: Dennis DeSantis (USA/DE), Eduard Solaz (CAT/UK), Isa Ferri (IT), Harry Whalley (UK), Laura Lee (UK/DE), Mel Uye-Parker (UK)

Organization
Expanded Animation is produced jointly by the University of Applied Sciences Upper Austria, Hagenberg Campus and the Ars Electronica Festival in cooperation with University for the Creative Arts, Farnham, UK, and organized by Jeremiah Diephuis, Juergen Hagler, Wolfgang Hochleitner, Michael Lankes, Patrick Proier, Roland Keil, Christoph Schaufler, Alexander Wilhelm / Upper Austria University of Applied Sciences' Hagenberg Campus / Department of Digital Media and Birgitta Hosea, Laura Lee, Harry Whalley / Animation Research Centre / Audio Research Cluster, University for the Creative Arts, Farnham, UK.

http://www.expandedanimation.com
http://www.fh-ooe.at
https://www.uca.ac.uk/research/arc/
https://audio-research.com

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DEEP SPACE 8K

The Ars Electronica Center offers its visitors something that cannot be found anywhere else in the world: 16 x 9 meters of wall and another 16 x 9 meters of floor projection, laser tracking and 3D-animations make the Deep Space 8K something very special indeed. Furthermore, Deep Space 8K presents challenging infrastructure to media artists. As they go about adapting existing works and, above all, designing installations custom-made for this space, they're entering artistic terra incognita. The position of visitors amidst the projection surface and participation by them call for a well-thought-out aesthetic composition and concepts for the resulting dynamics.

Seven Experiments in Procedural Animation, © Karl Sims

© Violeta Ivanova

Lee Jung In (KR/AT), Mihaela Kavdanska (BG/RO/AT), Violeta Ivanova (BG/AT), Florian Weinrich (AT)

DARV_ Abandoned Land

DARV is a series of projects conceived by an international team of artists and interaction designers based in Austria. Contemporary dance, site-specific installation and video art are connected via technology into Mixed Reality experiences, interlacing real and virtual realms.

DARV_ Abandoned Land is an intermedia dance performance which sprouts connections between analog and digital. The performers interact with large-scale objects and video projections, resembling the endless migration from one world to another in search for the better. The DARV team and eight dancers perform in various locations in Austria, South Korea and Bulgaria, guiding the audience through dystopian realities and abandoned sites. Drained-off utopias, failed social mechanisms and ideologies are embodied, explored and ultimately abandoned. Conditioned by enforced changes along the work process, the project has naturally become a response to the present world situation, its limitations and possibilities.

DARV team: Lee Jung In (KR/AT), Mihaela Kavdanska (BG/RO/AT), Violeta Ivanova (BG/AT), Florian Weinrich (AT)
Concept and Creative Direction: DARV team
Choreography & Dance Production: Lee Jung In Creation
Art Direction and Video Projections: Mihaela Kavdanska
Art Direction and Installation Art: Violeta Ivanova
Interaction Design and Software: Florian Weinrich
Dance Rehearsal Assistant : Lee Seung Ju
Dancers: Lee Seung Ju, An Se Young, Lee Dae Heung, Yoh Morishita, Hong Ye Eun
Funding institutions: Arts Council Korea, Linz Kultur, Dancer's Career Development Center Korea
Project partners: Lee Jung In Creation, Redsapata-TanzFabrik, KOTKI visuals, LM Media, Pusch TV
Sound: Mirian Kolev

Immersify: The Translucent St. Stephen's Cathedral

The cathedral church of St. Stephen in Vienna was spatially measured with more than 20 billion laser points. At this unique level of detail, they correspond to a data volume of almost 400 gigabytes and form the basis of the translucent St. Stephen's Cathedral. This innovative approach offers spectators an interactive journey through the translucent sacred building in stereoscopic 8K. The novel insights through the layers of the cathedral church were created as part of the European R&D project Immersify, which is dedicated to developing the next generation of immersive media. Over three years, the project partners have created content for highly immersive environments using various techniques and developing tools for processing the produced data.

Ars Electronica Futurelab
ScanLAB Projects
Scans: RIEGL Laser Measurement Systems, Dombauhütte St. Stephan zu Wien

© Ars Electronica – Robert Bauernhansl

Magister Art (IT)
Magister Raffaello 2020
A marvellous journey through Italian Renaissance

Designed and produced to celebrate the 500th anniversary of Raphael's death (1483 — 1520), one of the greatest artists of the Renaissance, Magister Raffaello is a new cultural project by Magister Art, digital innovators in cultural heritage content creation, production and promotion. Responding to challenges of digital transformation and social innovation, Magister Raffaello explores the potential of new technologies, combining the high scientific value with the constant experimentation of new languages and media, to create an 'augmented narration' and a 'total' cognitive experience, aiming to accessibility of knowledge and the inclusiveness of widest ranges of audiences. Magister Raffaello has been selected by the Italian Ministry of Foreign Affairs among the initiatives to be promoted by the global network of Italian Embassies, Consulates and Cultural Institutes. The participation in Ars Electronica Festival takes place in collaboration with the Italian Cultural Institute in Vienna.

Magister Raffaello is promoted by the Italian Ministry of Foreign Affairs and presented in collaboration with the Italian Cultural Institute in Vienna.

The Deposition of Christ (Pala Baglioni), Raphael Sanzio
© MiBACT – Galleria Borghese, Photo: Alberto Novelli

Students of the of the University of Art and Design Linz (AT)

Cooperative Aesthetics

For the third time, the Time-Based and Interactive Media Art department of the University of Art and Design Linz will be presenting 13 new projects on *Cooperative Aesthetics* in the Deep Space 8k as part of the Ars Electronica Festival. The works were created as part of the course "AEC Deep Space" under the direction of Prof. Gerhard Funk and assistant Prof. Holunder Heiss and enable the visitors to have a common audiovisual aesthetic experience. The interaction between all users, their communication and collaboration are essential. The concept of cooperative aesthetics entails a strong social component in addition to its aesthetic qualities in order to let people interact with each other.

Zuzanna Beker: Jumping Jack / Felix Winkler: Particle Swarm / Guggenberger Thomas: Bezier Curves / Deepa Antony: Ice Cracks / Hyelim Lee: Spotlight in Figures / Elena Richtsfeld: Flowery Meadow / Lisa Patscheider: Particles / Laurenz Vojka: Faces / Maria Mandea: Divided / Max Jurani: Village / Adrienne Herincs: Natural reactions / Gerhard Funk: Moire / Gerhard Funk: Infected

© Elena Richtsfeld, Flowery Meadow

Julien Lomet (FR), Bastien Daniel (FR), Timothée Durgeaud (FR), Johan Julien (FR), Pierre Huyghe (FR), Ronan Gaugne (FR), Valérie Gouranton (FR), Joël Laurent (FR), Bruno Bossis (FR)

Creative Harmony

Creative Harmony is a networked virtual reality artwork, inviting spectators from different cities to co-create a virtual environment in real time through gestures. With interaction through body motion, each participant is led to create the landscape of a marine universe, whether on the surface of the water or in the abyss.

Through letting go, music and virtual dancers, spectators will be able to express themselves with their bodies and connect with each other, virtually and spiritually, to evolve the world in which they find themselves immersed. The work invites us to connect with nature, where all the elements of a world are connected to form a totality, to live a moment of contemplation and meditation, cutting us off from our usual life. Also, it is through collective interactivity and listening to each other that we can live a floating moment

where only the body allows us to remotely communicate in real time.

IRISA-INRIA, platform Immersia, Rennes 2 University, Paris 8 University / An artistic and technological creation from Julien LOMET, Bastien DANIEL, Timothée DURGEAUD, Johan JULIEN, Pierre HUYGHE. Under the scientific and artistic direction of Ronan GAUGNE, Valérie GOURANTON, Joël LAURENT and Bruno BOSSIS

Dancer: Cécile Tassé
Creative Harmony, © Julien Lomet

Stefan Traxler (AT)

Geophysics, drones, laser scans... tracking the ancient Romans with high tech

When thinking of archaeology, we usually imagine classical excavation sites. But nowadays there are several methods that go beyond the typical technique of archaeological digging. Whether through the use of GPR (ground-peretrating radar) to take "X-ray" images of the ground, or drones to recognize features of the terrain, or 3D laser scan documentation — the area of the Danubian Limes is being explored with all of these methods, among others. In this segment, expert on ancient Rome Dr. Stefan Traxler (OÖ Landes-Kultur GmbH) will give you an overview of current projects.

© 7Reasons

OÖLKG / OÖ. Landesmuseum

Maki Namekawa (JP/AT), Cori O'Lan (AT)

Pianographique

Philip Glass: *Passacaglia* (Austrian premiere)
Elliot Goldenthal: *Gigue Diabolique*
Joop Beving: *Ab Ovo, Midwayer, Hanging D*

Pianist Maki Namekawa will be back with Cori O'Lan to DeepSpace!

Philip Glass' piano solo piece *Passacaglia*: After a tranquil opening, we break into boiling and purely pianistic passages of arpeggios and scales. Philip Glass' trusted pianist Maki Namekawa (who has premiered several of his piano pieces) performs this work in its Austrian premiere.
Elliot Goldenthal lives in NY. He is an American composer of contemporary classical and film scores. He won the Academy Award for Best Original Score in 2002 for his work for the film *Frida*. Both pairs of his grandparents emigrated to the USA from Bucharest, Romania, and this is reflected in his works, including *Gigue Diabolique*. Joep Beving, a successful Dutch composer says: "I envisioned it as a journey into the cosmos, far away from the self where it had started.

In search of what is fundamental in reality, beyond the immediate perceivable. The outward journey reflects the inward journey, much as the build-up of our inner workings reflects that of the macrocosmos. Once that idea starts to down on you, the level of connection deepens beyond imagination." These works and their visualizations are the result of a long-time artistic collaboration between Maki Namekawa and Ars Electronica under artistic director Gerfried Stocker.

Maki Namekawa: Piano
Cori O'Lan: RealTime visualization

© Andreas H. Bitesnich

Till-Holger Borchert (DE)

Jan van Eyck was here, there and is now everywhere ...

On the occasion of the Van Eyck Year 2020, Ars Electronica, in cooperation with the General Delegation of Flanders, Musea Brugge and with the kind support of the Belgian Royal Institute for Cultural Heritage (KIK-IRPA) and Art in Flanders; high-resolution images will be shown of Jan van Eyck's most famous masterpiece, the Ghent Altarpiece, as well as other images made by KIK-IRPA for the VERONA Project (Van Eyck Research in OpeN Access). The presentation will be given by Till-Holger Borchert, art historian specialized in Van Eyck and director of the Musea Brugge. An insight into the creative environment of the artist and his crafts and techniques will also be on display. Deep Space 8K technology will again reveal details from the works of art that remain hidden from normal viewing.

With the kind support of the Flemish Government, Saint-Bavo's Cathedral, Musea Brugge, Art in Flanders and the Belgian Royal Institute for Cultural Heritage. All images are accessible on closertovaneyck.kikirpa.be Images of Van Eyck in Flemish art collections—such as the Ghent Altarpiece—can be downloaded free of charge at artinflanders.be

Carolina Bischof (AT), Andreas Dorner (AT), Lena Kalleitner (AT), Adam Lamine (AT), Thomas Tippold, Matthias Husinsky (AT), Clemens Scharfen (AT)

Mirage — An Interactive Experience

In *Mirage — An Interactive Experience,* Deep Space 8K visitors find themselves in an alien world, where they collectively partake in a story appealing to multiple senses. Up to 16 persons can actively participate in this encounter.
In this abstract-looking world, visitors must find hidden pathways to a portal through teamwork, solve puzzles cooperatively and avoid manifold hazards. The interactive possibilities of the experience can be explored by the participants through play and without explanation—the focus is on joint discovery.
The elaborately designed 3D graphics and adaptive soundtrack make full use of the extraordinary possibilities of DeepSpace 8K, so that the participants are completely immersed in the experience. *Mirage* was developed and implemented

during a project semester of the Bachelor Media Technology Course at the University of Applied Sciences St.Pölten.

Project Team:Carolina Bischof, Andreas Dorner, Lena Kalleitner, Adam Lamine, Thomas Tippold, Coaching: Matthias Husinsky, Clemens Scharfen

Kunstuniversität Linz Campus
THE WILD STATE

THE WILD STATE

Kunstuniversität Linz Campus at Ars Electronica Festival

ausstellungen.ufg.at/wildstate

THE WILD STATE is the title of this year's Kunstuni-Campus activities at the Hauptplatz Linz. A "wild state" is an untamed territory where many things can happen uncontrolled, where laws and regulations are left to themselves and forms of consensus are tested. But THE WILD STATE is also a description of the state of the impulsive unknown, the resistant, the random, the loud and the roving. Like in a natural garden or the wilderness, where something grows, develops and blossoms without having been planned, controlled or cultivated. The Ars Electronica Festival, which this year has Kepler's Garden as its theme, is being offered a kind of wild artistic garden in the form of *THE WILD STATE* to complement the range of its many partner gardens. Why *WILD STATE*? Because the question of security and insecurity, which currently dominates everyone's lives, is not asked superficially, but is overlaid by the courage to face the indeterminate, alien, resistant, exuberant and noisy.

When the corona pandemic counted a declining number of infected Covid-19 sufferers and the initial restrictions of the Austrian federal government softened, artist and former biologist Christa Sommerer and curator Manuela Naveau met in Sommerer's garden. They philosophized about and discussed plants, people and viruses and finally laughed together again.
What was striking, however, was the uncertainty that dominated all their conversations: are we allowed to meet at all?

What exactly does Ars Electronica intend to do this year and will it take place? What are we going to do with the students who are seeking an existence without a side job and who fall out of many public funding source? What do we do ourselves if we can't reach enough students or nobody at all with our ideas for the Art University Campus 2020? How about the audience, which is worried about its future? And is anyone at all interested in artistic-philosophical questions during a pandemic?

On the question of safety and the almost certain probability of uncertainty

Security. Everything revolves around this one word at the moment: a state of maximum possible cannonballing, so as not to be infected with Covid-19 or endanger others. For security reasons, people on this planet have been voluntarily forced to withdraw from public life. For security reasons, wars have been stopped, people are no longer allowed to work or travel, borders are and remain closed, airlines are going bankrupt and we're seeing premonitions of a world economic crisis to follow.

It is a time in which we sit at home in a self-determined way: for our own safety and that of others. We are, however, insecure: we fear for our jobs, we argue with our loved ones at home, we wear masks when we use public transport or have to leave the house, self-motivated.

Mirrored self

Our bodies are exposed to bacteria and viruses, and if one thing has become clear to us in the time of online calls and meetings it is that our bodies are actually dirty, they are disease carriers to be pushed back into the private sphere because they are sources of danger. A body that should be washed constantly, hands that have to be continuously disinfected and distances that need to be kept between bodies. But our mirrored self can present itself in a completely different way: online we are allowed to meet and to get very close and unite. From one day to the next, the representation of the public was limited to the virtual public, to online places where we met, worked, discussed and produced. The public sphere is, however, limited to the materially alienated body, our mirrored virtual bodies, which have been stripped of their weight and which form, together with others, without gravity in the networks and the platforms of the world. The pushing back into the private sphere out of fear leaves traces. And increased testing of our own online persona also influences us. Do we still recognize ourselves in the virtual mirror? Do we reflect our insecurities here or does this form of reflection also selectively focus on exactly that which increases our insecurity?

From the UNCANNY FRIENDS to STATE OF INTIMACY to AGORA DIGITALIS

Young artists have a reputation for resilience. Despite economic difficulties and a general lack of social recognition, they cling loudly to their ideas and believe in their visions. Giving up easily is not an option for them. This kind of resilience has served them well in the recent global crisis, as artists are used to working under difficult conditions and adapting quickly to new situations. As with an ecosystem in which some plants manage to adapt to the most hostile conditions, creatives and artists would find ways to keep going anyway. Projects and works of art that were supposed to be physically produced had to be developed online, teaching was done via web platforms, concepts had to be changed and improvisation and quick adaptation became the modus operandi.

The metaphor of *THE WILD STATE* was born. A complex territory emerged in the minds of artists who were now free from previous rules and regulations, and searching for a place

that would give them the courage to think and create online, as well as offline. Like a foreign, original, newly discovered country, *THE WILD STATE* promises only natural laws and no artificially imposed ones. It allows many seeds of ideas that have flown in to grow, and lends them rich soil, fertilizer and attention so they can mature, untamed, to full development — and full diversity. In *THE WILD STATE*, the question of the dirty body is not present. Artificially constructed systems of classification and evaluation give way to natural coincidence and its seemingly inherent laws. The goal is not to understand them, but to react to them intuitively, wildly, uninhibitedly, courageously and loudly; exactly the qualities that outshine finiteness, withering and dying in the wild garden.

In *THE WILD STATE* of the University of Art and Design Linz, a symposium asks about the *UNCANNY FRIENDS*, the Interface Cultures program presents the exhibition *STATE OF INTIMACY* and reflects, by means of performances and discussions, on the desire for forms of publicity in the *AGORA DIGITALIS*.

In addition "Interfacing Hauptplatz", on the main square in Linz presents a reflection of our reality through an oversized window into another world: *ANTOPOLIS* is an interactive installation by Christa Sommerer and Laurent Mignonneau in which passers-by become part of the artwork. The work itself refers to our relationship to nature, which must be reflected anew, especially post-corona. The AV-Installation "The Transient Shadows" by DEPART visualizes and sonifies what is invisible and transitory in our time. The *SOUND CAMPUS* is dedicated to musical performers, while *FASHION & TECHNOLOGY* sketches democratic and sustainable ways forward for the fashion and clothing industry. Workshops are also a must, and students from the Teachers Training course

Design: Tech.Tex will be discussing processes for merging techniques, new materials and their mediation in *CRAFTING FUTURES*. Last but not least, one of the highlights will be *THE WILD STATE: NETWORKED* Exhibition, where the latest works on the topic of the pandemic were jointly curated by several partner universities from Europe, the USA and Asia. In this way, the large international network at the University of Art Linz is being maintained and further expanded, as close international cooperation becomes especially important for students and teachers in the long term, especially in times of crisis. The splace on the Hauptplatz is not only a place for our international guests, but also a free space for the Internet flea market *YAMI-ICHI*.

Following an incisive period of security measures, protective regulations guided by fear, the repression of our bodies from the public, and the digital reflection of our shape, thoughts and actions, we go out and offer images and scenarios of a *WILD STATE*. For what we have learned from the pandemic is that nothing is as safe as it seems. In times of large amounts of data and predictive analyses, we have to admit that we know that we don't know. The world and our ecosystems are still very fragile, and we are more vulnerable than we think. One thing we can learn from artists and creative people is survival skills. Like some extremely resilient plants that can adapt to extreme temperatures, they are able to transform even the most hostile of situations into something fertile and generative.

Text: Christa Sommerer & Manuela Naveau

The Wild State Program Team: Christa Sommerer, Manuela Naveau, Julia Nüsslein, Sylvia Leitner, Davide Bevilacqua

The Wild State: Networked

Exhibition by partner universities of the University of Art and Design Linz
The exhibition is curated by Julia Nüßlein and Davide Bevilacqua.

The many events of the early months of 2020 have turned our world upside down. The Covid19-pandemic has profoundly changed the way in which we live, work and move. Many have and are still experiencing this time as one marked by uncertainty and precariousness. On the other hand, a world in flux also offers the possibility to question habits, and an opportunity for new beginnings.

The Wild State: Networked exhibition seeks to leave the state of uncertainty behind us by bringing some of the most recent and compelling contributions to the Hauptplatz in Linz. We are delighted to present works by Master and PhD-students touching on topics related to the truly "Wild State" we are currently in, and the natural processes related to it.

Participating artists:
– University of Paris 8, Paris, France: Aurélien Duval, Laura Lassus-Pigat, Hyunah Jung, Vicky Michalopoulou, Juan Patricio di Bacco
– Politecnico di Milano, Milan, Italy: Giulio Interlandi, Gabriele Ragusa, Zi Yin Zhou, Xiaoman Bai, Carlo Leone Cattani, Marco Eugeni, Nicolò Masini, Eleonora Volpato
– IAMAS — Institute of Advanced Media Art and Sciences, Gifu, Japan: Macoto Morishita
– University of Minho — Institute of Social Sciences, Minho, Portugal: Marco Heleno
– Trondheim Academy of Fine Art, Trondheim, Norway: Unnur Andrea Einarsdóttir, Mina Paasche
– Universitat Politècnica de València, Valencia, Spain: Natacha Cabellos, Noelia Medina
– NABA Nuova Accademia di Belle Arti, Milan, Italy: Emanuele Cantò, Gaia De Megni, Marco Antelmi

– Aarhus University, Aarhus, Denmark: Sophia McCulloch, Mads Lindgaard, Jonas Paaske
– Willem de Kooning Academy — Piet Zwart Institute, Experimental Publishing, Rotterdam, The Netherlands: Artemis Gryllaki, Rita Graça, Paloma García García
– University of California, Santa Barbara, USA: Sihwa Park, Mark Hirsch
– Aalto Media Lab, Aalto, Finnland: _Kolvolv & Kaappo Lähdesmäki / Lasismi, Bailey Polkinghorne
– National University of Theatre and Film "I.L. Caragiale" — CINETIC, Bukarest, Rumania: Sebastian Comanescu, Octavian Albu
– Masaryk University — Faculty of Arts: Black Box / Černá skříňka Project

STATE OF INTIMACY

Interface Cultures,
University of Art and Design Linz
Faculty: Fabricio Lamoncha, Anne Nigten, Christa Sommerer, Laurent Mignonneau, Davide Bevilacqua, Gertrude Hörlesberger

In the field of media art and technology we often discussed, until recently, how to design intimate technology. And the desire to be departing, like Harry Potter, from Platform 9 ¾ seemed to be a major incentive for augmenting and mixing realities. Until last spring, when the University of Art and Design in Linz had to close and a lockdown immersed us all, unwillingly, in a virtual world whilst the physical world seemed to be replaced by daily statistics. This is the context for the Interface Cultures students who worked, for the full 2020 summer semester, in confinement on their projects for this exhibition.

The Interface Cultures students show us their survival tactics: how they dusted off the romantic artistic solitude as a way to fight the feeling of being isolated. The exhibition shows how art can both distract us from loneliness and magnify our social needs in times of confinement. Moreover, the exhibition highlights, maybe even more than before, the relevance of art and artistic research in the digital realm.

Several of the works draw us into the intimacy of the student's private sphere, as if we are sitting next to them, locked up in their student room in the dorm or wherever on the globe they were stranded when we all went into lockdown. Whilst some of the students invite us in, others are keen to keep us out, and critique the state of our privacy. We are taken behind the scenes and learn that, although we are lucky to have the GDP in place in Europe, we risk privacy erosion when one is asked to 'donate' private data. The tech savvy students bring forward questions such as: Sharing one's intimate data for a good cause or profit? What is the impact of this confinement on our private life, on our democracy? As a sign of the time, the exhibition even includes artistic responses to 'skin hunger', a new phenomenon that came along with the new realities' hygiene and social distancing regulations.

Independently from the isolation, several projects show artistic and ethnographic experiments with social interfaces. These projects lead us down to unknown (fictional) paths in our visual culture where the individual and society intersect. Other paths take us to more distant, but urgently topical, viewpoints of general concern about our online lives and bring forward pressing issues such as: How vulnerable are we online? How do we come to supported resolutions and decisions online? Is our media and biological literacy future-proof?

What all these years' student projects share is a call to remain alert, a state of emergency.

Moreover, this unique exhibition reflects, in many respects, the diversity of the international Interface Cultures students group. Many of the students' art and technology projects seem to encourage us to consider new collective values. We hope you'll be inspired and alerted by their intimate, artistic, socially engaged, technical informed or critical views on our life over the last half year.

Juan Pablo Linares Ceballos (CO)
All at Once

All at Once is a project focusing on the space between images, the way memory rewrites itself constantly from the visual stimulus that we are exposed to through our screens, and how it shapes the world we inhabit. The project presents a reflective visual digital space made from images constructed using 3D software, programming and visual editing tools. It is an installation of multiple screens displaying short videos from captures of my screen while I work on constructing the images I desire. The videos are played in random order on each screen, so that different visual compositions are possible while people visit the space: there is always something not being seen as we turn our eyes to the other side. I wonder about the process in which each image that has

been seen becomes an action towards the world. The installation proposes a space of compressed time between those simultaneous steps as our vision travels around them.

Various artists
COCO-lands

COCO-lands is a growing digital archive of international media artists dealing with the global COVID-19 crisis. Starting on March 15th, the participants shared their personal reflections on the various forms of isolation from a variety of geographical contexts: from almost complete isolation in Italy, over the strict measures taken in Austria, to the serious social consequences faced in the USA and permanent isolation on a remote island in the middle of the Atlantic Ocean. The contributing artists decided to create their digital diaries as a ritual without knowing when the process might end, to inspire each other against the quarantining of their passions and against the virus as a social epidemic. They thereby tried to

understand and overcome the personal and social anxiety and repression that are slowly becoming central to the current globalized lifestyle.

Thu Trang Eva Ha (AT/VN)
WWWORLDGARDEN

WWWORLDGARDEN is a social virtual reality experience. The online space is built around the concepts of electronic dance music festivals. Playful lasers, smoke machines, powerful projections and flashy visuals promote feelings of ecstasy. In a state of emergency such as the current one, it is not possible to organize cultural events safely and the date when we might return to concerts, clubs, or festivals is unknown. Cultural gatherings are the last on the list of social events to return. Despite DJs using social media platforms for live stream events, listening to techno music at home cannot compare on any level to how music is experienced at a physical rave, where an intimate communication between the DJ and the participants is established. DJs interact with their crowd through music, and the crowd interacts back through dance, to create a nonverbal feedback loop in which both parties operate as a unit. Thu Trang Eva Ha — aka Shinsekai — establishes *WWWORLDGARDEN*, an online stage to celebrate the virtual festival experience.

Jaskaran Anand (AT/IN) / Technical direction: Stefan Fuchs (AT)
In-between Privacy

In-between Privacy emphasizes the interconnectedness of society and addresses the visibly rising importance of "Body.Self" interactions. The project aims to develop a new language for the understanding of individual physical and digital privacy, and discusses definitions of private/public space in a society comprised by diverse cultures. *In-between Privacy* is grounded on the idea that there is no separation of "me", but rather a collective "I". It manifests through an interdisciplinary series of performances, discussions and digital prototype(s) focusing on the geo-political nature of the "Body.Self" to enhance social interactions at various levels with the audience and the artist. It adheres to the concept of "True.Self" & "False.Self," where the "True.Self" can also be hypothesized as avatar, the copy of digital content unknown to the individual.

Collaborators: Department of Art Education — Museen der Stadt Linz (NORDICO), Plankton Electronics Movement, Spätschicht, RENU, Kilian Jörg, NANNA, Monica Vlad, Yazdan Zand
inbetweenprivacy.lilimit.com

Afra Sönmez (TR), Nursinem Aslan (TR)
ONISMA

A textile organism as an electronic instrument. The meaning of the word 'onism' comes from the frustration caused by the awareness of being bound to one body that can inevitably experience only one place at a time. *ONISMA* offers a way to overcome this new feeling by offering the audience the possibility to escape the place in which they feel stuck, to reach a different one. A sound journey is activated through an electronic organism fed by urban sounds, which offers the audience an alternative way to walk through various cities. Church bells, birds, subway announcements, etc. become the foundation for a new experience of the urban landscape that allows us to overcome our bodily limitations.
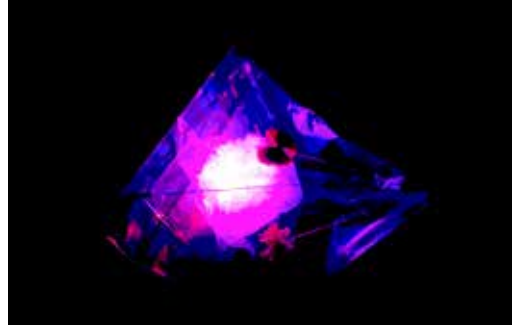
Vanessa V (concept and design), Andrea Macchia (images), Vincenzo Guarnieri (scientific design) (IT)
Photosynthetic Me

Photosynthetic Me emerges from a process-based experiment around the idea of becoming plant-like in which I am the test subject. It is based on scientific studies of the photosynthetic qualities of the Elysia chlorotica slug. The aim is my evolution, whereby I try to activate a photosynthetic system that can make me self-sufficient in terms of food and energy requirements. The installation explores the limits between science, fiction, art and life by displaying video and text documentation. It also actively involves the visitor. *Photosynthetic Me* is part of a personal path started a few years ago when I tested positive for the risk of two genetic mutations: breast cancer (BRCA1) and thrombosis (MTHFR), in light of which I decided to inquire into the debate around innovative genetic techniques. What if we could replace the diseased parts of our DNA? What if we could swap genes with other species, becoming like leaves? Is this natural? Can I evolve in my imperfection? Is it possible to be perfect?

Indiara Di Benedetto (IT)
Portrait of a Generative Memory

How does someone interpret and recall a human face? How can these memories and related emotions be communicated? In an attempt to remember individual faces while dealing with large amounts of pictures, *Portrait of a Generative Memory* focuses on the subjective interpretation of personal memories by collecting information about the elements that people are able to memorize about a human face. The project is centered on the relationship between observation and imagination: observation, as the method used to internalize reality through our intellect, emotions and experience; imagination, as a personal and individual interpretation of a given experience, influenced by the thinking patterns of the individual. Independent from any precise logical elaboration, it processes the content of a sensory experience. The elements of the human face that a person can remember are combined and interpreted to generate a new series of abstract and unrepeatable portraits.

Mario Romera (ES)
Proof of Consensus

POC (Proof of Consensus) is a web application meant to facilitate decision-making processes within groups. It provides the space and time to rethink how consensus mechanisms work. Within this art project, participants will find a combination of technologies such as Peer to Peer (P2P) protocols, Natural Language Processing (NLP) and distributed computing algorithms (Scuttlebutt, pseudo-PAXOS) joined with data visualization techniques (text vectorization), design thinking (reverse engineering company strategies) and methodologies from social movements. *Proof of Consensus* is a "stalker" into the world of politics, technology, society and art. Following the echoes of social movements, it digs into machine strategies and techniques to investigate new ecosystems in which humans can learn to understand each other and form consensus.
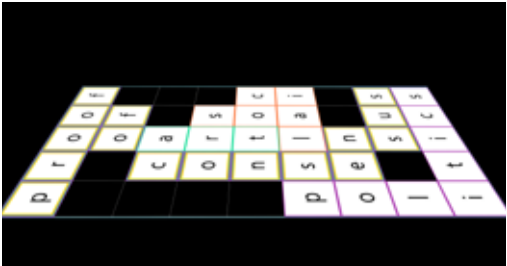
Bálint Budai (HU)
What's Next

What's Next is a VR installation based on visual imaginaries related to existing concepts of afterlife. The artwork gathers all these visions into one, as a multitude of entities levitate in a generative space together. Through virtual reality, participants can see how a "non-real" lifeform might look like.
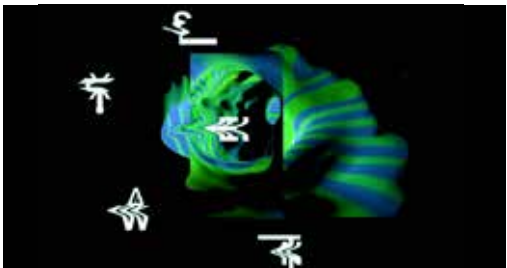
S()fia Braga (IT)
SSID: tag me

There is a disfigured area in the exhibition space. Can you see it? Reach it. Take your smartphone out of your pocket. Oh! It's already in your hand. By connecting to the routers you can watch the videos *I Stalk Myself More Than I Should* and *Welcome to My Channel*. Next to the routers you will find a smartphone showing *Die Verwandlung*, a psychological horror movie made for the Instagram stories format and meant to expire in 24h. The series of videos investigates appropriation, the improper use of private content published on the internet and online nihilism.

Nomi Sasaki (PE/JP)
Track-track: Let's Follow the Cat!

A hungry Andean cat travels to the coast to fish, unaware that he has some unexpected followers. The project recreates a short micropuppet theater for children where the scenography is animated by the spectator's biometric data. While seeing the show inside a box through a peeping hole, the kid activates sensors that take their data to move clouds, waves, and more. Inspired by Lambe Lambe puppetry, *Track-track: Let's Follow the Cat!* aims to explore children's new digital environments and the concerns that biometric data and privacy imply. This interactive puppet show investigates how children recognize themselves as data sources and how they perceive their own digital data as a resource.
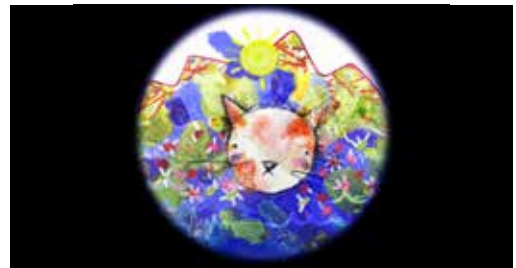
Amir Youseff (FR)
Floating Spaces

Floating Spaces is a three-dimensional kinetic sculpture that unites the forms of a *Tanoura Whirlpool Dancer* and a spinning top. It produces a poetic kinetic atmosphere by engaging with the surrounding spaces and reflecting off surrounding monuments. The work is inspired by a distinctive feature of contemporary large cities, namely, the disappearance of local, neighborly relations, and the resulting loneliness, alienation, and atomization of the citizens. *Floating Spaces* thus reveals the hidden design of public spaces and values of social inclusion and integration.

AGORA DIGITALIS

Agora Digitalis is the Interface Cultures' meeting point during the 2020 Campus Exhibition. The general idea behind it is to create an informal setting where students, (future) makers and future students can meet and become acquainted with Interface Cultures. *Agora Digitalis* is a physical and virtual place where everyone should be able to share and express their ideas. It is planned as a place for informal learning and critical debate about developments in the arts, technology and science.

This year's State of Intimacy edition will undoubtedly reflect on our recent online experiences and it might also, in its slipstream, revisit recent techno-utopian ideals. To kick-start the *Agora Digitalis* debate, I'll highlight some issues that surfaced in recent conversations and reflections with students and artists. For the sake of the argument, I'll summarize them in bold statements:

–   Recently, the city and the world came to a stand-still and we had to move our learning and work lives to online environments. This confronted us with the internet's sensory shortcomings.
–   The dominance of commercial software platforms forced us to face that our daily online experiences are situated in a neo-capitalist transactional playground.
–   For IC art students and artists in the field of art & technology, a good internet connection and technical literacy are more important than ever.
–   The pandemic brutally pointed to our problematic relationship with our biosphere; what we eat and what we breathe.

Please note that I'm not putting these issues forward as doom scenarios. On the contrary, I see them as references to the also frequent hopeful voices from engaged artists, scientists and authors that have labelled the pandemic a game changer, a turning point for change. (Carrington, Giordano, 2020) We are now in a position to rethink and maybe even reshape our reality. To do so, we need creative forces that are able to immerse us in intimate multisensory experiences and transport us to alternate realities. Though this might sound like high-flown ideal, we'll need imagination and radical creativity to shape our mixed reality. Or as Pierre Levy once wrote: "[...] imagination, and especially collective imagination, produces reality." (Lévy, 2005) In this context, it is probably unnecessary to state that our recent experiences taught us our reality is mixed, and with considerable shortcomings. Interface Cultures finds itself at the spot in which art, technology and science intersect. Initiatives such as the Science Technology and ARTS (STARTS) Prize, hosted by Ars Electronica and others, show us that this nexus is a splendid point of departure to catalyze the sort of creativity that's needed to shape (parts of) our near future. (Nigten, 2020)

It is therefore important to discuss with students, artists and their science and technology allies how they perceive their role and the relevance of art in these times of change.

Program Team Agora Digitalis:
Dr. Anne Nigten, Carla Zamora
References: Damian Carrington, Coronavirus: 'Nature is sending us a message', says UN environment chief, 2020
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Leonardo/ISAST—Education Arena
Publishing & Mentoring Workshop

Leonardo/the International Society for Arts, Sciences and Technology (Leonardo/ISAST) is a global enterprise think-tank creating inroads to imagine a better world, regenerate hope for humanity and achieve breakthrough solutions to our most complex problems. Fearlessly pioneering since 1968, Leonardo serves a global network of scholars, artists, scientists and researchers by publishing the world's leading academic publications with MIT Press, incubating transdisciplinary community nodes through our international LASER Salons, supporting critical thinking and research through art-sci residencies, designing impactful conventions across time zones and disciplines, and supporting educational innovation through our partnership with the #1 public research institution, Arizona State University (ASU). Through the ASU-Leonardo platform, we are creating agile educational opportunities to respond to—and drive—industry, policy and global learning. Our educational program supports innovative microlearning modules across multiple [formats/modalities], mentorship, early publishing entryways, non-linear experimental publishing, full-cycle ideation and creative presenting opportunities.

Our Commitment to Art-Sci Education: Leonardo is where ideas don't take sides. We advance this belief by forging pathways for access through multilingual publishing, digital platforms and virtual participation, breaking through barriers and limitations due to travel, language and/or state policy. We stand by the values we share with ASU: excellence, global engagement, purposeful & impactful research, social embeddedness, student success, sustainability, valuing entrepreneurship & innovation. Designing the future of Arts Publishing with *The Wild State—Kunstuniversität Campus at Ars Electronica*: The next generation of art-sci-tech practitioners around the globe will converge at THE WILD STATE, supported by the Ars Electronica platform and The University of Art and Design Linz, to influence the future of arts research and publishing. As Leonardo/ISAST begins to design for the future of experimental publishing, we must include a multi-generational, trans-technical, multilingual and transnational approach. Partnering with THE WILD STATE and the University of Art and Design Linz is essential to deploying educational-to-professional models of practice.

More at leonardo.info

LEONARDO
THE INTERNATIONAL SOCIETY FOR THE
ARTS, SCIENCES AND TECHNOLOGY

The Internet Yami-Ichi
S()fia Braga (IT), IDPW (JP)

Shut down your computer and join the third edition of *The Internet Yami-Ichi* in Linz! *The Internet Yami-Ichi* derives from the Japanese for "Internet Black Market," but also for "sickness" and "addiction." It is a flea market where people consumed by the Internet can share and buy Internet-related things in real life. *The Internet Yami-Ichi* was created by the Japanese art collective IDPW in 2012, and took place in 2012, in Tokyo, for the first time. Since then, many editions have been organized in various cities like New York, Seoul, Moscow and Berlin.

http://yami-ichi.biz/

CRAFTING FUTURES

Growing Together

Crafting Futures shows works by students of the bachelor course *Design: Tech.Tex*, teachers training for technical and textile works, which were created during the last year. Its focus is on the active examination of questions concerning the future of craft, the craft of the future and the crafting of futures. In many ways, the individual works objectify the merging of various approaches, materials and techniques; topics that play an especially important role in the study and subject of handicrafts. The areas of technical and textile craftsmanship, which used to be taught separately, are being merged into one, thus breaking down long-standing boundaries. This both demands and encourages a new and future-oriented conception, practice and reflection on design and its communication.

Within the framework of the course, this challenge is seen as an opportunity. The research and creative examination of traditional craftsmanship in the context of new, digital technologies plays an essential role in working constructively and productively across (material) boundaries. In this context, the development of independent artistic and creative works is the starting point for weaving theories, practices, and mediation together in ever new ways.

Participants: Robert Angerer, Yara Bartel, Lisa Benedikt, Alexander Grabner, Michaela Haager, Lisa Hametner, Sofie Lüftinger, Tamara Lang, Johanna Pichlbauer, Hannah Perner-Wilson, Neriman Polat, Isabel Prade, Andreas Schmied, Alessandra Steiner
Department Design: Tech.Tex: Ingrid Hackl, Astrid Young and Irene Posch

Lisa Benedikt (AT)
3D Printed Cross Stitch

3D Printed Cross Stitch, by Lisa Benedikt, critically examines whether and how old, analog textile techniques should be reinterpreted and digitalized, and if they can be digitalized at all. She combines handicraft techniques and regional patterns passed on from generation to generation with pride and appreciation for new technologies: in this case, 3D printing.

Lisa Benedikt (AT)
Shining Tradition

Shining Tradition, by Lisa Benedikt, is based on two lamp models by Vico Magistretti, combining iinnovative technology, practicality and a consistent statement. Concrete elements from peasant painting and the conception of the traditional costume of Lienz are taken up to design a new lamp object in a combination of ceramics, glaze and electronics.

Alexander Grabner (AT)
Φως [fos]

Φως [fos], by Alexander Grabner, addresses how, though we are surrounded by the most modern technology, intended to make our lives easier, the essential and original can often remain hidden. Φως (gr. Schein, Licht) is an electric generator that alludes to Plato's allegory of the cave. It shows power and light at the same time and also outlines the history of human progress through the materials and techniques it uses.

The following four works were created in the context of the "Faser-Faden-Fiktion" (Fibre-Thread-Fiction) project, an expedition on electronic textiles, their materials, questions and ideas, led by Hannah Perner-Wilson. New objects, discourses and visions have emerged from the process of spinning fabrics into fibres and spinning them, in turn, into fictions, and these have all been documented as travel guides for future travelers.

Robert Angerer (AT)
The Sound of Tea

The Sound of Tea, by Robert Angerer, shows the results of an exploratory process to create a material -kombucha- from tea, sugar, water and microorganisms, and to construct loudspeakers out of it in combination with bent-and-wound copper-wire and a permanent magnet.
The deliberately reduced construction method brings the material to the fore, even as it draws the viewer's attention to the simple function of a loudspeaker.
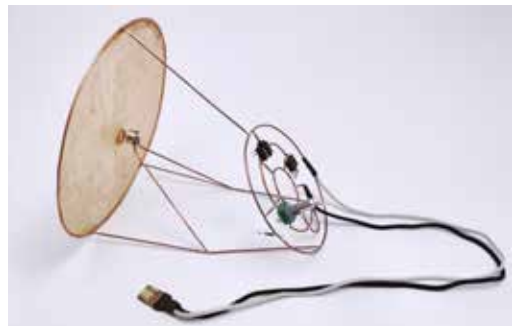
Michaela Haager (AT)
SichtLicht

SichtLicht, by Michaela Haager, is a warming scarf that is the ideal companion for cold and dark seasons. It not only keeps you warm and looks good, but also makes sure you are visible to others in the darkness thanks to cleverly sewn-in LEDs. During the day, the lights can be switched off and the battery charged. Thus, *SichtLicht* can be adapted to individual situations and wishes through a variety of binding and wearing options.

Sofie Lüftinger (AT)
Joystick

Joystick, by Sofie Lüftinger, arose from an examination of the discourses on textile handicraft in the field of tension between gender norms, productive conditions in the textile industry, and their emancipatory potential. Interaction with *Joystick* makes a hidden motif visible, thus creating a moment of surprise of exposed intimacy that is also meant to reduce shyness.

Yara Bartel (AT)
Hey Sirius

Hey Sirius, by Yara Bartel, is based on ancient oracles that often made mysterious statements about the future. It is reminiscent of textile murals and sounds like a modern language assistant. Activated by the questioner's physical presence, it provides abstract answers to concrete decision-making queries of all kinds, e.g. "Hey Sirius: is it a good idea to buy the postmodern tapestry for me via teleshopping?"

Lisa Hametner (AT)
Illuminated Paper Wave

Illuminated Paper Wave, by Lisa Hametner, illustrates the versatility of paper, here implemented in moving light modules. The waterbomb folding used supports the implementation of the wave, its gentle dynamics complemented by the pulsating programmed light. The blue-green light color reflects the basic idea of a relaxing light object.
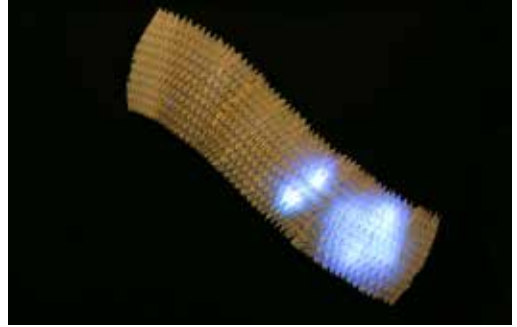
Tamara Lang (AT)
hortus scholae/hortus artium

hortus scholae/hortus artium, by Tamara Lang, deals with the design of school gardens from the perspective of art and work education and propagates it as an artistic interdisciplinary place. Illustrations visualize this examination, and three-dimensional objects are used to imitate nature through textiles.

Various artists
Märchen, Mythen, Materie

The Ars Electronica Center will also be showing works by Robert Angerer, Michaela Haager, Sofie Lüftinger, Neriman Polat, Andreas Schmied and Alessandra Steiner that have emerged from the project *Märchen, Mythen und Materie* (Fairy Tales, Myths and Matter), directed by Johanna Pichlbauer and Isabel Prade. A storybook documents explorations of the potential of material as a narrative tool and of work on materials for future legends.

Latency Now, Telematic Improv Workshop

Theatre of Making #4

An interwoven fabric of senses and data points is knit closely together into a constant flow of feedback loops, coalescing outside time, in a world that cherishes the state of NOW.

The interdisciplinary workshop series *Theatre of Making (TOM)* focuses on real-time audiovisual improvisation by exploring how continually evolving artistic methods, media and processes overlap and are reconfigured to unfold a constant flow of visible, audible, and experiential events. These cross-media jam sessions engage all senses and abilities, synthesizing processes and outcomes into a live, durational, closely-knit total work of art. The work itself will span a range of disciplines from audio production to image-making, performance, visualization, choreography, critical costuming, graphic scoring, drawing, and writing. In response to the onset of the Covid-19 pandemic in Europe from March 2020, the evolving group of *TOM* artists and students embarked on a series of performative audiovisual improv sessions via teleconferencing software, maxing-out the intrinsic functions of existing tools and transforming them into fertile ground for co-making and interplay. In this way, participants could recover what so many were missing most at that time: togetherness, and a sense of communal endeavor.

Drawing from the rich and diverse history of tele-portal performance and internet art-making, the expanded group set out to develop a new type of real-time, procedural artistic research. Distinct methodologies were adopted during the sessions, and key insights generated during these sessions informed the fourth edition of *Theatre of Making: Latency Now — Telematic Improv Workshop*, held April 29-30 and May 2, 2020, and hosted by Tina Frank and Alex Murray-Leslie at the University of Art and Design Linz. *TOM4* brought together students from the Departments of Interface Culture, Fashion & Technology and Visual Communication, and students from Trondheim Academy of Fine Art, NTNU (Norwegian University of Science and Technology) and a wide range of practicing artists across the globe.

The video installation *Latency Now* — part of Ars Electronica Festival's CAMPUS exhibition — presents glimpses of the introductory talks, highlighting milestone moments from the history of online telematic improvisation and performance, and depicting workshop results. Accompanying the installation is a diagrammatic network including *TOM* contributors from the full series.

Theatre of Making #4, Latency Now: online telematic workshop with participating artists: Jaskaran Anand, Hannah Andergassen, Christoph Breineder, Andrea Eiber, Iris Karl, Valeria Lehner, Alisa Matern, Sophie Morelli, Alexandra Murray-Leslie, Tina Frank, Mari Bastashevski, Anat Ben-David, Panja Göbel, Wolf-Dieter Grabner, Krõõt Jurak, Diana Lindberg and Thies Mynther with talks contributed by Roger Mills, William Kherbek und Oswald Berthold; Online, April 29th/30th April and 2nd May, 2020.

Fashion & Technology presents IN THE LAB — Liquid Objects, Disobedient Materials

The exhibition takes a surprising look at the sustainable, inclusive and democratic future of fashion.

Waiting to be discovered are the inner life of virtual bodies, seamless garments made from experimental jacquard fabrics and second-hand clothing that dissolves and reconfigures.

IN THE LAB makes innovative processes visible and invites visitors to observe new shapes and materials as they grow.

Melanie Nutz
MATERIAL MATTERS

For her graduation collection, Melanie Nutz deals with fashion and sustainability. During her internship at palmer // harding in London, she developed an awareness of the global influence the fashion industry has on our environment. As a result, resource conservation is particularly important to her while making a collection. For MATERIAL MATTERS, she researched three novel material concepts and methods: "zero waste", recycling and the upcycling of existing materials (with the latter breathing a second life into shredded shirts). Deconstruction and a hand weaving model make clothing more durable and future-proof.

Aaron Alvin Keller
IN_BETWEEN_SPACES

The fashion industry is contributing to the environmental and social crises on an ever increasing scale. Overproduction, huge transportation distances and massive labor law violations are the result of an endless race for change in fast fashion. This project examines an alternative production method for clothing and tests whole garment weaving as an experimental construction and production method. The basis of the practical method is the creation of multi layered composite fabrics, which are transformed from a two-dimensional surface into a three-dimensional garment only by cutting into them.

Tania Pérez-Hernandez

INVERT

Mr. Kondo ties his trench coat belt. A belt like a strong animal, that deforms or strangles him, and pulls his organs to the outside. Pulls them out like a vacuum cleaner, a powerful vacuum cleaner, a black hole in space. A vacuum cleaner in a living creature's mouth would pull everything outside, all its organs and bones and so the abstract silhouette of the inside becomes visible.

With *Invert*, I am concerned with dissolving our ideas of the body and creating new ones. I play with different bodies, animal and human, in virtual space, where I let them interact with each other. The bodies mix and mingle and result in novel shapes. Using software, I can peel off these new body surfaces and get abstract patterns I then transfer to textile surfaces and assemble into three-dimensional wearable objects. In this way, I bring these new bodies back into the analog world.

Symposium UNCANNY FRIENDS

Department of Media Theories (Gloria Meynen), University of Art and Design Linz, in collaboration with IFK Vienna (Internationales Forschungszentrum Kulturwissenschaften) and the Working Group Data and Networks, Gesellschaft für Medienwissenschaft

From delinquent to influencer, the profile has had a surprising career. Hardly a day goes by without a new one. Some want to curate the traces of their data, to design their digital self like a star cut. They are touched all the more eerily when, through AI, their digital doubles awaken to a second life. Around 1978, a metaphor found its way into English android research that the roboticist Masahiro Mori had defined in 1970: the "uncanny valley". Robots that resemble humans too much instill fear and terror. Like us, but never familiar, they inhabit the "uncanny valley." But today, the uncanny valley has almost disappeared. Thanks to RFID chips, GPS and a wide variety of body sensors, our bodies and identities have themselves become interfaces, mouse pointers and prosthetic hands with which algorithms trace and continue to write our profiles. The valley that Mori dug out between the industrial robot and the NÔ-mask is now levelled. What remains is a suspicion: that the ghosts and the undead are not only the robots, but ourselves as well. Fifty years after Mori, the symposium invites us to walk through the "uncanny valley" again. The focus is less on a human or machine resemblance, than on their doublings and repetitions: the *UNCANNY FRIENDS*. It is not the androids that seem uncanny to us, but the always-on interfaces, the Siris and Alexas who make contact with us, unasked and unnoticed, recording and doubling life until their expiration. They are the Deep Fakes, who can clone us with a few recordings and samples. They are the body sensors and surveillance systems that treat us like sleepers and future terrorists. Lectures, readings and performances question the uncanny doubles between humans and machines, face and interface, fact and artifact, data and speculation. How can we describe the modelling, adaptation and optimization of the heterogeneous couplings that create mutual similarity, bonding and familiarity? How are we to thematize, criticize and design the current forms of AI? What cultures and architectures of control are designed by neural networks? How can media, cultural and social criticism become possible in a largely immersive media landscape? And, assuming algorithms, digital pets and humanoids are subjects like us: what image do they form of us? Similar yet never familiar? Secret, to the point of uncanny? What is the uncanny valley of machines, and what follows from this for our future?

Evening Lecture with
Lynn Hershman Leeson (US)

For over fifty years, Hershman Leeson's practice mines the intersections of technology and the self. She is known for her groundbreaking contributions to media art from Artificial Intelligence to DNA programming, often anticipating the impact of technological developments in society. In this lecture, she will give an overview of her work, particularly related to cyborgs, from 1966's *Breathing Machines*, to 2018's *Antibody* and 2020's *Gravity's End*.

"Imagine a world in which there is a blurring between the soul and the chip, a world in which artificially implanted DNA is genetically bred to create an enlightened and self-replicating intelligent machine, which perhaps uses a human body as a vehicle for mobility." Lynn Hershman Leeson (2000)

The talk will bring together a selection of Hershman Leeson's work in drawing, sculpture, video, and photography, along with interactive and net-based works, focusing on themes of transmutation, identity construction, and the evolution of the cyborg. *Roberta* (1972 — 79), *PhantomLimb* (1985 — 88) and *Cyborg* (1996 — 2006), as well as *Infinity Engine* (2014 — present), a recent large-scale project, a multimedia installation based on a genetics laboratory that explores the effects of genetic engineering in society that trace the ever-intertwined relationship between the technological and the corporeal to illuminate the political and social consequences of scientific advances on our most intimate selves and biological lives.

INTERFACING HAUPTPLATZ

The main location of the University of Art and Design Linz are the two monumental "bridge head buildings" that interface the main square of Linz with the Danube River. The square is where we find the city's hustle and bustle, the weekly market and many shops, as well as the mayor's seat; it symbolizes the local, physical community. On the other side of the building, the Danube presents itself as an ever-flowing, massive stream, the place where, historically, goods and news were received and dispatched. Art is, literally and figuratively, the connection between the local and the global here. In this unique location, the facade of Hauptplatz 8 turns into a virtual window that opens to show the world beyond the square. On several evenings during the Ars Electronica Festival, after the sun has set, different audiovisual projects are projected onto the media facade, inviting festival visitors and passers-by to enjoy and interact with them from near and far. And though originally conceived as an installation planned solely for THE WILD STATE during Ars Electronica, we might see it again in the future.

The Transient Shadows (2020)

When DEPART were invited to devise an audio-visual artwork for the main square in Linz on the occasion of Ars Electronica Festival 2020, they were immediately inspired by the opportunity to deal with its 18th century baroque plague column. The idea obviously suggested itself by looking at the pandemic situation today, and since the University of the Arts is located quite opposite the column in the so-called "Brückenkopfge-bäude", DEPART decided to conceive this piece as a sort of dialogue between both landmarks. The topic of a virus predominantly manifesting itself as a respiratory disease figures into the piece, as well as the fugacity of human life and how it is dealt with during plagues or pandemics. At the same time, *The Transient Shadows* echoes the history of Linz as an industrial city through modern technological developments, like cloud computing. To varying degrees, obelisks have always been part of DEPART's artwork, and since the plague column—with its bulbous shapes—resembles a column of rising smoke frozen in time, this seemed a self-evident way to provide a main aesthetic theme. The audiovisual sculpture is oscillating and behaves like a respiratory cycle. Like a lung, it expands and collapses, forming lithoidal structures that vanish over and over again. The contradiction of an ephemeral substance that looks like a heavy solid, and the fluid motion of a seemingly rigid body provide a sort of microdramaturgy. It serves as a metaphor for the topics mentioned above, communicating with the actual column in the square on structural and symbolic levels.

The Transient Shadows (2020)

Antopolis

Laurent Mignonneau (FR/AT), Christa Sommerer (AT)

Antopolis (2020)

During the COVID-19 crisis, we are reminded of the fragility of our ecosystem. A tiny virus was able to bring human activity to a near standstill, causing the global lockdown of massive industries and economies. While we humans are confined to our homes, other parts of nature recover and even thrive. The air in heavily industrialized regions has become cleaner, the sky more blue; insects, birds and wildlife returned to the cities, and human caused pollution is, in many cases, significantly reduced. Many people have suddenly realized the importance nature has in our physical and mental health; short walks in parks or nearby urban forests are essential to keep sane in times of quarantine. The interactive media facade *Antopolis* wants to remind us of the interconnectedness

between humans and nature. The crisis revealed we are not the crown of creation, not a separate and immune entity, and that we cannot keep exploiting natural resources unrestrained. The Anthropocene seems to have come to an end, and we need to reevaluate the position and responsibilities of humanity. In *Antopolis*, ants invade the city and look for human activities. They crawl towards any man-made shape, following humans, cars and any object that moves or stands in the city. All these artefacts become their resources. Through swarming behavior, the artificial ants create complex shapes and trails, beautiful and eerie at once. In our world and *Antopolis*, even a minuscule virus or insect has the power and potential to profoundly impact and transform human activities, as we are all just a part of one large but fragile ecosystem.

SOUND CAMPUS

Examining the State of Electronic Music and Sound Practice at Academic Institutions

Sound Campus is a new program oriented towards examining the state of experimental sound practices at universities and research centers. It opens a possibility for students and researchers to present new forms of understanding sonic art to the audience of Ars Electronica Festival. This year's program, curated by Enrique Tomás, presents uneasy sound performances resonating in the face of a critical present; intrusive music, touching us despite lockdowns.

Sound Campus has firmly decided to connect with distant audiences by extending its resonant program towards the Internet. The pandemic clearly hit us prior to inventing adequate platforms for hosting online music festivals. Instagram music concerts were restricted by laptop monitors and small living room speakers. Indeed, a certain "uberization" of online artworks could be observed: a "home delivery" of tele-networked -and precooked- artistic products. To experiment artistically with the Internet as a medium for hosting music festivals, *Sound Campus* invited sound artist Daniel Romero (aka ".tape.") to create a social and public virtual environment for sound art exhibition — the metaverse. This virtual exhibition space, modelled as a real-scale Titanic struck by a Chopi village of Mozambique, symbolizes the reality shock of our uncertain times. The metaverse includes artworks by more than fifty artists and musicians affiliated to academic institutions from all continents. Distant audiences can visit it through the metaverse application. Once a person is connected, it is possible to walk the *Sound Campus* exhibition along the many cabins of our Titanic model, or listen to all live concerts taking place in Linz. All this, with the companionship of other visitors. For the selection, *Sound Campus* published an open call for projects. More than 120 artists from every continent submitted live performances, musical work or interactive sound installations. Over forty artworks were selected and curated for this festival.

Curator and text: Enrique Tomás; Project manager: Julia del Río; Metaverse design and programming: Daniel Romero; Sound system: Das Wiener Akusmonium, by The Acousmatic Project Wien; Technical and administrative support: University of Art and Design Linz/CAMPUS team (Julia Nüßlein, Davide Bevilacqua, Sylvia Leitner).

Sound Campus Nightline —
Live Performance Program
Kunstuniversität Linz—Hauptplatz 6

Thursday, 10.9.

_ Alex de las Heras (ES/CO) feat. Paul Peters
 (Gula Gula): *Fantasy Island*
_ A Certain Trio (PL/DE)
_ Christoph Punzmann (AT)
_ Duo 3-Kanal (Katharina Klement, Martina
 Claussen) (AT)
_ Brane Zorman (SI): *Reclaiming Time—
 ElektroMagnetikSpektrum*

Friday, 11.9.

_ Alex de las Heras (ES/CO) feat. Paul Peters
 (Gula Gula): *Fantasy Island*
_ Paul Gründorfer (AT)
_ Thomas Gorbach (AT): *FlashRust*
_ Thomas Grill (AT), Till Bovermann (DE),
 Kathrin Hunze (DE): *merge and dissolve*
_ AWNJS All Women's Networked Jam Session:
 A distributed location performance (2020)

Saturday, 12.9.

_ Michael Mayr (AT): *TechnoGAN*
_ Trial#1 (AT)
_ PYUK edp. (AT): *DJ3XXICA + Shinsekai*

Metaverse: Interactive Music Programme

We present here eight artworks exploring new forms of engagement between people and digital media for problem-solving in the physical world. From experiences showcasing socio-cultural diversity from African communities (Timbila Live Aid) to surreal architectures formed from analysis of the unstable real estate market of Berlin (Malte Steiner). Media archeology cabinets decomposing the famous vocoder (Ivan Petkov), conceptual alternatives to present soundart in VR environments (Oliver Lehner; Alex Hofmann) as well as sonic escape rooms (Ritter and Aska) or virtual soundwalks (Munarriz; Kumenko, Guedes and Schroeder).

_ Timbila Live Aid (Ricardo Climent, Manusamo an Bzika, Miquel Bernat, Matchume Zango, Alena Mesarosova, Manu Ferrer, Drumming-GP, George van Dam, Polo Vallejo and Jean-Luc Fafchamps) (UK,MZ): Play or Burst
_ Ivan Petkov (BG/AT): Vocal recomposer
_ Oliver Lehner (AT): Untitled 2020
_ Malte Steiner (DE): The Chants Of Real Estate Data
_ Leonid Kuzmenko, Carlos Guedes, Franziska Schroeder (UAE/UK): Mirage
_ Alex Hofmann (AT): Study for Saxophonist Avatar and two Loudspeakers in a VR environment
_ Martin Ritter and Alyssa Aska (DE): Virtual Escape Room
_ Jaime Munarriz (ES): La Cupole Soundgarden / Klanggarten Kuppel

Metaverse: Metaversal Multichannel Works

VR as a creative midst for spatial audio experiments. With this gallery of multichannel works we want to evaluate the experience of listening to spatial electroacoustic music when it is embodied in a VR social event at a large scale festival.

_ Jaime Reis (PT, Escola Superior de Música de Lisboa): *Fluxus, pas trop haut dans le ciel*—16 channels in a dome distribution
_ Gryvul (UA, Lviv National Music Academy): *Taxidermia*—8 channels
_ Michael Hutsteiner (AT, Anton Bruckner Privatuniversität): *The Petrified Horde*—dolby 7.1.4 Surround
_ Theodoros Lotis (GR, Ionian University): *Portrait d'une manifestante*—8 channels

_ Panayiotis Kokoras (US, University of North Texas): *Qualia*—8 channels
_ Kosmas Giannoutakis (GR, ZKM): *Bursty Exorbitanc*e—8 channels
_ NOCTVRNAL—Helena McGill and Anna Wozniewicz (US, Chapman University): *DreamFREQ*—9 virtual speakers
_ Juan Carlos Vasquez (US, University of Virginia): *A Landscape of Events*—8 channels
_ Paulo Assis Barbosa (BR, University of São Paulo): *Simulacrum*—8 channels

Metaverse: Acoustic Realities meet the Metaverse

Musical works created for acoustic territories arriving in the virtual deck of the metaverse. This pavilion is conceived as a large group of boat cabins featuring compositions created at diverse latitudes of our real world.

_ Patricia Martinez (AR, Universidad Nacional de Quilmes): *Conciencia pura de invención (Pure Consciousness Invention)*
_ Vlad Chlek (NL, Fontys School of the Arts): *[fMRI/extrapolation]* — audio and video
_ Luc Messinezis (GR, Ionian University): *Procession of the Simulacra. A journey through sonic hyperreality in four movements.*
_ Louise Harris (UK, University of Glasgow): *Alocas*
_ Irradiation (Patricia Enigl) (AT, IEM Graz): *Sounding Space Junk*

_ Ida Hiršenfelder a.k.a. Beepblip (SI, Cona Institute, Kamizdat label): *Interactions*
_ Massimo Vito Avantaggiato (IT, Conservatorio Svizzera Italiana): *A Nazaire*
_ RGBastler / Florine Mougel and Andreea Vladut (AT, University of Art Linz): *Derapage dans la ville*
_ Martín Amodeo (AR, Universidad Nacional del Sur): *Lima 2 November*
_ Gintas Kraptavičius / Indra Kraptavičiūtė (LT, Lithuanian Composer Union): *Digital Vintage*

Metaverse: BFA & MFA students from Trondheim Academy of Fine Art (KiT), NTNU, Norwegian University of Science and Technology

The KiT Pavilion cuts across disciplines, histories, identities, and futurities exploring the ways in which codes of economic and cultural normativities are reified, enforced, and performed, and the lived consequences of such power dynamics are experienced and transcended. Curated by Alexandra Murray-Leslie.

_ Einar Grinde: *The Rules*
_ Stewart Home, Thies Mynther and Mikalsen & Marhaug: *Even Masts Must Burn*
_ Mikalsen & Marhaug: *Viral in the virus 29.04.2020*
_ Michelle Rassmussen and Anat Ben David: *Too cool for Corona*

_ Tuva Holm Nymo: *Translated Guinea Pigs*
_ Tuda Muda: *Breaking of the loop in flesh*
_ Qianhui Qian: *Viral Viral* and *In abyss we live*
_ Naomi Chan: *Circle*
_ Markus Neergaard: *'C'*
_ Máté Labus: *ZimmeZum*

Meter machen

Department of Art Education/ Bildnerische Erziehung

Maria Anna Eckerstorfer (AT), Sabine Touzimsky-Köstler (AT),
Lisa Wieder (AT), Wolfgang Schreibelmayr (AT)

What do a cow, four dancing penguins, the rock musician Bruce Springsteen and a baby elephant have in common? They are all supposed to help us keep our distance from each other. In some countries we speak of social distancing here. This actually means that we should have no contact at all. So we should not talk to each other or be friends. The Australians use a more correct term here: physical distancing. That means to keep only physical or spatial distance. But this distance is not the same everywhere. In Austria it is 1 meter long, in America 6 feet (approx. 1.8 meters) and in Latvia even 2 meters.

Keeping a distance is a very important rule. But as we humans are, situations arise that are hilarious, super funny or totally confusing. At this year's Ars Electronica Festival we want to collect exactly such scenes. Send us a self-produced photo or a very short text about your experience by mail and follow us on Instagram on @kunstuni.linz.meter-machen. So until then — let the penguins dance!

GUEST PROJECTS

Stadtwerkstatt (AT)

STWST48x6 MORE LESS

48 Hours Take Less Want More
stwst48x6.stwst.at

With STWST48x6 MORE LESS, the 6th edition of Stadtwerkstatt's 48-hour showcase extravaganza, Stadtwerkstatt asks the relevant questions about the more-or-less situations, the non-equality areas, the counter-validity zones and the non-zero-sum games of the future. In the middle of a new nothing we build up a scenery between More and Less to distribute critical contents, artists and critical producers to negotiate conditions that make a difference. We take a look at the zones of art, nature, information, movement and sound to focus primarily on other networks, aesthetic strategies, autonomous policies and alternative metabolites that are driven by alternatives –and, beyond more and less, by the OTHER.

STWST48x6 MORE LESS means to take less and want more. We distribute 48 hours of sound and art cathedrals of less, nature monotony and streams of isolationism, emptiness from different places and the deep Anthropocene. We liquidate contents into high potency projects and transmit them to empty satellite skies. In 2020, STWST 48x6 MORE LESS hosts the spaces in between social distance and distributes its venues in the northern and southern parts of the city.

STWST48x6 MORE LESS invites the following artists and collectives through open calls: Annie Abrahams, Fem_Arc, math-r&netz, Nicolas Montgermont & Pali Meursault, Jenny Pickett & Julien Ottavi, Bioni Samp, Saša Spačal, Silk, as well as STWST's artist asscoiates Freudinnen der Kunst, Christoph Ebli Ebner alias Apephonie Produktion and Julian Stadon.

STWST48x6 MORE LESS also presents the projects of STWST

New Art Contexts: INFOLAB and the SATELLITE El'Hail by Franz Xaver, MEIN HIRN GEFRIERT by Tanja Brandmayr, NEW ISOLATIONISMS by taro, Michael Aschauer with alternative chat platforms and GIBLING MONEY by O.S. Fresh out of confinement with the virus among us, we present MAKE BREAD. EAT PICKLE., a Kitchen Social Act with hyperinformed dough and ever-fermenting pickles. This community conversation piece will be initiated by Shu Lea Cheang.

All in all, STWST48x6 MORE LESS will be completed with an eager AUDIENCE, distanced NATURES, deeper LAYERS, uncharted EXCURSIONS and more to come at

Franz Xaver — Infolab (AT)
The Third Nature
Complex Information

Complex Information & Interference of the Unknown: Franz Xaver operates the Infolab of the municipal utility, expanding the concept of information to include *The Third Nature*.
The Third Nature is about approaching complex information as one would complex numbers, which consist of real and imaginary parts. It is always a challenge to transfer unknown information into real, i.e. "logically correct," information. As an example, interference patterns which Franz Xaver repeatedly rediscovered mathematically and artistically in the course of 30 years are mentioned and shown. The aim is to define what part of this information is real. https://i.stwst.at

Franz Xaver — Infolab (AT)
El'Hail satellite
New Independent Information Channels

This project sees itself in terms of independence of information and information channels. With the amateur radio satellite QO 100, it is possible to make narrow band transmissions. This is referenced by the SSTV project (Slow Scan TV) 7067.stwst.at, and Arts-Birthday Bob Adrian X on 06.01.2016 http://bildsend.ung.at/. New signals are now being sent across the globe via the QO 100 satellite with the callsign OE5FXC. Via the SDR web interface, these broadcasts can be received by anyone. An example: https://eshail.batc.org.uk/nb/

$$\sqrt{-1}$$
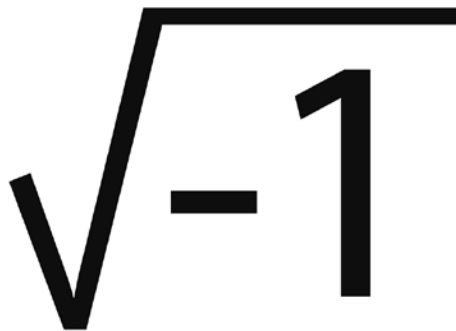
A STWST project initiated by Shu Lea Cheang (US)

MAKE BREAD. EAT PICKLE.

MAKE BREAD. EAT PICKLE., a Kitchen Social Act with hyperinformed dough and ever-fermenting pickles, is conceived to make and eat food together while engaging in conversations on strategies for food production and distribution. As we emerge from state-imposed confinement, we are left with no "normal" to get back to and no "new normal" to step into. During the confinement period, #quarantinebaking was trending and local small farms rose to the occasion by dispatching seeds and organizing food trucks. From farm to table, we need to review and redesign the global food supply and distribution systems. MAKE BREAD is an act of "cultural manipulation" — to make a giant sourdough starter and bake breads by inviting people to bring their own, homegrown starters to mix in. EAT PICKLE sources fresh vegetables from local farms for fermentation and preserving. The pickled vegetables are reserves for the future, as we speculate on hard times and happy hours. Set up by the Donau river bank in an open air setting, we gather Linz citizens and visitors to make and share freshly baked loaves of sourdough bread and seasonal pickles through the 48 hours of STWST48x6.

Let the dialogues begin! Long live Mother Yeast. Pickle the Future.

Tanja Brandmayr — Quasikunst (AT)

My Brain Freezes at Minus 273 Degrees

High Potency Project

My Brain Freezes at Minus 273 Degrees is a body, context and high potency project. It begins by talking about the body and continues with thinking about the contradictions at the boundaries of science. "My Brain" deals with physical mechanisms that are difficult, start in a reduced way and become effective upon unexplained contact with "consciousness." Practical setting and reflection are accompanied by LESS physical activity: What are breathing and imagination? What does an economy of movement mean? What is reduction? LITTLE IS JUSTIFIED WITH MUCH. This is continued by reduction on the physical level of metabolism. It is about fasting and autophagy. With this autonomous, self-acting mechanism of "self-eating" that has been genetically stored in our cells for hundreds of thousands of years, other self-healing cell processes are triggered. Moreover, the body paradox of the less available is reflected far below zero in a controversial quantum theory of consciousness according to which quantum effects occur in the microtubules of the brain to generate consciousness (although quantum effects -as in, for example, quantum computers- are said to be possible only around minus 273 degrees, according to current research.) All these approaches lead artistic practice towards complete dissolution.

They are symbolically diluted and shaken to the point of nothingness as artistic high-potency projects. At every dizzying border, however, they insist on a classical function of art by allowing the unspeakable, the indirect, the irrational, the hidden and the actually "other" to take effect. The body as media high potency project at your own risk: my brain freezes at minus 273 degrees.
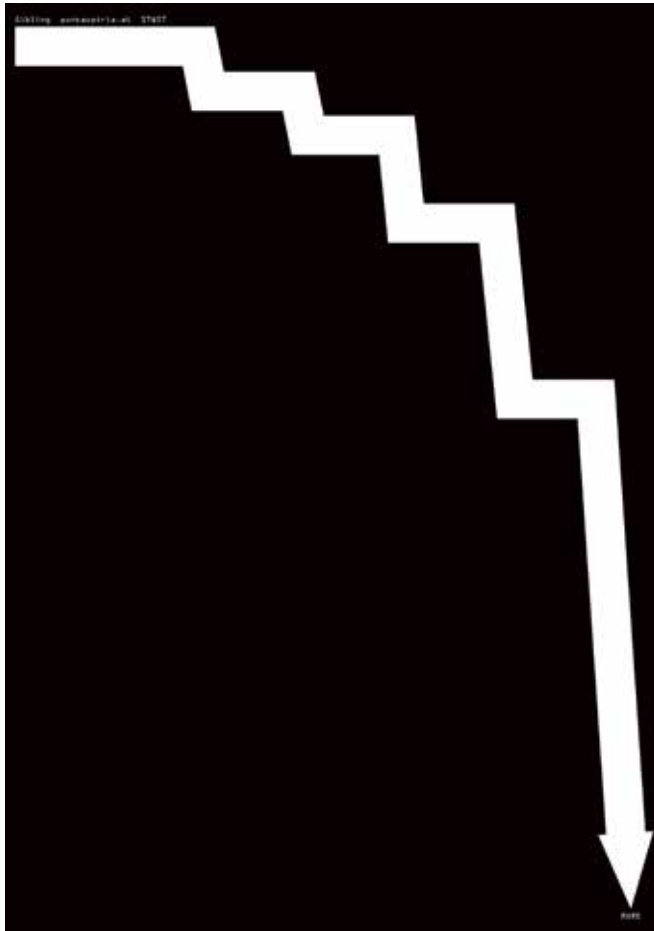
Stadtwerkstatt / OrtnerSchinko (AT)

The New Gibling

Community Currency and Currency Art

New Gibling, black on black: The new Gibling from OrtnerSchinko -a dark community currency in times of digitalized cash flows, black money, gold rush and global economic crisis, all in one- has been valid since 15 June 2020. This year's community currency will also be presented during STWST48x6 MORE LESS at Stadtwerkstatt. On this occasion it can be exchanged in 1, 2 and 5 Gibling notes at Punkaustria and Gibling-Pun-komat, in small and large amounts.

Also, the new art investment of the Ortner-Schinko-Edition can be purchased with a 1, 2, 5 and 500 Gibling note per art edition: an insider tip for timeless art currency speculation at € 500.

More information about the Gibling:
punkaustria.at
gibling.stwst.at
ortnerschinko.com

Stadtwerkstatt (AT)
STWST Excursions
Measuring Ship Eleonore and Archive/Art Storage North

As part of STWST48x6 MORE LESS, Stadtwerkstatt offers two guided excursions.

One is to the measuring ship Eleonore, which anchors in the south of Linz in the Traun River. For more than ten years, STWST has been operating the Eleonore as an art ship and autonomous location on the periphery, as a research laboratory on the water, and as an isolation island and sink tank for artists and critical producers. The energy self-sufficient ship, on which residencies with art, information and water as reference take place, will be presented.

The second excursion leads to Kunstlager Nord, north of Linz. Here, Stadtwerkstatt collects art relics and documents from the 40-year history of the house — between media art, subculture and city history. Stadtwerkstatt was founded in 1979 and was registered as an association in 1980. Not least because it has just celebrated its 40th anniversary, the archive and materials in Kunstlager Nord have been newly examined and prepared for several years. The Kunstlager Nord will be open for a few hours during this excursion.
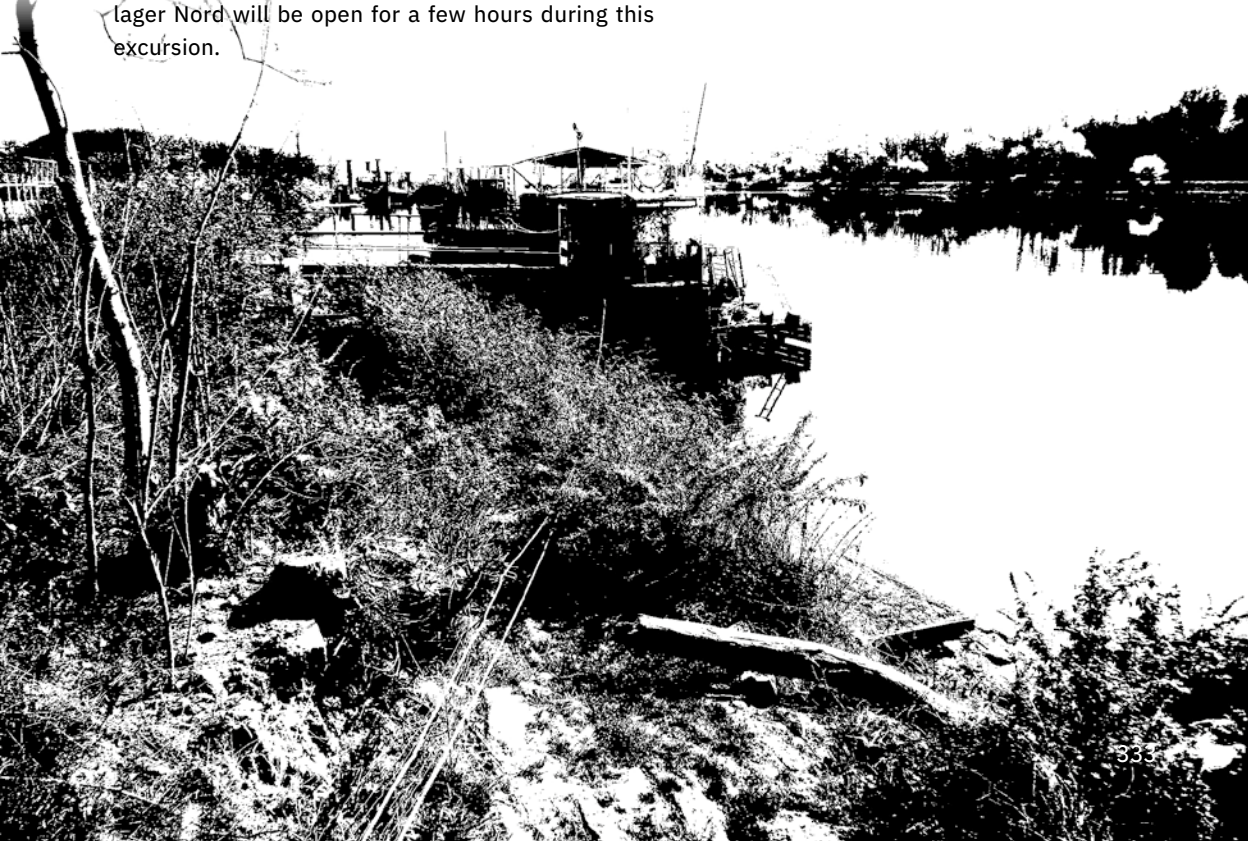
Die geile Hydra & Raumteiler Kulturverein (AT)
Holy Hydra 3.0

I am the Hydra. The multi-headed creature from Linz, who fights day and night for the free scene and is always looking for unused spaces, unique room concepts and new possibilities. I act out of an inner necessity for culturally diverse events, always focusing on the spatial Plus X and driven by the approval of my audience.

The *Holy Hydra* is an interdisciplinary event in the parish church Urfahr — Jugendkirche Grüner Anker, which is taking place for the third time this year and includes contemporary dance performances, electronic music and new media art. This year my event focuses on local artists and the local art scene. The content examines an extended use and a possible redefinition of sacred spaces. My aim is to create a discourse between club culture, religion and society.

Idea & Production: Die geile Hydra
Production team: Raumteiler Linz (AT)
Visual Concept: 4youreye — ProjectionArt (AT)
The project is supported by Grüner Anker — Jugendkirche der Diözese Linz und Kirche am Fluss — Stadtpfarrkirche Urfahr, Posthof — Zeitkultur am Hafen, AFO — Architektur-forum Oberösterreich, Höf15, Forum St. Severin, Makava Delighted Icetea, Intersport Pachleitner

© Fabian Erblehner & tectool visuals

© Fabian Erblehner

© Fabian Erblehner

Christa Sommerer (AT), Laurent Mignonneau (FR/AT)

hosted by ARS ELECTRONICA

Presentation of the interactive project Homo Insectus, in cooperation with Bildrecht

Insects are an essential element of the biosphere. However, due to pollution and the widespread use of chemicals, many insect species have died out in recent years. Every insect species plays an important function in the ecosystem: they are pollinators, composting machines, or food sources for other animals. As industrialization and human intervention have put their world in danger, we all need to become more aware of our impact on the insect kingdom. *Homo Insectus* is an interactive installation that emphasizes human contribution to the insect world and promotes a positive attitude towards these creatures.

Participants in the installation can see their own bodies transformed into a habitat for artificial ants. They propagate and organize themselves into colonies and formations as long as the participant accepts a sensitive dialogue with the artificial creature's world.

Bildraum 07, Burggasse 7—9, Vienna 1070
Tue-Fri: 13—18 pm
+43 1 815 26 91- 21
A cooperation of Bildrecht and
Ars Electronica Festival 2020

Homo Insectus, Christa Sommerer and Laurent Mignonneau

BIO AUSTRIA Farmers' Market: Organic quality you can taste

Organic farmers from BIO AUSTRIA have always placed environmental concerns at the forefront of their work. They avoid chemical and synthetic pesticides and fertilizers to promote healthy soils, favoring locally appropriate varieties and breeds, fertilizers and feed right from the farm or from the region, and animal welfare. Not only is this good for the environment and the climate, it also results in the highest possible food quality. BIO AUSTRIA farms demonstrate that organic, regional, and safe products simply taste better. On September 12, the organic farmers of BIO AUSTRIA will present their superb regional products at Kepler's Gardens. Festival visitors can sample the delicious wares and chat with the producers of the organic goods. The BIO AUSTRIA Farmers' Market also provides information about organic agriculture and the contributions organic farmers make to protecting the climate and the environment.

BIO Austria Shop: you're only a click away from organic products direct from regional BIO producers!

The BIO AUSTRIA online shop is the only nation-wide web shop for organic products operated by the farmers themselves. A growing number of BIO AUSTRIA businesses also offer shipping service for their products, so these high-quality goods can be enjoyed wherever you are!

https://shop.bio-austria.at/

BIO AUSTRIA is the network for Austrian organic farmers. As Europe's largest association of organic farmers, BIO AUSTRIA represents the interests of Austria's organic agriculture and its farmers — with 13,500 members and over 400 business partners in the economic sector. More information is available (in German) at *www.bio-austria.at.*

September 12, 2020
10 AM — 3 PM
Organic Farmers' Market
BIO AUSTRIA, Upper Austria

© David Faber

OÖ Landes-Kultur GmbH (AT)

OK Night 2020, OÖ Kulturquartier

As an already traditional nightline format, the OK Night in the OÖ Kulturquartier will present performative contributions from the Prix Ars Electronica on Saturday. Likewise, the OK Night is a platform for regional and international club culture and a program focus within the OÖ Kulturquartier that in recent years has also demonstrated its innovative stage and room design. Like vast portions of international nightlife, this year's OK Night will be relocated to virtual space, with a reduced music program.

© vog.photo

presented by Sparkasse OÖ and LINZ AG

Sounding Linz — KLANGWOLKE 2020

Experience creative talent from the region, great artistry, and a high level of engagement with people in Upper Austria: the Brucknerhaus Linz, together with local artists and its partners University of Art and Industrial Design Linz and Ars Electronica, is creating something unique for extraordinary times: a declaration of love for Linz. Will Corona already be over? Nobody knows. Given this situation, the health of the audience is our top priority and the idea of the *Klangewolke* in its usual XXL format is out of the question this year. Nevertheless, the organizers are determined to take up the challenge of creating a *Klangwolke* that can be realized even under the current circumstances by dealing creatively with these unusual conditions.

Four renowned sound researchers — Peter Androsch, Sam Auinger, Wolfgang "Fadi" Dorninger and Gitti Vasicek — entrusted by the organizer LIVA with the adapted conception and staging, see a great opportunity in this "alternative" *Klangwolke*. They see this as a chance to return to its origins.

Inhabitants of Linz are invited to (re-)hear their city and their living space, because: Linz is the star of *Klangwolke 2020*!

VisKlangwolke2020, KuenstlTeam, © Carina Nimmervoll

Feminism and Media Avant-Garde.

Essay Tribute to VALIE EXPORT

Brigitta Burger-Utzer | sixpackfilm

This year, CROSSING EUROPE will dedicate its Tribute section to one of the most important representatives of international media, film, and performance art: VALIE EXPORT. She was born in Linz in 1940, where she also grew up. On the occasion of her 80th birthday, and on the initiative of the VALIE EXPORT Centre Linz in cooperation with CROSSING EUROPE and sixpackfilm, a comprehensive program of VALIE EXPORT's films and videos will be shown for the first time in her place of birth at this year's edition of CROSSING EUROPE.

The tribute presents a selection of short and feature-length films from over forty years of being active as an artist. This includes experimental studies, world-famous performance works, feminist media critiques, and Expanded Cinema actions, ranging from 8mm film to large scale image formats, the first video systems to medical image investigations: conceptualized for the cinema hall, the exhibition space, or the television. In the framework of the festival the following feature-length and experimental films will be shown on the silver screen, in attendance of VALIE EXPORT, who will also give a Tribute-Talk. There is no doubt that VALIE EXPORT is one of Austria's most versatile and internationally renowned artists, whose impact and influence continue to persist. The reason being that her oeuvre is marked by the development of a radical actionist feminism on the one hand and by an avant-garde approach towards new media technology on the other. In her choice of artistic materials, in particular the (own) body, she is in line with Marina Abramovic, Carolee Schneemann or Joan Jonas, yet she may be unique as regards her versatility of artistic expression.

Her unwavering interest in cultural representations of the female body is articulated in a multimedia practice and theory that includes installations, conceptual photography, drawings, sculptures, texts, performances, films, and videos. Central to her oeuvre is the moving image, in the form of original cinematic works or incorporated into installations. Within the realm of film and video art, she captivates with a range of modes all of which are featured in this Tribute program.

VALIE EXPORT's three feature films bring together ideas and art objects for a narrative cinema that she had already put to the test in her artistic practice: "The narrative facilitates the conveying of subjects and content."[1] In Invisible Adversaries (1976), photographer Anna doubts the reality of her experiences. She can no longer assess if the cause is her altered perception or the change of the people and of the objective world around her. Sometimes this destabilized woman is described as schizophrenic, but perhaps she may also be seeking her very own identity. EXPORT addresses in many of her works that this quest is doomed to failure or successful only with a sacrifice: "because man has defined the image of woman for both man and woman, men create and control the social and communication media such as science and art, word and image, fashion and architecture, social transportation and division of labor, (...) if reality is a social construction and men its engineers, we are dealing with a male reality."[2]

The Practice of Love (1984) also sees a woman trying and failing to establish herself in a male working world. This thriller about a socially critical journalist who uncovers corruption in business and politics also illustrates a fundamental discrepancy: the combination of female sexuality and heterosexual eroticism (the main character has two lovers) with an intellectual mind leads to energy-consuming conflicts and bitter disappointment.

EXPORT quite intentionally uses a lot of clichés in Human Females (1979) to portray the relationships of four women with each other and with one man. From a web of relations that satisfies no one grows utopian freedom for some and the abyss for the others. One way or the other, the protagonists in EXPORT's feature films are never ordinary heroines but complex female characters with demons, expectations, and suffering.

In the relatively short period that saw Expanded Cinema being pushed forward in its deconstruction of the cinematic dispositif in Austria and in numerous presentations by the artists at home and abroad, VALIE EXPORT (frequently together with Peter Weibel) was front and center. Many of her performances were not recorded and today only exist as concepts with theoretical backgrounds or photographs. On Adjunct Dislocations (1973), VALIE EXPORT wrote: "not only is something shown, showing itself is shown, not only is something portrayed, portrayal itself is portrayed. a sense of space is created in a way possible only with film: seeing oneself from the front and back simultaneously, from above and below, and from outside in the center of the space."[3]

The first performance of the TAPP und TAST-KINO was in Vienna in 1968, after that in many locations in Germany and the Netherlands. The only remaining recording is from an action in Munich in 1969 that was done especially for the TV program "Apropos Film": Peter Weibel is on the megaphone, inviting people to visit the box/ cinema installed over EXPORT's breasts and giving political speeches.

VALIE EXPORT's criticism of representation which is feminist in nature had to lead to an enhancement of Expanded Cinema, to the use of the/her body as artistic material in body actions, later called performances. In Man & Woman & Animal she gives a performance made especially for film: first she soberly demonstrates the hedonistic ritual of masturbation, then, under the grotesque sounds of male grunting, she turns the attention to the sperm and blood covered vagina. This raises the question whether, contrary to popular claims, the animal unites man and woman instead of separating them. The media-reflexive performances by VALIE EXPORT, such as Visual Text: Finger Poem (1968/73), Breath Text: Love Poem (1970/73), and Body Tape (1970), and later on the voice as performance, act and body (2007) are examples of her decadeslong examination of language as a form of communication and of the subject's voice as part of an identity that is hard to constitute. At the end of the 1960s, Austrian television opened itself up for contemporary art with programs like "Impulse" and, later, "Kunststücke", where many media artists presented or for which they even designed works of their own. VALIE EXPORT was on board from the start, creating not only socially and media critical works but also educational programs on experimental film and action art plus four documentaries. Das bewaffnete Auge. VALIE EXPORT im Dialog mit der Filmavantgarde (1984) is a three-part overview of the major movements from the 1920s up until performance works by Yvonne Rainer, a sister artist in spirit.

1 In der Erweiterung liegt die Möglichkeit zur Veränderung. Gespräch mit VALIE EXPORT. Von Brigitta Burger-Utzer und Sylvia Szely [Expansion holds the possibility of change. Conversation with VALIE EXPORT. By Brigitta Burger-Utzer and Sylvia Szely]. In "EXPORT LEXIKON. Chronologie der bewegten Bilder bei VALIE EXPORT", ed. by Sylvia Szely (Vienna, Sonderzahl 2007).

2 VALIE EXPORT. Woman's Art. A Manifesto, in "Neues Forum", 1972, trans. Resina Haslinger, in which only women participated.

3 VALIE EXPORT: Adjungierte Dislokationen, concept (page 2). In "EXPORT LEXIKON. Chronologie der bewegten Bilder bei VALIE EXPORT", ed. by Sylvia Szely (Wien, Sonderzahl 2007).

VALIE EXPORT

A native of Linz born in 1940, in 1967 she invented her stage name VALIE EXPORT as an artistic concept and logo, with the stipulation that it should only be written in capital letters. EXPORT is a pioneer of avant-garde and experimental film and one of the most renowned international media artists. She rose to fame as a protagonist of Expanded Cinema in the late 1960s, and some early works are linked to Viennese actionism. In 1977 (and again in 2007) she participated in documenta in Kassel, in 1980 she, together with Maria Lassnig, represented Austria at the Venice Biennale. In 1985 EXPORT's feature film The Practice of Love was shown in competition at the Berlin International Film Festival.

From 1975 her work has included curatorial projects, international symposia, exhibitions and film programs. EXPORT is co-founder of the Austrian Filmmakers Cooperative and has held numerous teaching assignments at home and abroad. Significant work blocks of hers can be found in the collections of important museums, from Centre Pompidou to Tate Modern to MOMA. VALIE EXPORT lives and works in Vienna.

© Violette Wakolbinger

Programm

FEATURE FILMS VALIE EXPORT

1. UNSICHTBARE GEGNER / INVISIBLE ADVERSARIES VALIE EXPORT, AT 1976, 110 min

Dancing a forlorn quickstep along the interface between dreams and waking, Anna surfaces to that sinister sound of white noise on the radio informing her that aliens, or at least Invisible Adversaries, have invaded human beings. Noticeably blasé about this looming revelation, she seems to regard it as yet more evidence of the way that modern life disfigures its artists, men dump on women, the police hit you on the head, and Kreisky's Austria represses everyone. (TimeOut London)

2. MENSCHENFRAUEN / HUMAN FEMALES VALIE EXPORT, AT 1979, 116 min

In Human Females, EXPORT ad- dresses the sociopsychological conditions of women and the clash of changing gender identities in contemporary society through the story of journalist Franz S., who is dating four women at once, following a tightly clocked schedule. Little by little the women catch wind of Franz's game. (MoMA)
"VALIE EXPORT achieves in Human Females what Godard strove for but failed in his Every Man for Himself — a human view of a woman's place in a man's world."
 (Seattle Film Festival)

3. DIE PRAXIS DER LIEBE / THE PRACTICE OF LOVE VALIE EXPORT, AT/DE 1984, 90 min

VALIE EXPORT's third feature is an anti-romance in which the heroine, between two relation-ships, gradually discovers that both are impossible, not because the subjective processes of "love" are defective, but because the social matrix in which both her male lovers operate is corrupt: in this film, the male world and its power structures cancel the possibility of love beyond the matter of sexuality. Export makes use of techniques drawn from her earlier experimental cinema, video and conceptual photography to expand the possibilities of nar-rative feature filmmaking.
(Gary Indiana)

4. DAS BEWAFFNETE AUGE — VALIE EXPORT IM DIALOG MIT DER FILMAVANTGARDE
Zoltan Pataky, AT 1984, 135 min + IM DIALOG David Wittinghofer, AT 2020, 12 min

In her three-part series VALIE EXPORT takes a look at the themes of "staged space — staged time", "real movement — movable reality", and "structural film". Using numerous examples from films by, among others, Wojciech Bruszewski, Sergey Eisenstein, Maya Deren, Kurt Kren, Yvonne Rainer, Alfred Hitchcock, Linda Christanell and Marc Adrian, narrative and non-nar-rative forms of story-telling are examined and compared. The advanced level of this film is also indicated by the numerous quotes from Christian Metz, Charles S. Peirce, Vsevolod I. Pudovkin and Ferdinand de Saussure.
(Dietmar Schwärzler, sixpackfilm)

Filmstills > FEATURE FILMS VALIE EXPORT

Unsichtbare Gegner, © sixpackfilm

Menschenfrauen, © sixpackfilm

Die Praxis der Lieber, © sixpackfilm

Das bewaffnete Auge, © sixpackfilm

Filmstills > SHORTS VALIE EXPORT

Selbstportrait mit Kopf
© Brigitta Burger-Utzer | sixpackfilm

Hyperbulie, © Brigitta Burger-Utzer | sixpackfilm

AdjungierteDislokationen,
© Brigitta Burger-Utzer | sixpackfilm

FacingAFamily,
© Brigitta Burger-Utzer | sixpackfilm

SHORTS VALIE EXPORT

1. VALIE EXPORT — Shorts 1 (60 min)

_ SELBSTPORTRAIT MIT KOPF / SELF-PORTRAIT WITH HEAD VALIE EXPORT, AT 1966/67,
4 min ...REMOTE...REMOTE... VALIE EXPORT, AT 1973, 10 min

_ HAUCHTEXT: LIEBESGEDICHT / BREATH TEXT: LOVE POEM VALIE EXPORT, AT
1970 — 1973, 2 min

_ BODY TAPE VALIE EXPORT, AT 1970, 4 min

_ HYPERBULIE VALIE EXPORT, AT 1973, 7 min

_ BODY POLITICS VALIE EXPORT, AT 1974, 3 min

_ ASEMIE — DIE UNFÄHIGKEIT, SICH DURCH MIENENSPIEL AUSDRÜCKEN ZU KÖNNEN
/ ASEMIE OR THE INABILITY TO EXPRESS ONESELF THROUGH FACIAL EXPRESSIONS
VALIE EXPORT, AT 1973, 7 min

_ THE VOICE AS PERFORMANCE, ACT AND BODY VALIE EXPORT, AT 2007, 11 min

_ SEHTEXT: FINGERGEDICHT / VISUAL TEXT: FINGER POEM VALIE EXPORT, AT 1973, 2 min

_ MANN & FRAU & ANIMAL / MAN & WOMAN & ANIMAL VALIE EXPORT, AT 1970-73, 8 min

_ TAPP UND TASTKINO VALIE EXPORT, AT 1968, 2 min

2. VALIE EXPORT — Shorts 2 (65 min)

_ GEDICHTE / POEMS VALIE EXPORT, AT 1966 — 1980, 8 min

_ ADJUNGIERTE DISLOKATIONEN / ADJUNCT DISLOCATIONS VALIE EXPORT, AT 1973, 10 min

_ FACING A FAMILY VALIE EXPORT, AT 1971, 5 min

_ I TURN OVER THE PICTURES OF MY VOICE IN MY HEAD VALIE EXPORT, AT 2009, 12 min

_ EIN PERFEKTES PAAR ODER DIE UNZUCHT WECHSELT IHRE HAUT / LUST VALIE
EXPORT, AT 1986, 12 min

_ SYNTAGMA VALIE EXPORT, AT 1983

ARS ELECTRONICA

Besides the annual Festival and the Prix Ars Electronica numerous projects and activities are conducted throughout the year by the different departments and teams of Ars Electronica.

Ars Electronica Center

Ars Electronica Futurelab

Ars Electronica Solutions

Ars Electronica Export

The following part gives a brief overview of these activities since last year.

ARS ELECTRONICA CENTER

Compass — Navigating the Future

To look into the future, a telescope is enough; to move around in it, you need a compass.

The comprehensive thematic redesign of the Ars Electronica Center in May 2019 ushered in the next chapter of its history: "Compass — Navigating the Future" is now the guiding principle, aspiration, and invitation of the new Center.

While acting as a telescope to give us a glimpse of the future, the new Ars Electronica Center is above all a compass and companion to guide us through the human-created systems of the 21st century. The new themes range from Artificial Intelligence and neurobionics, autonomous systems and robotics, and genetic engineering and biotechnology to the far-reaching global changes of our time. The focus is always on the question of what significance these exciting, challenging, and often disturbing developments have for all of us.

Human, machine, nature, technology

Humanity and its relationship to machines are the focus of the new exhibitions. Artificial Intelligence versus natural intelligence: how do they differ and what do they have in common? How do machines "think," how do they learn, and what distinguishes us humans from machines? Many machine-learning processes are inspired by biological processes; a few are even modeled cell for cell on organic nervous systems. Artificial Intelligence has reached the point where objects and faces, and allegedly even traits such as attitudes or intelligence, can be recognized. In medicine, it is already helping to recognize diseases from huge pools of data better and faster than humans can; in autonomous mobility, it can navigate vehicles; it is discovering new planets in space and new cell forms in the brain. But the human brain is still much more complex than its machine counterparts. We are much better at processing numerous impressions simultaneously and above all at assigning meaning, memories, and interpretations to our observations.

Digital planet and global society

Through our technological developments, we have created a "digital planet" that is closely linked with the real planet. Our technology has developed into an indispensable constant of social life in the digital networking of billions of people. The societal, cultural, and political effects of this personalized networking extend far beyond economic changes. Our technological and economic progress is consequently also threatening our living environment—the Earth itself.

Our modern world offers us an incredible range of possibilities as humans and individuals to shape our present and future. In both little things and big ones, each of us has a responsibility to decide how we navigate through our life and which paths we want to forge together for securing the future. Direct intervention is not always possible, but we can at least demonstrate our self-determination by forming our own opinion and standing up for it.

Current Exhibitions

Understanding Artificial Intelligence

Artificial Intelligence versus natural intelligence — what are the differences and what do they have in common? How do machines "think," how do they learn, and what distinguishes us humans from machines?

Artificial Intelligence in all its complexity is a central focus of the new Ars Electronica Center; after all, this technology is setting off a revolution that will affect our lives in ways that can-not be overestimated. Our goal with the exhibition *Understanding Artificial Intelligence* is to make our visitors "AI savvy" and give them all a basic idea of what Artificial Intelligence is, how it is already being applied, and what it can already do. The exhibition shows how neural networks are constructed and even offers visitors an opportunity to train them at a number of interactive stations.
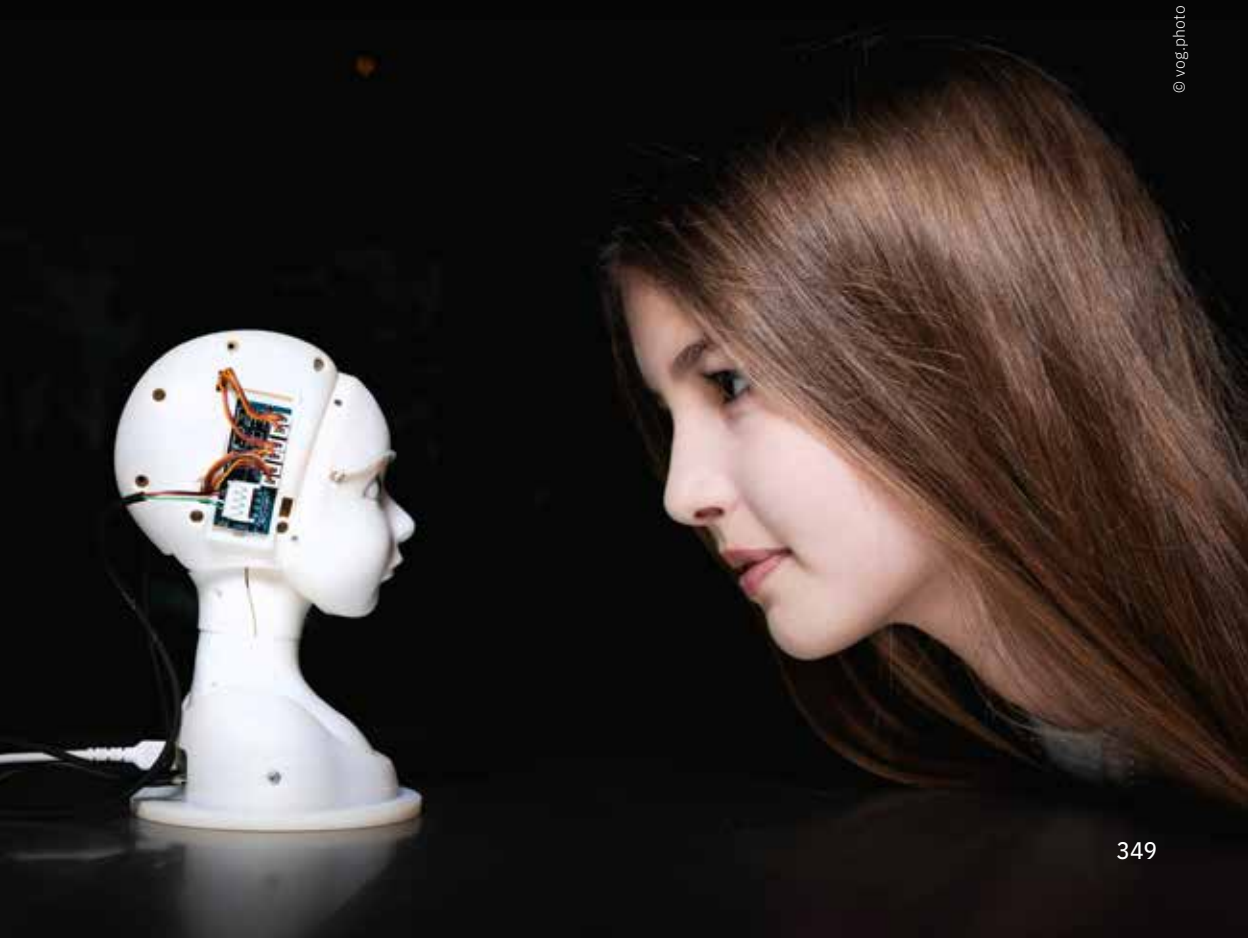
© vog.photo

Neuro-Bionics

The findings of the neurosciences have long been an inspiration for Artificial Intelligence research, and many models of machine learning are vaguely derived from human physiology. So-called connectomic research studies the brains and nervous systems of living creatures. With simple organisms such as flies and worms, it can already produce digital replicas of them and transfer these into robotic systems. The results of this research offer hope for decisive breakthroughs in Artificial Intelligence: replicas of biological nervous systems generally learn much faster and more efficiently than traditional models of machine learning.

Even as we make rapid progress in neurology and machine intelligence inspired by biology, the human brain as a whole will remain many times more powerful than its machine counterparts for a long time to come.

© vog.photo

Global Shift

Global Shift deals with the many facets of global change and upheaval. What does the new geography of the digital age look like? How do populations and their structures develop? What will our world look like in the future? Anthropocene — that is what we call the age in which human actions have become the most significant factor for biological, geological, and atmospheric changes.

Today, our technological progress not only extends throughout the earth — it also reaches into space with satellite and space-travel technologies. From the new digital infrastructure to satellite observation of the earth to the data that are collected on us every day, *Global Shift* shows a representative sample of the current conditions of the world we live in.

Ars Electronica Labs

Integrating different cultures of knowledge is a central aim of the Ars Electronica Labs, which runs through all kinds of subjects. At the *Citizen-Lab*, we examine the question of what it means to participate as a citizen in our societal context and become active in designing a smart and sustainable way of life. The *SecondBodyLab* offers insights into the world of prosthetics, a field that combines craftsmanship, technology, and science, and has a history stretching from ancient Egypt to the cutting-edge prosthetics of today. It also explores technological body extensions such as brain-computer interfaces.

The *MaterialLab* is a space for innovative experimentation with all kinds of materials.

In the *BioLab*, the focus is on the human organism and the processes of life taking place on the cellular and molecular levels.

Machine Learning Studio

In the *Machine Learning Studio*, visitors can use computer vision and machine learning applications to discover how machines learn and perceive their environment. Working with our Techtrainers, they can build and train self-driving model cars here, program robots with facial recognition, and gain insights into how they can teach these devices a wide variety of activities. Step-by-step, they can experience not only how

these technologies function, but also that everything the machines "know" is determined by us. The *Machine Learning Studio* not only offers insights into the hidden inner life of our learning devices — it is also a place where prototypes and objects are maintained or repaired by the Techtrainers, and where museum procedures are revealed that are usually kept behind the scenes.

© vog.photo

Mirages & miracles

Mirages & miracles by Adrien M & Claire B is an augmented reality exhibition where the emphasis is on the experience rather than the technology. In a series of installations, you can dive into virtual, three-dimensional worlds of poetic fantasy. Augmented drawings, holographic illusions, and a virtual-reality headset are part of this exhibition.

The series of installationsis a tribute to us humans as we cling to seemingly lifeless, motionless, inorganic things. The quality of a stone is the allegory for this. Stones are simple, heavy, and motionless. They are the symbol of what is real and concrete. The image through the tablet computer, on the other hand, is immaterial, mobile, agile, and embodies the imaginative element that we humans often lack: the view through them reveals a hidden world in which the stones are brought to life. The tablet becomes the window to these previously undiscovered realities.

AI x Music

AI x Music is an exhibition about the encounter between Artificial Intelligence and music, between human creativity and technical perfection. Music might be the most emotional of all art forms, but it is also deeply connected to mathematics, to the physics of sound production, and to the craftsmanship of instrument makers. This means that from the very beginning, the history of music is also the history of the instruments, tools, and devices needed to perform, record, and reproduce it. The exhibition takes a look at the cultural and technological history of mechanical music players, bridges the gap between them and the new developments in machine learning and Artificial Intelligence, and shows that far from being mere technological phenomena, they raise fundamental questions about the relationship between human and machine.
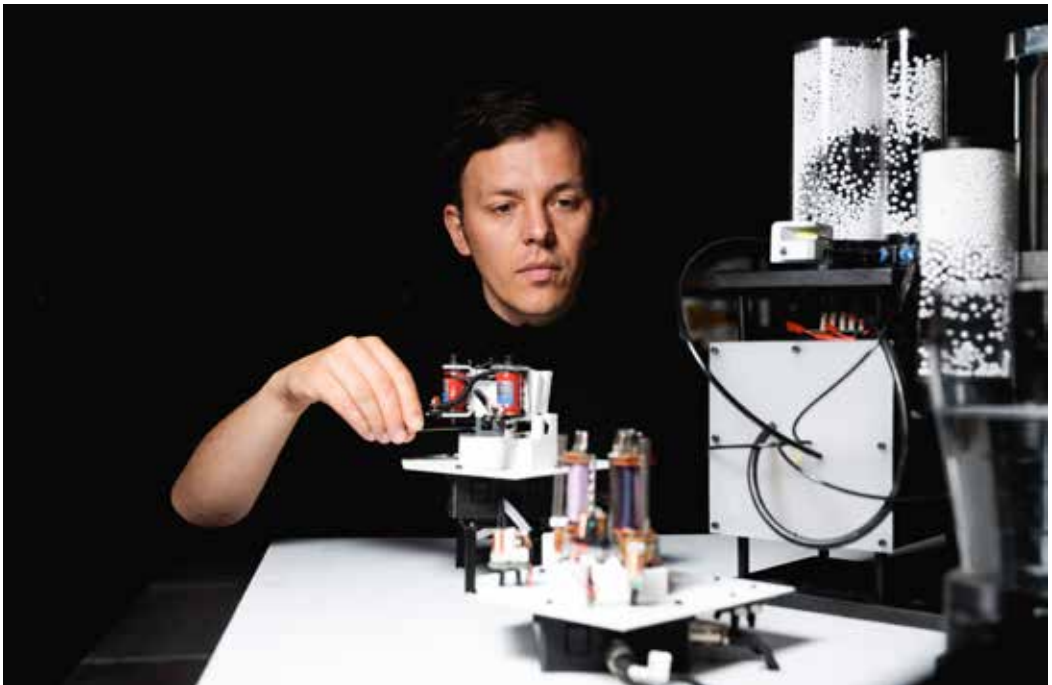
© vog.photo

Kids' Research Laboratory

How can children be introduced to new technologies? Our answer to this question was to create our own research laboratory just for children. With the Ars Electronica *Kids' Research Laboratory*, a versatile playing field has been created that gives children time and space to play and discover our world, the digital as well as the analog, the natural as well as the artificial world. For children, the whole world is a laboratory in which experiments and research journeys are constantly taking place.

© vog.photo

Deep Space 8K

The Ars Electronica Center offers its visitors something that is unique in the world: 16 x 9 meters of wall projection and an equal area of floor projection. With a resolution of 8.192 × 4.320 pixels in 120 Hz and stereo 3D, even the tiniest details of an image can be displayed and discovered. Experience unique *Deep Space 8K* gigapixel images, videos, films, and 3D animations in razor-sharp brilliance and color. Unlike any other cinema, *Deep Space 8K* allows you to sit or stand right inside the picture or move through impressive 3D virtual worlds, thanks to our floor-projection system.

© Ars Electronica / Robert Bauernhansl

Ars Electronica Home Delivery

The Corona Pandemic posed enormous challenges for the Ars Electronica Center, as it did for all the other cultural institutions around the world. Health is the highest good, and that is precisely why everything was done during this period to prevent further exponential spread of the Covid-19 virus. Part of this effort was the official closure of museums. Therefore, the Ars Electronica Center was also closed on March 13, 2020. Shortly afterwards, the idea of *Ars Electronica Home Delivery* was born — a kind of delivery service for all content that Ars Electronica has to offer. "If you can't come to the Museum of the Future — we'll come to you," was the motto. A weekly program is offered that includes guided tours through the Ars Electronica exhibitions, excursions to the Ars Electronica Labs, visits to the Machine Learning Studio, concerts with real-time visualizations, Deep Space LIVE sessions, workshops with engineers and talks with artists and scientists from all over the world. What is special about it is that everything is LIVE, and much of it is even interactive.

The kick-off was on Friday, May 1, 2020, with a concert from the Ars Electronica Center's "Piano Room": Maki Namekawa and Dennis Russell Davies played "Ma Mère L'Oye" for piano four hands by Maurice Ravel, while Cori O'Lan contributed real-time visualizations.

The contents can be streamed live via ars.electronica.art/homedelivery or YouTube and can also be viewed there afterwards.

Ars Electronica Home Delivery has come to stay …

Ars Electronica Home Delivery was never intended as a substitute for a visit to the closed museum, but rather as a newly developed mediation approach. It is intended to permanently open up the artistic-scientific preoccupation with the future that has been so prevalent in Linz to a larger audience. The program will be maintained even when the Ars Electronica Center can be visited again as usual. "Our educational task is to carry on a discourse on current developments in art, technology and society," says Gerfried Stocker.

"With *Ars Electronica Home Delivery*, we're now doing just that online. In doing so, we're creating an additional and lasting range of offerings that will enhance our portfolio in the long term, for example for schools and businesses." In the future, guided tours, presentations and workshops will be held not only at the Ars Electronica Center in Linz, but also on the Web or as hybrid formats, making them interesting for audiences beyond Austria's borders.

… and is intended to unfold tried and tested strengths in new territory

Ars Electronica Home Delivery relies on the competence and expertise developed over the years by the museum team and at the same time opens up completely new territory. "When it comes to content and communication, not much will change," says Gerfried Stocker, "our Infotrainers are incredibly good at wrapping complex topics in exciting stories, preparing them for different target audiences and instigating dialogues and discussions." However, all of this had previously only been done on-site, and the team had little experience with it on the Web. "What was really challenging about *Ars Electronica Home Delivery*

was that we didn't want to make museum television, but rather create an experience. As with all of Ars Electronica's other activities, our claim here is not to treat people as mere recipients, but to make them into participants. We don't want to just edify or entertain, but to involve, inspire and motivate everyone. Only if we succeed in this, we will have reached our goal." That is why many of *Ars Electronica Home Delivery's* offerings give audiences the opportunity to participate, shape and work. As is typical for Ars Electronica, the focus is not on mere presentation but on interaction.

LIVE and interactive from the Ars Electronica Center Linz

The program structure of *Ars Electronica Home Delivery* is based on the qualities that have made the Ars Electronica Center the best-visited museum in Upper Austria for years. There are guided tours, presentations, workshops and concerts, all of which use the Ars Electronica Center's infrastructure. "Our CitizenLab has become an open forum in which we invite guests from the arts and sciences to talk to us. Deep Space became a showcase from which we broadcast extraordinary presentations. Our piano room became a stage for concerts including visualizations. And we have a mobile unit with which we can move through all the exhibitions and labs in the entire building and take guided tours," says Gerfried Stocker.

A MULTIFACETED PROGRAM FOR DIFFERENT TARGET AUDIENCES

Ars Electronica Home Delivery … In Concert

Concerts plus (real-time) visualizations by renowned artists are offered regularly. The venue and stage for these performances is the Ars Electronica Center's new "Piano Room" with the Bösendorfer 290 Imperial CEUS computerized grand piano. This room is also equipped with projection surfaces and sensors that make it possible to show visualizations that interact in real time with the volume and timbre of the music. Before and after the concerts, there are always moderated talks with the artists in which the audience can participate.

© Ars Electronica—Robert Bauernhansl

Ars Electronica Home Delivery …
In Deep Space 8K

Not much needs to be said here about the special features of Deep Space 8K. In the context of *Ars Electronica Home Delivery*, too, the projection room unfolds its full potential and provides a unique setting for special interactive presentations on topics such as astronomy, anatomy, media art or art history. The *Deep Space LIVE* format (every Thursday at 7 p.m.), which has been very popular for years, is also part of the *Ars Electronica Home Delivery* program, as are numerous new — in part moderated — formats.

Ars Electronica Home Delivery … In the Labs

Since last June, the Ars Electronica Center has had an entire "laboratory floor" which strings together MaterialLab, BioLab, FabLab and CitizenLab. All of these labs form an infrastructure that gives visitors the chance to actively work on future topics. And it is precisely this opportunity that is also being offered in the context of "Ars Electronica Home Delivery." Guided by the Ars Electronica Center's Infotrainers, interactive workshops are offered for various age and target groups. The CitizenLab is also the venue for regular — and interactive — talks with guests from the arts and sciences.

Ars Electronica Home Delivery …
Let's take a Tour!

Guided tours are a consistent and popular offering of the Museum of the Future. It goes without saying that these are also offered daily as part of *Ars Electronica Home Delivery*. As usual, the Ars Electronica Center's Infotrainers will act as "travel guides to the future."

Ars Electronica Home Delivery …
Talking to Artists & Scientists

Over the past decades, Ars Electronica has assembled a worldwide network that includes thousands of artists, scientists, developers and activists. Quite a number of them have already been and will continue to be guests in the Ars Electronica Center's CitizenLab — both real and virtual — and will each devote themselves to different aspects of the time during and especially after Corona. The audience is invited to join in the conversation.

© Ars Electronica — Robert Bauernhansl

American Arts Incubator — Austria

American Arts Incubator (AAI) is a creative exchange program that utilizes community-driven digital and new media art projects to instigate dialogue, build communities, bolster local economies, and further social innovation. Each incubator addresses a relevant social or environmental challenge such as economic equity, youth empowerment, gender equality, and environmental sustainability. Since its inception in 2015, incubators have been held in 27 countries on five continents.

This year's incubator in Austria was hosted by Ars Electronica and led by U.S. artist Rashin Fahandej. Fahandej ran the *Future of Inclusion Lab*, a series of co-creation workshops that consisted of listening/witnessing sessions, field research, and story and data collection activities. The workshop participants produced immersive experiences using emerging technologies and created poetic reflections on the state of social inclusion from a diverse array of perspectives.

Rashin Fahandej is an Iranian-American multimedia artist, filmmaker, and educator. Her projects center on marginalized voices, and the role of media, technology, and public collaboration in generating social change. Her methods take on the lens of "Art as Ecosystem," creating a network of collaborations with a multiplicity of narratives that investigate social systems and occupy public sites as a critical discourse. The workshops explored social inclusion by investigating new media literacy and by providing access to cutting edge tools and technology to co-create prototypes for immersive and poetic reflections and experiences.

American Arts Incubator℠ is an initiative of the U.S. Department of State's Bureau of Educational and Cultural Affairs developed in partnership with ZERO1. American Arts Incubator — Austria 2020 was led by Rashin Fahandej and produced in collaboration with U.S. Embassy Vienna and Ars Electronica.
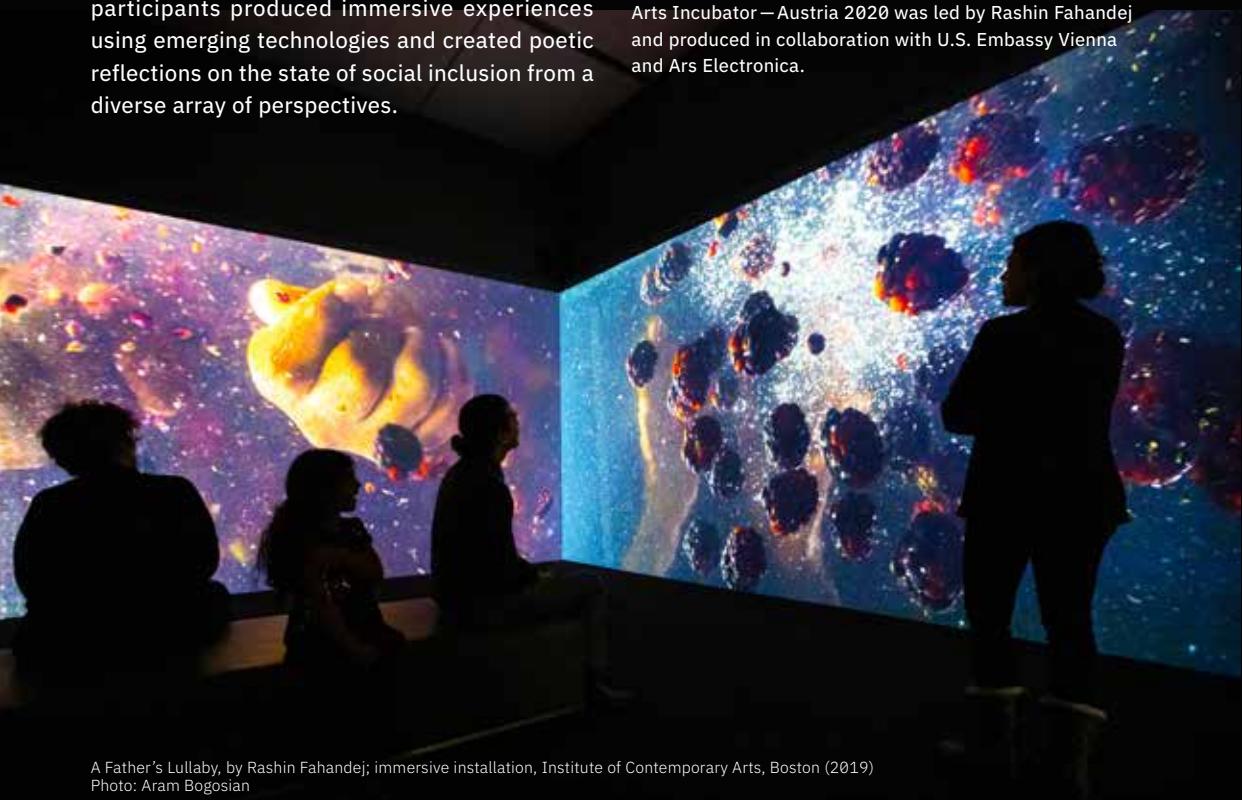
A Father's Lullaby, by Rashin Fahandej; immersive installation, Institute of Contemporary Arts, Boston (2019)
Photo: Aram Bogosian
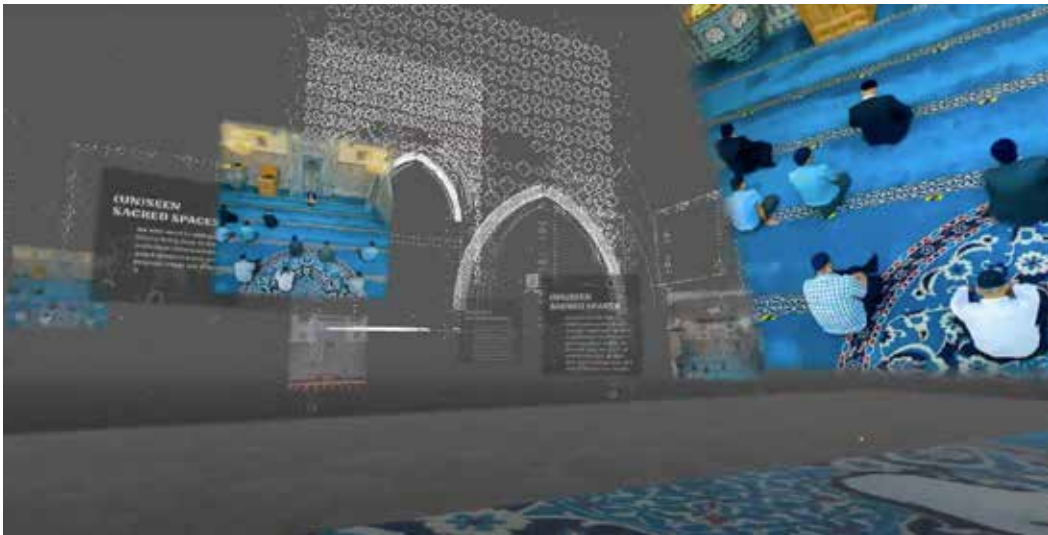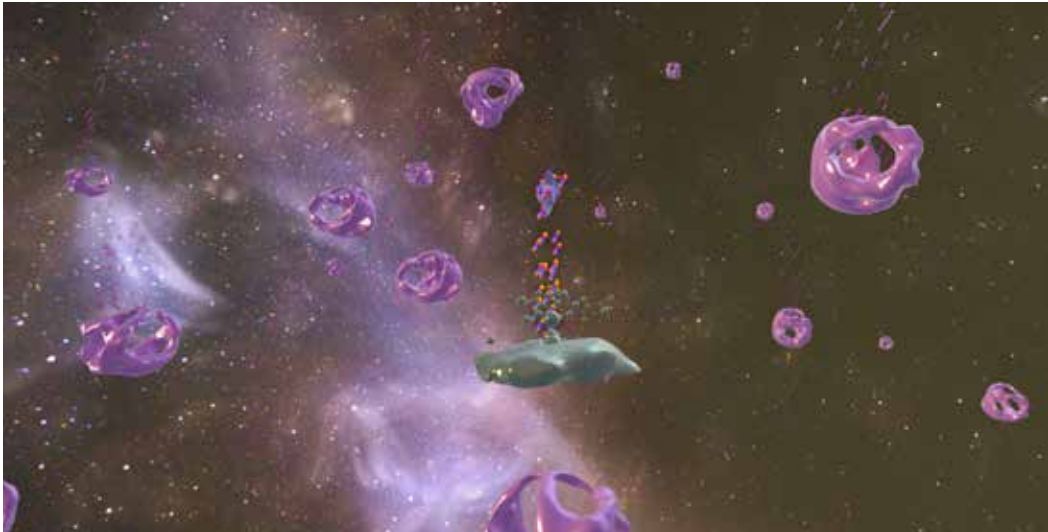
Workshop prototypes

Ars Electronica Archive —
Networked Archives

Much of the Ars Electronica Archive has already been made available to the public online in a clearly organized and easy-to-access manner at http://archive.aec.at . The areas most comprehensively covered are the Prix Archive with the presentation of all winners since 1987, the Print Archive with the catalogue publications since 1979, and the Pic Archive with photographs since 1979. In addition, the Online Archive includes the STARTS PRIZE Archive, "Talks and Lectures" area with a selection of talks and lectures given at the Festival, the "Women in Media Arts Database," which since 2016 has also been open to contributions from female artists not associated with Ars Electronica, and the "Art & Science" area, as a documentation of the European Digital Art and Science Network Initiative.

In 2020, a time in which online content is more important than ever due to events surrounding the COVID-19 pandemic, we are again devoting ourselves intensively to our own Online Archive. This process began with an exchange of ideas with other interested parties and experts regarding the significance of online archives and media-art platforms and how they can be made more easily accessible and attractive in the future. To this end, we were concerned with not limiting our dialogue partners to people from the archive sector, but rather with also seeking input from representatives of universities, the arts, galleries, and the art market, and in particular from the artists themselves.

Preliminary opinions, ideas, and results will be presented online as part of the 2020 Ars Electronica Festival. Moreover, a number of the experts will be invited to report at a symposium on topics and projects particularly important to them. Following the Festival, their talks, like many others given at the Ars Electronica Festival, will be available in the Online Archive's "Talks & Lectures" section at http://talksandlectures.aec.at.

Another topic of discussion will be the *Liverpool Declaration*, which advocates a globally networked organization and support for media art, and the joint efforts of ADA Archives, ISEA, Siggraph and Ars Electronica based on this.

http://www.mediaarthistory.org/declaration

Ars Electronica (AT)

Ars Electronica Archive — Digital Art Histories

As part of the "Digital Art Histories" project, national and international partners collaborate to promote development and public discussion of archival standards. Two of the oldest media-art platforms, ISEA and Siggraph, have displayed their interest in jointly addressing this topic. Further collaborations are planned. As the "economization" and thus the marketability of media art is to a large degree dependent on its value retention and permanence, the demands of galleries and collectors should also be ascertained in a targeted manner and incorporated into the research work. And because a large part of the current research in this area is done in the academic context, there will also be collaboration with the University of Art and Design Linz (in particular with the Interface Cultures department) and the Danube University Krems. Selected artists will be involved as well. In this context, the Ars Electronica Archive will examine the documentation and archiving of the exhibitions held at the Ars Electronica Center and other relevant projects, devoting itself in particular to developing guidelines/standards for information flow between the museum team and the archive with regard to the documentation of future exhibitions.

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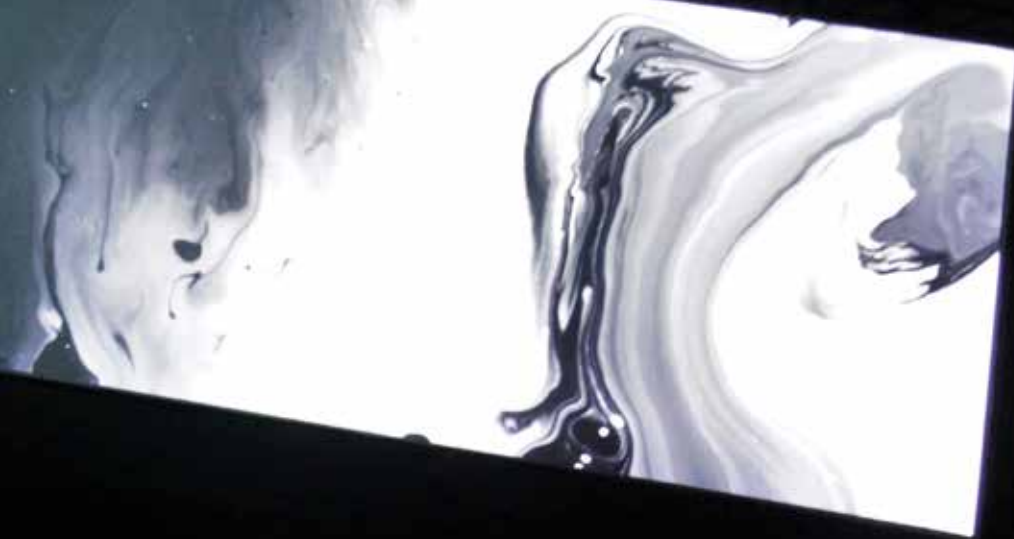
ARS ELECTRONICA
FUTURELAB

Envisioning the Future
by Birgit Cakir and Sanja Bajakić
based on an interview with Horst Hörtner, Roland Haring and Hideaki Ogawa

The Ars Electronica Futurelab is a laboratory and atelier for future systems. As the think-and-do tank of the Ars Electronica, it always places the human being at the center of research, considering the social aspects of technological developments such as artificial intelligence, robotics, media architecture, interactive technologies, new aesthetic forms of expression or swarm intelligence and their effects on the future of society.

At the interface of art, technology, and society, it creates future visions, which are realized for the public, together with cooperation partners from the fields of business, culture, research, and education. The network and team of international artists and scientists of the Ars Electronica Futurelab comes from a wide range of disciplines. It is concerned with the development and evaluation of technological innovation. In the Ars Electronica Futurelab, transdisciplinary research is used as a method to create new future approaches, possibilities, and inspirations.

Human interaction with technology determines the particular aspect of the future that the Ars Electronica Futurelab has been focusing on for almost 25 years. And this fundamental fact distinguishes the Ars Electronica Futurelab from the broad range of topics that future sciences in general are researching. The inherent desire for change characterizes the laboratory, which artistically deals with the technological transformation of society day by day. The ensuing diversity is a result of our constantly changing expectations of the future. In order to design a contemporary perspective for our society, existing technologies are being used for creating innovative constructs and sketching possible future visions that are always extended by a practical experience. By making abstract concepts tangible, they become part of reality. And this kind of verification or falsification of new theoretical perspectives is a key task for any laboratory.

Our decisions of today create the future of tomorrow. And questioning them contributes to shaping the world. This process requires information sharing and an interest in the technological or political environment, which is why Ars Electronica excels in offering opportunities to reflect — much more than any educational system. It is reflection per se that leads to a comprehensive cultural education.

The future is a result of creativity, passion and opportunities, and the unconscious exchange of ideas of responsibility. Questions asked to the audience are close to the future. These questions are fundamental to the role played by Ars Electronica Futurelab's art: It observes and discusses, reflects and changes — day by day.

In the early days in 1996, the Ars Electronica Futurelab focused almost exclusively on producing interactive installations for the Ars Electronica Center, and almost all of the applications were designed for internal exhibitions. But right from the beginning, Ars Electronica Futurelab began to build a network of partners and collaborators, which created an ecosystem for mutual inspirational exchange.

While it started by exploring the interaction between art and technology and later art and science, the laboratory is currently also focusing on topics such as art and governance. Over the years, these fundamental internal changes have made it necessary to rethink existing strategies again and again, and to continuously find new approaches to interesting and socially relevant research questions with all possible expressions and answers. Adding artistic context and social coherence, the Ars Electronica Futurelab has always created the meaning of media and showed interest in their material and the technologies they are based on.

> **"Science creates knowledge and technology creates possibilities.**
> **But it is only art that creates meaning."**
> **HORST HÖRTNER**

The trilogy of art, technology and society is the principle of the Ars Electronica Futurelab's approach, as technology in and of itself would never fulfil this meaningful framework. The Ars Electronica Futurelab has been living this triad systematically and intuitively since its beginnings in 1996. It encourages each individual in the team to develop their own interpretation of art, technology and society, to explore and transform it into new artistic spaces and to conquer unknown scientific terrain.

The individual artistic research question of each member forms the basis of the Ars Electronica Futurelab's systematic concept, its art and its science. Combining innovative technology with a social artistic mindset gives a decisive relevance to every single result. Without that, all research would be incomplete and simply abstract.

> **"Immoveable structures existing aside of the people involved can hinder innovation.**
> **Our structures are always guided by the actual needs of the team."**
> **ROLAND HARING**

The Ars Electronica Futurelab's method is comparable to jazz improvisation, which seems to be completely free of all rules except for structure. Listening carefully to everyone else, the researcher (musician) is doing their work, while improvising to the beat of the laboratory (band). This kind of dialogue, which is part of the daily routine at Ars Electronica Futurelab, is fundamental to the system's success. The fact that each member is an expert in their task might be crucial, but that is not enough. Only simultaneous reaction and virtuoso performance make the Ars Electronica Futurelab Jam Session run like a clockwork.

To further this concept, the Ars Electronica Futurelab regularly opens its participation processes to external players as well, for example as part of its initiatives: The *Ars Electronica Futurelab Residency Program* serves as a haven for international guests and shows a strong responsibility to share fundamental knowledge and innovative ideas. In formats such as the *Ars Electronica Futurelab Academy*, members try to pass on value systems to external talents while supporting them with their broad networking system.

The *Ars Electronica Futurelab Ideas Expedition* aims to encourage people to rethink the future and implement their concepts for an upcoming world. Ars Electronica's Japanese counterpart, *Ars Electronica Japan*, is extending the network beyond the borders of continents.

But also by cooperating with partners from the industry, science, the cultural sector and educational institutions, Ars Electronica Futurelab gets a valuable response, which in turn influences new attitudes and values. All of these experiences, people and cooperations made the laboratory what it is today.

In 2021, the Ars Electronica Futurelab is celebrating its 25th anniversary. This year will be held as a tribute to all people and partners who made the Ars Electronica Futurelab's existence, and all the many changes experienced throughout its history, possible. It is these people and these changes that cause a constant rethinking and reflecting on the role as a laboratory for the future in this ever-changing world. And this is exactly what the Ars Electronica Futurelab will keep on doing: Working on the future. Because things *will* keep changing.

Ars Electronica Japan

Ars Electronica Japan is an experimental initiative to bring Ars Electronica's cultural creation and Ars Electronica Futurelab's future creation to Japan. Throughout its 40-year history, Ars Electronica has engaged in unique collaborations with many Japanese artists, scientists, cultural and public institutions, and corporations. Ars Electronica Japan is a network effort with no physical presence in Japan — it manifests its activities through collaborations with a variety of Japanese partners. Ars Electronica Japan applies cutting-edge art for innovation, research, education, and shaping future society, aiming to realize an open and creative society with various partners. What role can art play for a better society? Ars Electronica Japan will conduct a variety of experiments as a prototype of a "cultural infrastructure" for creating the future.

TOKYO MIDTOWN:
School of the Future Festival 2020
TOKYO MIDTOWN, Tokyo, Japan, February 20-24, 2020

Ars Electronica and TOKYO MIDTOWN have been collaborating since 2017 on the educational project *School of the Future*, which promotes discussion about the creative society of the future. The annual festival was held fromFebruary 20-24, 2020, under this year's theme *Dappi*, which means *shedding* in Japanese.

Through 36 events such as exhibitions, performances, workshops and talk sessions, around 130,000 visitors took part in the discussion of how to break free from their own limitations and social conventions.

La parade engloutie performance / Guillaumit and Les Plasticiens Volants, Photo: TOKYO MIDTOWN

Ars Electronica Futurelab Ideas Expedition

The *Ars Electronica Futurelab Ideas Expedition* is a new initiative that was introduced by the Ars Electronica Futurelab directors in early 2020 to encourage internal talents and collaborations. It allows the laboratory's team members to use their cre-ativity and expertise to develop ideas for future projects without being limited to existing Ars Electronica Futurelab research areas or activ-ities. *Ideas Expedition* is a yearly open call for proj-ects of all forms: from performances, sci-entific works, interactive sound environments, software projects, design concepts, installations, books, musical compositions, games to art — every idea is welcome, as long as it is positioned against the background of the Ars Electronica Futurelab and the Ars Electronica, especially considering its relevance for and impact on society's future and the further development of the Ars Electronica Futurelab. All Ars Electronica Futurelab members can apply for funding of a project idea, and collab-oration among team members is highly encour-aged. Once a project has been accepted by the jury, the Explorers are mentored by experienced project managers throughout the project reali-zation. The jury is made up of the three Ars Elec-tronica Futurelab directors, Horst Hörtner, Roland Haring and Hideaki Ogawa, all three providing years of experience in recognizing the potential of project ideas. If need be, the jury is allowed to invite additional jurors, opening the selection process to other members of the laboratory, members of the Ars Electronica and even exter-nal experts from the fields of arts and science. Although this year's Ars Electronica Futurelab Ideas Expedition was the first one and a bit of a trial run, more than 20 project ideas were sub-mitted. The jury had a hard time picking the most promising project ideas and in a long review pro-cess decided on three projects to be realized. They are presented on the next pages in detail and are exhibited as part of this year's festival:

Ricercar: An AI-based Music Companion
by Ali Nikrang

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Deepandemia / DeepChanges
by Nicolas Naveau, Peter Freudling and Johannes Pöll

____

Spotless
by Daniel Rammer

Besides the winners, the jury awarded six other projects with honorary mentions. These are projects that were deemed convincing in their potential but the creators were encouraged to keep refining their ideas:

Migrate
by Daniel Rammer and Peter Holzkorn

____

The Creation of A.I.dam
by Julian Zauner and Susanne Teufelauer

____

Hollow Words
by Arno Deutschbauer and Friedrich Bachinger

____

The Zen Machine
by Manuel Dobusch

____

Our Social Forest
by Alexandre Bizri and Cloé Assire

____

The Essential Hub Project
by Yoko Shimizu

At an internal ceremony, all winners and honor-ary mentions were awarded with symbolic 3D printed replicas of the *Golden Nica*, honoring their ideas and engagement.
The next *Ars Electronica Futurelab Ideas Expedition* call is already in preparation.

Ricercar: An AI-based Music Companion

by Ali Nikrang

Recent developments in AI-based music generation systems have shown highly promising results. AI-based music generation systems are able to compose music in a quality that was unimaginable even two years ago. Today's AI-generated music can trigger emotional responses in us. For non-experts, it is often very difficult to distinguish between AI-generated music and human-composed music. And yet the question that arises is this: Can we call music that is generated by an AI system art? Can technology create meaningful art without human involvement? We believe artistic "meaning" can only be created if there is "intention" or "will" to create it. Obviously intention is something that current AI systems do not entail. AI-based music generation systems might be able to generate the next correct note based on some given previous notes. However, this does not mean that the generated output has any artistic meaning, just because a generated next note matches the previous notes (from a statistical point of view). This is why human collaboration is crucial for such a system. Due to the rather limited interaction possibilities of today's creative AI systems, they are used rather as tools than as counterparts. Generally speaking, the aspect of interaction and collaboration between creative AI systems and their human users has not received much attention in recent years. But what can collaboration between human artists and AI systems look like? Creative tasks require creative ways of collaboration. A trained neural network has its own expectations and assumptions about the music that has been learned during training. Based on these assumptions, it calculates the probability of the next note based on some given previous notes. A human artist has different assumptions and expectations. Our goal is to bring these two worlds together by building a new creative environment for human artists. We believe that the potential of current AI systems for creative tasks can only be exploited in collaboration with humans. This project involves investigation, development and evaluation of new ways for humans and AI-based music generation systems to collaborate. The software will include two components: An AI-based backend providing a new music generation software and a web-based client serving as an interface to human artists. For each note generated by the AI system, users will receive detailed information, suggestions and alternatives. They will be able to change the note from a list of alternative notes proposed by the system. In addition, users can change the music completely at their own discretion by dragging and moving the notes. In this case, the AI system will continue the composition in an alternative way based on the changes made by the users.

Deepandemia / DeepChanges
by Nicolas Naveau, Johannes Pöll and Peter Freudling

Inspired by the ongoing activities of the unofficial *Happy Collapse Group* — which the project team co-founded — several ideas that the team elaborated for Ars Electronica Futurelab's internal Grant *Ars Electronica Futurelab Ideas Expedition* concentrated around topics of recent environmental issues created in the Anthropocene. Climate change, globalization, energy consumption and the recent COVID-19 crisis were among many topics which caught the team's attention.

The team decided to use the Deep Space 8K in the Ars Electronica Center to host their project. Deep Space 8K is a one-of-a-kind interactive 3D environment which provides a vast range of spatial visualization possibilities and therefore lets visitors experience immersive visualizations in real time (and real scale).

The COVID-19 pandemic taught us about infection chains and represents a powerful example of how societal collaboration and individual actions can change the world for the better or the worse.

Simple measurements such as social and physical distancing, quarantine or wearing a mask can have a huge impact on breaking the infection chain. *Deepandemia* will visualize (and gamify) the consequences of such actions. The project team's hope is to encourage the visitors to think, discuss and take action in the real world, since this kind of threat will most probably remain with us for a while. *Deepandemia* is envisioned as the first entry of a larger modular simulation framework called *DeepChanges*. Forthcoming entries will focus on environmental issues such as human-made climate change. Causes and effects of the global temperature rise will be elaborated with external field experts and visualized in the Deep Space 8K. The team hopes to develop a vast amount of contributions over the coming years — especially focusing on the impact of our daily life's actions on our planet. Or as Antoine de Saint-Exupery has put it: "As for the future, your task is not to foresee it, but to enable it."
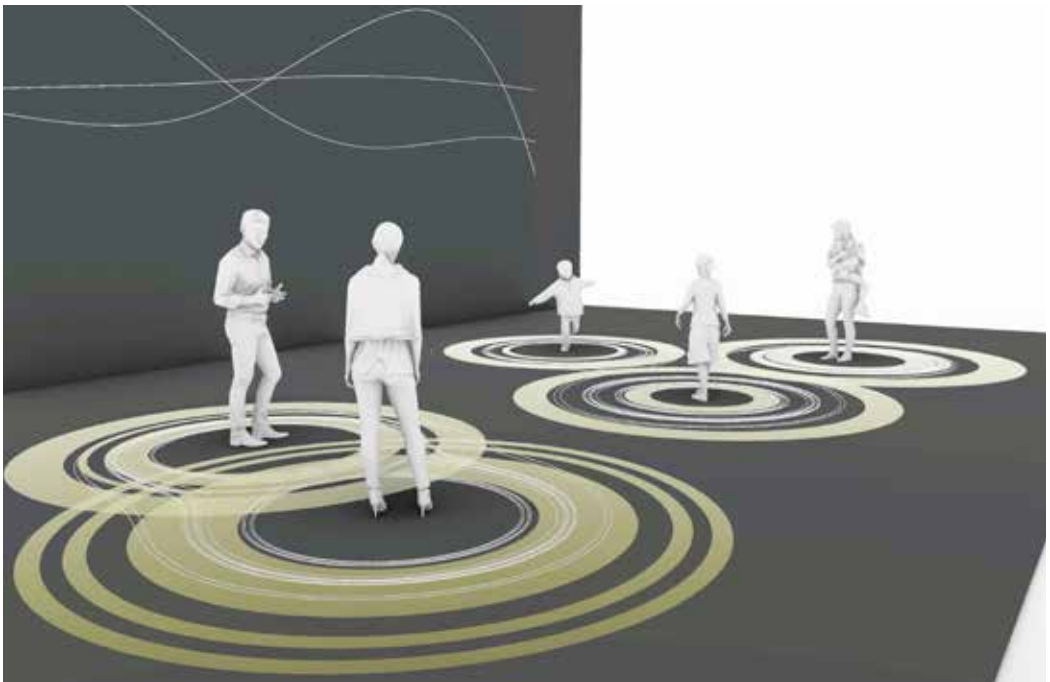
DeepChanges, Image: Peter Freudling / Ars Electronica Futurelab

Spotless

An Artifact-Bound, Augmented-Reality Powered Social Interface
by Daniel Rammer

Spotless's goal is to empower users to utilize arbitrary objects as communication channels. The basic concept is to connect objects or "artifacts" by the means of their visual equality. For instance: You go to your office in the morning and get a cup of coffee or tea. With *Spotless*, you can pin a message on the cup and read other users' messages simultaneously. A message added to that cup becomes visible on all other cups which look the same. Visually clearly distinguishable cups — perhaps distinctively branded by your company — would serve as a communication channel for a very limited group of people. However, lots of people would comment on simple white mugs. A mobile application which could run on a smartphone, tablet, smart glass, or in the future on smart contact lenses, is the entry point to the *Spotless* infrastructure.

Social media is a dynamic field that evolves with increasing rapidity. This process does not seem likely to cool down anytime soon.

Older widespread platforms, such as Facebook or Twitter, and younger ones, like Snapchat or TikTok, have one important aspect in common: quick access to their contents. Usually, users are just one tap on their smartphone away from diving into some kind of information stream; one more swipe changes the contents. This low barrier plus notifications that remind you to perform that simple tap foster a frequent and unconscious use. This is where *Spotless* is different: people need the physical object to interact with one specific stream or channel within this social medium. That barrier is considered a positive feature for two reasons: First, the interaction with that type of social media becomes a more deliberate act — this can help to regulate the time and energy spent using it. And second, because a higher effort is involved, it provides the potential to emphasize a message. Objects can grow to icons that symbolically represent a specific cause.

A wide range of potential use cases emerges with the development of this service. One possibility is communication through common objects, such as the coffee cup example earlier in this text. If someone in Los Angeles writes down her thoughts on a cup, others in Vienna or Tokyo, holding the same type of cup, can instantly read that message and respond via the same channel.

Everything can be augmented. It could be logos, buildings, all kinds of daily items such as the packaging of your favorite soft drink, and even faces. Of course, unlike product packaging, buildings and faces tend to be unique. Nevertheless, they can be augmented and information can be shared on them. The augmentation of faces in particular raises questions about privacy and intimacy. These questions are not new within the realm of social media but become apparent in a very tangible way.

However, the vision is simple: Everyone can augment every kind of object and pattern.

Ars Electronica Futurelab
Key Research Topics

It is questions that move the Ars Electronica Futurelab forward as an R&D institution, not their answers. The Ars Electronica Futurelab's research approach is based on a transdisciplinary concept. On the periphery of art, society and technology and in a constant dialogue with the future, the Ars Electronica Futurelab explores visions for innovative business, meaningful life and creative concepts and realizes them. With avant-garde and progressive methods and unconditional scientific reflection, its current research discusses relevant future questions.

In an effort to make the research topics more tangible, the Ars Electronica Futurelab's Key Researchers introduced them on this year's *Ars Electronica Home Delivery Program:* https://ars.electronica.art/homedelivery/en/. Here is an overview of the eight most recent key research studies being conducted at Ars Electronica Futurelab.

Art Thinking
What is the latest role of art? And how can we apply this art to the future of society? by Hideaki Ogawa

Art is a catalyst for shaping a better future society, a way to open up new perspectives, encourage curiosity to look at what is behind the scenes and to stimulate creative solutions. This research aims to explore the process of applying artistic thinking and an artful view to a broader range of challenges.

How can we become more human? How can microbes safe the earth? How can we co-exist with technology as our second nature? Artists have always understood the power of questions. They transcend from spiritual to material, function to form, natural science to social science, in search of a best match of a theme, medium and expression. They detect social and technological trends that are not yet given a name, and give a form to communicate those micro trends tangibly. In this research, we are exploring the *Art Thinking* programs consisting of inspirational tours, lectures, talks, workshops, prototyping and actions. Using the *Art Thinking* attitude, it connects creators, industries, governments, and citizens by cultivating a creative mindset of questioning the world. As a research domain, but also as an attitude, *Art Thinking* has the potential to catalyze innovation, new modes of education and strategy. We believe that art and artistic thinking is the best way to understand even the most complex issues and systems created by humankind — be they societal, economic, political, or technological. Art holds the power to scrutinize existing beliefs, cast doubt on common perceptions, and find a way to think outside the box. The goal of this research is to empower participants to take on the various societal and technological complexities facing us in today's fast-paced and fluctuating environment, with the new attitude of *Art Thinking*.

Co-Immersive Spaces

How can we create spaces to experience virtual realities collaboratively?
by Roland Haring

One of the key elements to achieve a climate-neutral society is technological innovation, and one of the key emissive factors to address is traffic. The environmental costs of attending conferences, meetings and festivals is substantial. The recent surge of a pandemic gave dramatically even more importance to this topic and led to a complete societal and migrational lockdown. Therefore, it is essential to develop immersive communication technologies which can allow participants to attend any kind of events remotely without losing a significant part of the quality experienced joining on-site and in person.

Immersive live experiences aim at providing users in a remote location a highly immersive view of events such as concerts, performances, sports, and lectures, occurring at an event site. A high degree of immersion is created with the combination of ultra-high-quality (e.g. panoramic or stereoscopic) video, and spatial audio, together with the presentation at the remote site in a large screen immersive environment (like the Deep Space 8K). The ITU-T has created a working group on *Immersive Live Experiences* and defined them as "a shared viewing experience which stimulates emotions within audiences at both the event venue and at remote sites, as if the viewers at the remote sites wandered into a substantial event venue and watched actual events taking place in front of them."

Although the *Immersive Live Experience* use case allows having a shared experience of an event, it is fundamentally unidirectional. Therefore, it is essential to let the audience at the remote site have a more active role and participate in the event in meaningful ways.

Live Participatory Performances enable remote audiences to contribute to the work, which means that their experience and response becomes part of the aesthetic of the performance. Actions and reactions of the audience can be sensed, transmitted, and represented in the performance, which in turn affects the performance itself. Participatory Immersive Experiences give the viewers at the remote location a higher sense of connection and a shared experience with the performers. Recent demonstrations in the Deep Space 8K have shown the potential of participatory performances in immersive environments.

Going even one step beyond this, it is possible to imagine a collaborative immersive live experience between two sites where both sides become equally active participants. The two sites can exchange high-quality video and audio and together explore the visualizations of a shared VR application interactively. Forms of collaborative live experiences can include immersive lectures, shared performances and scientific, industrial, as well as design visualizations. In co-immersive live lectures, co-located local lecturers can perform a joint visualization of 3D data with co-located users in a remote environment. Those users would be able to visualize the data reciprocally in their own immersive environment and interact with it in equal ways. Additionally, the presenters can be visually captured and represented, either virtually or even co-located through a robotic telepresence system, at the remote location, and the audience can be represented at both sites. These forms of physical and virtual co-presence will create the foundation for truly co-immersive environments.

Creative Intelligence

Can machines create?
by Ali Nikrang

"Can machines think?" Over 70 years after Alan Turing began a paper with this question, we still do not have agreement on the answer. The answer of this question depends on how we define thinking, the process of thinking and the meaning of thinking. But what about creativity? Can machines create? In recent years, there has been great academic interest in applying Deep Learning to creative tasks such as creating texts, images or music with fascinating results. The research interest in these generative models is based on the assumption that generating new, similar data is only possible by learning an essential understanding of the nature of the input data. Technically speaking, Deep Learning models can only learn the statistical patterns of the data. Thus, they often can learn relationships in the data that human observers have not been aware of, and thereby serve as a new source of inspiration for human creativity. Similar to the question of thinking, the answer to the question of creativity lies also in how we define creativity, the process of being creative and the meaning of being creative. However, it also includes human involvement and whether humans have been part of the creative process or not. While the development of AI-based creative applications has seen a surge of considerable advances in recent years, interaction and collaboration between these systems and humans was not given much attention. Current AI-based creative applications are used as tools rather than counterparts. Due to the rather limited interaction possibilities, the output of the system cannot be satisfactorily influenced by the users. The use of new, collaborative interaction possibilities could create new possibilities in which humans and AI systems can develop their creative potential together.

Given this lack of satisfactory interaction possibilities, our research focuses not only on the technological aspects of AI in creative and artistic applications, but also on new ways of interaction and collaboration between humans and AI systems.

Vector Space: Prix Ars Electronica Universe / Ars Electronica Futurelab (AT)
Image / Photo: Ars Electronica Futurelab

Artificial Collectives

How do we teach groups of machines autonomy, cooperation and expression?
by Peter Holzkorn

Multi-agent systems that collaborate in physical space to accomplish tasks take many forms, from drone swarms to sensor networks, and their variability and versatility will only increase in the future. Every such system has degrees of autonomy in its control mechanisms: The more autonomous, the more trust is placed in the system's algorithms to make good decisions, and the less it burdens humans with supervising it.

Artificial Collectives refers to the development of systems that are multitudes of technical units, and how they can be imbued with decentralized, coordinated decision-making. What principles and languages do we need to instruct a swarm of drones to solve a particular problem? How can they communicate with each other, and with their environment? Can we take clues from how groups of living beings cooperate? How can such a system, as a collective, be easily scalable and robust towards imperfect sensing or communication?

Inherent in decentralized agency is a diversity of expressive forms: It may be a philosophical question at what point a decision deserves to be called truly autonomous in a technical apparatus, but we humans certainly perceive autonomy, form and purpose in the coordinated behavior of a multitude. From this perspective, the expressive potential of a distributed autonomous system is vast: The tension between the artist/programmer, emergent behavior and perception is here investigated in physical-mechanical space.

Algorithmic Apperception
How can we enable / teach machines to share and interact with us in the same space?
by Otto Naderer

Physical space is something merely exclusively entitled to humans. It is where we walk, explore, engage with others. The way we utilize space, interact and where we stand transports a lot about feelings, mood, intimacy (s. Proxemics).

Algorithmic Apperception investigates ways to admit artificial systems into this space. It is the ambition to enable machines to not only sense their environment but make sense of it. In order to weave themselves seamlessly into our daily life, machines need to be able to derive intentions from human behavior. An autonomous vehicle is only useful if it can correctly identify that one person intending to cross the road. Understanding what humans are up to puts an artificial system one step ahead, enabling it to proactively provide e.g. contextual options. In many aspects, this research ambition consequently extends into the fields of sociology and psychology. Providing machines with valuable information requires proper sensors and profound multi-sensory techniques, similar to humans making use of their body senses. A meaningful combination of obtained features in conjunction with a sociological and cultural understanding assures natural interaction, simplicity, and intuition. Furthermore, recent advances in artificial intelligence open a variety of new possibilities.

Digital Resonance
What resonance can we create beyond interaction?
by Kyoko Kunoh

Digital Resonance is research exploring new ways of communication with yourself, others, society, and the environment through digital technology. The evolution of digital technology in the last few decades has expanded the concept of interaction not only to technology, but also to design and art. Digital technology now is stepping into creating resonance from connecting between people and technology. How can digital technology stimulate our emotion and imagination? What digital technology can create empathy and solidarity between people beyond physical distances? How can we create a better relationship between evolving digital technologies such as AI and people? What content, context and design creates resonance in the field of digital media art? This research will open a new field of aesthetic awareness about digital technology and promote the future of digital technology that empowers people.

Shadowgram by Ars Electronica Futurelab (AT), Photo: Tom Mesic

Origami Robotics

**How can the art and science of origami make robotics more natural in the future?
by Matthew Gardiner and Rachel Hanlon**

Robotic Origami, or *Oribotics*, is poised to become an influential field for future robotic research. *Robotic Origami* is concerned with the study of folded mechanisms where researchers are generally interested in applications of folding in mechanical, electro-mechanical, and bio-mechanical systems.

Our research, funded by the FWF PEEK program, addresses problems in the fields of Computational Origami, Soft-Robotics and Active Origami, through a methodology framed by art and science. Our work builds on our novel methods of Fold Printing and Fold Mapping. Our objectives include: sifting through the active state of the art research; developing new collaborations within the project's partner network of experienced artists, origamists and technologists; creating new methods to address the following areas: Fold Sensing, Fold Transformation, and Fold Programming. We aim to develop the tools and approaches for the future robotic origami studio, to push artistic, technical, and theoretical boundaries. Our results, such as published exhibits, papers, and video documentation, are aimed to inspire the future generations of artists and scientists in the field.

Poetic Systems

How can art transform systems not accessible to us into a new level of meaning?
by Stefan Mittlböck-Jungwirth-Fohringer

We live in a world of systems. We humans are a system in ourselves and live in symbiosis with many natural systems. In addition, we have created and continue to create many artificial systems that elude the sensory perception of us humans. They elude us because we humans lack the sensory perception for them or because these systems and their interrelationships of meaning are no longer comprehensible to the individual human being. How can these technical, political, information, software and mobility systems surrounding us be transformed into a form that we humans can perceive?

The answer is art. The transformation of levels of knowledge, cognition and perception into poetic levels of meaning has always been a central theme in art—it is thus possible to make the invisible visible, the intangible tangible, to encode and decode meanings. With the means of art and artistic research, knowledge is generated—in this way, the components of systems are made comprehensible on an emotional and cognitive level. Art and its means of expression enable us to experience the interrelationships of meaning of the natural and artificial systems surrounding us, for us and our society. Artistic works—*Poetic Systems*—transform systems not accessible to us into a new level of meaning. They speak a sensual-emotional language and create them through their immediate, aesthetic appearance: free space.

In the context of art and architecture / art in public space, the research and work field of *Poetic Systems* offers new strategies and ways of thinking that enable an epistemic transformation. Transformation is always an interplay between deconstruction and construction. Deconstruction in the searching, researching and analyzing sense; construction in the sense of the creative act, creation in all its conceivable and feasible forms. *Poetic Systems* tries to regain the lost balance between nature and technology and looks for possibilities with the means of art to make technology positively usable for us as a society and for our environment. The search for the poetic moment within the diversity of systems surrounding us human beings holds the possibility of unique perspectives that have great creative potential, which allows artistic work to emerge in the field between art, technology and society.

Ars Electronica Futurelab Projects

Based on its research, the Ars Electronica Futurelab realizes projects for the public, together with various cooperation partners from the fields of business, culture, research, and education. Putting the human being and its interaction with technology at the center of its research, all of the Ars Electronica Futurelab's projects are in a sense a mirror of today's society's trends. This approach allows for a constant change of and reflection on different topics.

Rotax MAX Dome Enhancements
Rotax (AT), Polycular OG (AT) Ars Electronica Futurelab (AT)

In the summer of 2019, a new e-karting experience opened its gates. The *Rotax MAX Dome*—conceptualized and implemented with the Ars Electronica Futurelab—offers a variety of unique features: a 50-meter-long tunnel section with various challenges allows racers to score extra points as they pass through. A dedicated room invites visitors to a group gaming experience where they have to solve a series of challenges aided by augmented reality and kart racing.

Following six months of operations, a follow-up project was initiated with a clear focus on reflecting on particular gamification concepts and how well they have been perceived by customers. Furthermore, an assessment of internal processes and workflow revealed where new software components can support the staff in their daily tasks. A major step forward was made in unifying the pivotal games in the *MAX Dome*. Besides the *Tunnel Challenge*, the overhauled *Challenge Room* now hosts the *Team Challenge*, a story-based four-player group gaming experience played on a touch table and an AR tablet. The newly added *Booster Challenge* invites visitors to play a round of fast-paced mini-games.

Points awarded by all challenges can be converted to boosts for the next race or saved for later consumption.

Track and operations have also received significant updates. The innovative hybrid kart tracking system, consisting of a rough radio positioning as base and augmenting laser rangers in sections where high accuracy and scan rates are required has proven to be a great decision for the interactive *Tunnel Challenge*. The individual challenges have been tweaked and visually upgraded. To support the work of track staff, a new component, the *Marshal Display*, was introduced which provides an overview of the track, key kart telemetry and overall system sanity. In the event of failures or telemetry abnormalities warnings are displayed to the staff.

The *Enhancement Pack* phase has significantly extended the product range. The *Rotax MAX Dome* is a proven example of how gamification can greatly augment the user experience while increasing customer loyalty by creating return incentive. Rotax and the Ars Electronica Futurelab are determined to continue this successful collaboration.

Swarm Arena / Fluxels

NTT—Nippon Telegraph and Telephone Corporation R&D Service Evolution Labs (JP), Ars Electronica Futurelab (AT)

In 2016, Japanese Telecom Provider NTT and Ars Electronica started a joint research initiative with the aim of creating and exploring new user experiences that combine communication technologies and art. Since then, NTT's R&D Laboratories and the Ars Electronica Futurelab have been integrating their creative approaches and technical expertise to produce a series of experiments and performances that would lead to new communication systems and sports watching experiences in public spaces.

In July 2019 in a choreography named *Swarm Arena* at Tokyo's *Miraikan* science center, 39 agile wheeled robots with brilliant hexagonal LED displays visualized how we might relate to the experience of collective live viewing of events in the future. At the Ars Electronica Festival 2019, a smaller version of this performance was presented at POSTCITY as part of an introduction to the Ars Electronica Futurelab's *SwarmOS*, a platform for flexible, scalable vehicle swarm control. Just as the *Spaxels* established moving physical light pixels in the sky as a new medium of expression, the bots allow for novel ways of mapping video content to a "canvas" that can continuously reconfigure and re-assemble itself in relation to other objects and performers in a space. We call the display bots *Fluxels*, in reference to the heritage of our *Spaxels* drone projects and in recognition of the impression of fluidity and visual layers that are in constant motion as the bots move.

Work on the *Fluxels* continued in preparation for large-scale outdoor performances. Most importantly, they were extended with cutting-edge RTK-GPS technology that delivers centimeter-precision by satellite-based navigation alone. They were put to the test in torrential rain and freezing cold as Ars Electronica Futurelab researchers were preparing them for upcoming events. Apart from their visual potential, they demonstrate how *SwarmOS* can be used as a research platform for the future of expressive swarms and human-robot interaction.

TFluxels Outdoor Test, Photo: Martin Hiestmair / Ars Electronica

Virtual Anatomy at the JKU Linz

Johannes Kepler University (AT), Siemens Healthcare (AT), Ars Electronica Futurelab (AT)

The Johannes Kepler University Linz (JKU) is currently constructing a modern, future-oriented multi-purpose learning space at the JKU Faculty of Medicine's new medical education and research building.

Scheduled to open in 2021, the space will not only be used as a virtual lecture hall for anatomy courses, but will also provide live surgery broadcasts from operating rooms to improve student education and post-graduate educational courses. The new space, *JKUmedSPACE*, will be modeled after the Ars Electronica Center's Deep Space 8K.

The Ars Electronica Futurelab, the JKU and Siemens Healthcare have come together to begin planning, commissioning, acquiring, constructing, and installing the hardware and software infrastructure required to turn the project into reality. When completed, a new groundbreaking space and black box will be available for mediation and interaction purposes as well as visualizing medical information.

Demonstration of Cinematic Rendering at Deep Space 8K, Photo: Robert Bauernhansl / Ars Electronica

Top scenarios in the *Virtual Anatomy Room* include high-quality, vivid, and photo-realistic visualizations of medical information, such as MRIs and CT scans, for educational and training purposes. The space gives users a unique opportunity to explore the human body in detail by observing layered images and using a controller to zoom in and out, rotate images in various directions, and traverse areas that are normally inaccessible in real life. Virtual reality technology can be used to immerse aspiring physicians and nurses in the subject and teach anatomy in a way that books, photos, and videos cannot.

Over the past year, medical students have been attending virtual lectures in anatomy at Ars Electronica's Deep Space 8K, experiencing animated journeys through the human body as part of their medical training at the University of Linz. Siemens' *Cinematic Rendering* process plays a key role in the project, making this form of visualization possible by using hundreds of layered images to provide high-quality, 3D digital images normally only seen in animated movies. As part of the collaboration effort, these interactive visualizations of the human body will be provided to external parties for commercial use based on various license models. The partners also benefit: Ars Electronica makes its network available at science centers and museums as well as at non-medical educational institutions, and Siemens provides Ars Electronica with information regarding potentially interested parties in the clinical area.

In 2021, Siemens' *Cinematic Rendering* software, the Deep Space 8K infrastructure, and the JKU Faculty of Medicine will come together into a new and unique educational space: the JKU's *Virtual Anatomy Room*. The *Virtual Anatomy Room* will create 3D-supported anatomy studies based on, but not limited to, virtual reality.

Art Thinking Program

Hakuhodo Inc. (JP), Ars Electronica Futurelab (AT)

The *Art Thinking Program* (ATP) is a joint consulting program between Hakuhodo and Ars Electronica Futurelab to incorporate the method of *Art Thinking* into the management and R&D of companies, research institutions, and governmental organizations. Hakuhodo is a leading communication design and marketing solutions company in Japan with its core philosophy centered around *People Thinking* (sei-katsu-sha insight). Since 2014, Hakuhodo and Ars Electronica Futurelab have been working together to introduce the *Art Thinking* methodology in Japan, building creative communities where organizations and individuals from diverse industries share their ideas and know-how.

In the *Art Thinking Program*, organizations and individuals learn how to create their compass and envision the future through artistic inspirations and creative questions. The program is comprised of three elements: *Art Thinking Tour, Art Thinking School*, and *Art Thinking Project*. The *Art Thinking Tour* is an entry program where participants take an inspirational tour of exhibitions to experience the basic principles of *Art Thinking*. In the *Art Thinking School*, comprehensive lectures, inspiration tours, and tool kits are provided to help participants ideate, conceptualize, and envision the future.

In the *Art Thinking Project*, we collaborate with companies and organizations on a larger scale, from technology study, ideation, conceptualization, vision creation, development, to prototyping, including demonstrations in festivals and society.

Through these initiatives, Hakuhodo and Ars Electronica Futurelab are continuously building a creative ecosystem of *Art Thinking*. Our talks, lectures, and events are held in Japan as well as Linz to envision the future together as a global society.

Art Thinking Program, Image: Hakuhodo

Open Futurelab

Open Futurelab is a platform within the Ars Electronica Festival to showcase and discuss Ars Electronica Futurelab's latest research findings and collaborative projects with research partners.

In 2020, this open lab will not only host physical exhibitions and talks in Linz, but also various experimental projects online to deepen discussions about how to envision the future for the new conditions facing humanity.

Future Ink Project

Launch of collaborative research between Wacom and Ars Electronica Futurelab
Wacom Co. Ltd. (JP), Ars Electronica Futurelab (AT)

The *Future Ink Project* is a collaborative research project between Wacom and Ars Electronica Futurelab to explore the entire creative potential of ink. As the world's leader in pen tablets, interactive pen displays, and digital interface technologies, Wacom brings people and technology closer together through natural, intuitive interface solutions. Wacom supports creative communities across the globe in making this world a more creative place.

The journey of our project starts with one creative question: Where is my Soul? When we experience the performance of artists, as they pour their life, emotion, passion, and energy into that one moment, we are deeply moved and inspired in ways that we cannot explain. There is a special power in these creative moments, perhaps something similar to *Kotodama*, a Japanese belief that there are souls and mystical powers in the words that we express. It makes us wonder, what moves our souls? How do we capture and convey that special moment?

Through our journey, we have defined five core research concepts that explore creativity from diverse angles: *Space Ink, AI Ink, Bio Ink, Body Ink*, and *Mind Ink*. The objective of the project is not to find a specific answer but to continuously ask questions and conduct innovative and experimental research that are crucial to envisioning the future of creativity.

Spaxels over the Danube; Photo: Gregor Hartl Fotografie

CoBot Studio
Crossing Realities for Mutual Understanding in Human-Robot Teams

As close collaborations between humans and robots increase, the latter must be programmed to be understandable, predictable and thus trustworthy for people. To make this a reality, interdisciplinary research and development is needed. *CoBot Studio* is a research initiative where experts from various fields, including robotics, psychology, virtual reality, game design, media arts, artificial intelligence, human-computer interaction, and safety work together towards the common goal of human-centered collaborative robotics.

Unlike conventional industrial robots, collaborative robots—or *CoBots* for short—are light, safe and intelligent enough to operate in close physical proximity to people. The formerly isolated industrial robot thus becomes a social machine. It must be able to understand the states and intentions of others, but also to communicate its own states and intentions to its human co-workers. When a CoBot is about to actively intervene in a work process, its planned actions, such as which direction it will move and which object it will grip next, should be made easily interpretable for nearby humans.

But which signals and interfaces are the best indicators of where a robot is about to move or what it is going to do next? And how is the understandability of a CoBot related to trust and acceptance on the part of different human co-workers? This is where *Cobot Studio* comes in with new, creative methods. Kicked off in 2019, the three-year project focuses on the development of an immersive extended reality simulation for communicative team play scenarios with mobile CoBots.

In the project's first year, a prototypical virtual reality environment was developed that is on display at this year's Ars Electronica Festival and can be tried out by visitors. Wearing a state-of-the-art VR headset, users play interactive mini games in which tasks such as organizing small objects together with a CoBot or guessing the target location of a moving robot in space have to be completed. During the games, signals of intention by the robot (e.g. light signals or nonverbal communication cues) are varied and their respective impacts on understandability, perceived safety, trust and task success are evaluated. Based on the results with this first prototype, the *CoBot Studio* simulation space will be further developed in the coming years. Ultimately, the project aims to provide practice-oriented guidelines for the future communication design of collaborative robots.

www.cobotstudio.at

Credits:
LIT Robopsychology Lab, JKU Linz (AT)
Ars Electronica Futurelab (AT)
Polycular OG (AT)
Joanneum Robotics (AT)
Austrian Research Institute for Artificial Intelligence OFAI (AT)
Blue Danube Robotics GmbH (AT)
Center for HCI, University of Salzburg (AT)
CoBot Studio is funded by the Austria Research Promotion Agency (FFG) in the frame of the program Ideen Lab 4.0.

Prototyping for the first experiment series of CoBot
Photo: Birgit Cakir / Ars Electronica Futurelab

Immersify

Cutting-Edge Tools for the Next Generation of Immersive Media
PSNC — Poznan Supercomputing and Networking Center (PL), Spin Digital Video Technologies GmbH (DE), Marché du Film — Festival de Cannes (FR), Visualization Center C (SE), Ars Electronica Futurelab (AT)

In stark contrast to video, TV and movies, Virtual Reality (VR) applications promise experiences that are not only more intense but, above all, interactive and individual as well. To launch VR on its way to a huge consumer market share, a considerable amount of R&D work needs to be done. That was precisely the mission of *Immersify*, a European R&D consortium made up of PSNC — Poznan Supercomputing and Networking Center (Poland), Spin Digital Video Technologies GmbH (Germany), Marché du Film — Festival de Cannes (France), Visualization Center C (Sweden) and Ars Electronica Futurelab (Austria). Since fall of 2017, the EU-funded project has been dedicated to current and future challenges that immersive media entail. The project researches technical possibilities with regard to video compression of immersive media and how immersive media content and tools can be designed interactively and promoted in the creative and media industry in Europe. The project team produced around 30 immersive contents to demonstrate the technical possibilities of the new formats and to test, improve and evaluate the tools developed within the project. Live demonstrations of the content, including 16K media playback and 8K live streams, made the project tangible not only for the immersive media market, but also for a more general audience. *Immersify* was presented at several festivals, cultural events, technology fairs and conferences. In addition, several guidelines, which aim to make the tools and content of the project imitable for content creators, were published. In June 2020, the project team presented some of the developed content and technologies one last time at a final live demonstration. The event showcased a demonstration of highly immersive and interactive media consisting of playback of newly created content with 16K 360° video combined with spatial audio based on high-order ambisonics. It also included an 8K live stream from PSNC's laboratories in Poznan, Poland, to Ars Electronica's Deep Space 8K in Linz, Austria as well as a 360° live video stream from PSNC showing the technology behind the stream and ambisonic sound production. Two live demonstrations of some of the produced content were then streamed live on YouTube via Ars Electronica's *Home Delivery* program: *The Great Pyramid in 3D* and *The Translucent St. Stephen's Cathedral* — the latter being part of this year's Ars Electronica Festival as a special showcase at the Deep Space 8K.

You can learn more about the project and find out about all content produced on the project website: https://immersify.eu/

The Translucent St. Stephen's Cathedral, Photo: Johannes Pöll / Ars Electronica Futurelab

Cascade

8K Future Projects
NHK (Japan Broadcasting Corporation) (JP), Ars Electronica Futurelab (AT)

Since 2015, *NHK* and Ars Electronica Futurelab have conducted joint research on the new possibilities of 8K technology and its social and cultural impact. Under the theme of *Beyond the Frame — 8K Future Projects*, we have created a prototype for social togetherness in the *8K Platz* project, and a new scale of broadcast content in the *8K Life Scale* project. As the next step, we explore new standards for the viewing experience in *8K Cascade*.

With the simple gesture of rotating a display by 90 degrees, a symbolic shift from "landscape view" to "portrait view," we are reframing the relationship between the human body and broadcast content. Displays and cameras "stand up" in vertical positions to accommodate human-scale contents as a new standard of 8K technology.

In *Cascade*, a series of installations with diverse 8K contents in vertical formats is created to integrate the 8K technology into our daily lives in new ways. Three usage scenarios are defined to represent diverse styles of content: *Ambient, Information*, and *Communication*.

In the *Ambient* concept, viewers can experience cascades of water, a natural metaphor for the vertical orientation. Natural and digital particles flow and form complex streams, creating an extremely detailed and rich ambient scenery. In the Information concept, live-streams of NHK news are presented in vertical formats to showcase a new design format for TV broadcasts. The format enhances viewer experience with enriched information design. The *Communication* concept is a more human-centric approach to *Cascade*, where we reimagine the TV as a realistic window to our family and friends. The vertical orientation provides a more natural frame for human communication.

The *8K Future Projects* aims to bring 8K to the public in innovative ways as the role of broadcast media expands *Beyond the Frame* in future society.

Cascade, Image: Ars Electronica Futurelab

Social Telepresence

by Stephan Feichter

What are new forms of social interaction over distance? During the 2020 pandemic lockdown, most of the world experienced social distancing. Under these circumstances, digital social presence in any form has become more important than ever, as social interaction is crucial for us humans. The Ars Electronica Futurelab and its partners research new ways to enrich one-to-one conversation, meetings of small groups and big gatherings over a distance. At this year's festival, the Ars Electronica Futurelab will exhibit two *Social Telepresence* projects.

Tele-mobility

by Peter Holzkorn

While the quality and ubiquity of audio-visual telepresence increased over the last two decades, so did, paradoxically, air travel and personal mobility to attend meetings, conferences, gatherings, and exhibitions. When global mobility was suspended by the harsh effort to control a pandemic, everyone's attention was suddenly on the status and potential of telepresence technologies — and the question of how much of our old kind of mobility we should strive to regain, considering its impact on our health and our planet. What parts of physical presence could telepresence replace in the future, and what new abilities could it add? What incentives will it need for its benefits to outweigh the perks of physical travel, and in which cases? In the Ars Electronica Futurelab, we want to foster discussion about this, and create prototypes with promising technologies.

One device that offers an interesting form of abstracted embodiment is the *Double 3* robot, a product that allows the user to navigate a remote environment with a kind of tablet on a pole; a video-conferencing call on the tablet display connects the two spaces in sight and sound. Beyond its original one-to-one use, its open architecture inspired us to start experimenting with potential remote experiences such as robot-based group visits or semi-automated streaming tours. Do not be surprised if the *Double 3* joins physical visitors and video conferences at the Ars Electronica Festival 2020 in one way or another …

Double 3 Robot, Photo: Ars Electronica Futurelab

Collective physical experiences at remote locations
by Kyoko Kunoh

Ars Electronica Futurelab and NTT Communication Science Laboratories, which is the research laboratory of the Japanese telecommunications company NTT, are exploring a digital resonance that cannot be achieved with existing telecommunications.

Currently, there is an urgent need for a new approach to developing telecommunications technology used for social relationships. In the current uncertain situation of the world, with physical and social distancing, it is necessary for technologies to allow us to continue to feel, trust and be present to each other. What telecommunication technology promotes sharing our social presence?

With the aim to promote multi-modal telecommunication research in the future, this research carries out a series of the experiments at Ars Electronica Center to come up with various dimensions of the topic in the field featuring telepresence applications and interfaces, and thus deepen the research. Experiments connecting Japan and Europe will be planned, while collecting diverse feedback from national and global users.

A recent work by NTT called *Public Booth for Vibrotactile Communication* can be a reference for this research.

Credit:
Planning: Junji Watanabe (NTT Communication Science Laboratories, NTT Service Evolution Laboratories), Yutaka Kamamoto (NTT Communication Science Laboratories)
Production Cooperation: Richi Owaki, Takuya Ishikawa (Yamaguchi Center for Arts and Media [YCAM]), Kouta Minamizawa, Hirohiko Hayakawa (Keio University Graduate School of Media Design), Yoshihiro Tanaka (Nagoya Institute of Technology)

Public Booth for Vibrotactile Communication (2019)
Photo: Research Complex NTT R&D @ICC

Ars Electronica Research Institutes

An initiative of the Ars Electronica Futurelab is represented by the Ars Electronica Research Institutes. This organizational form acts as an open membrane of the Ars Electronica, allowing closer collaborations with the academic world. After its first incarnation as an Ars Electronica Research Institute last year, Eveline Wandl-Vogt's Ars Electronica Research Institute *Knowledge for Humanity* and Werner Jauk's Ars Electronica Research Institute *Auditory Cultures* will also host programs at this year's festival.

Ars Electronica Research Institute Knowledge for Humanity (AT)

Garden of … Knowledge for Humanity

Garden of … Knowledge for Humanity reflects on the most recent work by the Ars Electronica Research Institute *Knowledge for Humanity,* in its global and unique context bridging the gap between academic knowledge and socially relevant applications. In this years' interactions, the mission statements of last year are introduced as live experiments that you can be an active part of.

The presented work is focused on the following three core areas:
_ Digital humanism and critical reflections on technology
_ Knowledge for Emergency — COVID19 related experiments and interactions
_ Accelerating /academic/ knowledge to reach the Sustainable Development Goals

It reflects our approaches:
_ of Humanity Centered Design (Federico Donelli)
_ of art-based, experimental knowledge co-creation
_ against a background of Open Innovation methods and practices / in science.

Garden of … Knowledge for Humanity celebrates the wealth of diversity, addressing various formats and audiences, through:
_ analogue canvases and interactive visualizations
_ virtual, participatory interactions
_ speculative future design experiments

This series of interactions is curated by Eveline Wandl-Vogt and uniquely designed for Ars Electronica Festival 2020, especially against the backdrop of COVID19-related virtualizations. You are invited on a journey of discovery aiming to drive social, innovation-based activism and to critically reflect on what we call "intelligence" (artificial and human likewise) by stimulating you to join the community of purpose that is Ars Electronica Research Institute *Knowledge for Humanity.*

Affordances of Place, © Elena Cologn

COVID19 insights: mapping diversity and community, © Gabriel Carsenat

Curated by Eveline Wandl-Vogt

Ars Electronica (AT)
Ars Electronica Research Institute Knowledge
for Humanity (AT)
Austrian Academy of Sciences (AT)
exploration space(AT)
IACy (AT)
Virtual Silicon Valley Inspiration Tours(AT)
The Business Therapist (AT)
Gesellschaft für Digitale Ethik (DE)
metalab (at) Harvard (US)

Berkman Klein Center for Internet and Society (US)
Harvard Art Musems (US)
Harvard University (US)
The Institute of Technological Ethics(AU)
NamSor(FR)
Community Creates Mobillity (AT)
Knowledge for Development Partnership (GLOBAL)
British Council (UK)
Arts Council England (UK)
Anglia Ruskin University (UK)
Fondazione Bevilacqua LaMasa (IT)

Werner Jauk

What is music to …

The transparency of envelopes of the body, its private / social / public spaces — garments and gardens: auditory spaces as emotional interfaces zones to an auditory culture of humanity

Introduction:

Music is considered a formalization of hearing. Hearing is a primarily hedonic form of interaction of the body with the environment — movement is heard "abstractly" as bodily "tension". It is not the cause of the movement that is perceived primarily "indexically", but the intensity, and thus the proximity of the movement to the body — this then determining the tension of the body, expressed as behavior and communicated directly.

Apart from symbolic cultural references, apart from "fashions", both garment and garden serve as transparent covers of the body and form socially emotional interfaces to the environment. Epistemological media art conveys them not only through modal and medial transpositions, through the insight of "standing in front of it", but via immediate physical experience. Therein, media become reinforcing extensions of the hedonic body, whose tension-related nature of interactions with the environment ensures its survival and creates cultures. The primarily hedonic interaction of the body in the listening room and its mediatization in music serve as a paradigm for emotional communication in human cultural spaces — in both physical and virtual realm, in the natural coalescence of mechanical and hedonic behavior.

In social interactions, bodily tension is essentially determined by the spatial proximity and its desirability — studies show that physical distance from people above 4 meters is experienced as contactless. Up to a distance of 1.5 meters, we experience a distanced togetherness, whereas below that behavior turns into either attention or aversion, depending on desirability, to be regulated by eye contact.

The social area of intimacy is the distance that lies within arm's reach. These results are culturally variable, but generally considered to be a body-related regulation of "privacy", a space wrapping itself as a shell around the body. Therein mechanical movements are primarily experienced in a hedonic way. They are movements, whose meaning is regulated according to the "needs of the body" and only thereafter understood according to their semiological meaning. This distinguishes auditory spaces from visual spaces, generated by the body through its motion as a temporal series of visual fields, hereby synthesizing realities.

Garments, just as gardens, are extensions of the physical periphery and therein media of the body in social realms — mechanical movements are not just perceived in a primarily hedonic way, but they are reinforced by these media. Music can be seen as a paradigm of these references, as the dominant experience of movement (as sound), produced by tension and experienced as tension — the mechanical body becoming the direct instrument of its tension: in its phonetic state and behavior regulated by tension due to the "affordance" of stimuli in the physical and social environment. Cultures that are shaped by these "needs of the body" are human cultures. This habitat design is to be transferred into artificial worlds as "converged realities", where the dominance of mechanical movement is extended by its hedonic tension as the basis of its form, thereby overcoming digital modernity into a post-digital world of hedonic interactions: a human world according to the paradigm of analytic listening to movements, according to their meanings for the body, as "auditory culture" (JAUK 2019a).

It is not surprising, while at the same time expressing the importance for people, that in times of restricting the corona pandemic, the term social distancing is being used, where actually physical distance is implied.

Physical distancing does help to avoid contagion — yet a social and emotional closeness even across physical distance would be very helpful. It's precisely for this emotional culture, with each body living its sovereignty independently and at the same time experiencing its democratic common ground, where music in the form of polyphony, the independence of voices in relation to each other, becomes a paradigm: "Polyphony is the objectivation of the 'we'" (ADORNO 1958). The relationship to one another is hereby objectified by tension and release.

Popular music as "hot music" formalizes this primal form of sonic communication out of tension in the mass coexistence of individual needs by communicating the fundamentally same thing for every body: physical as well as emotional closeness through sound. This paradigm has to be carried into a human post-digital culture of "all-at-onceness" (McLUHAN 1995).

The sound of garments

What does pop music have to do with garments? Undisputedly, both are the primary means of communication within popular as well as everyday culture.

What does pop theory have to do with the theory of garments? In the understanding of cultural science, both are discussed as signs, hereby simplified in discourse to "fashions", referring to something else with a collectivizing and distinguishing function; in the context of historical and thus often historicizing theory, with the reference to certain times that are considered synonymous with cultural phenomena. Icons, heroes, innovators, creators of works, which are most often considered "opuses", are representative of these times, their powerful imprint in media and distribution over time and space being not only a tool of their heroism, but their merit — all of this contradicting an understanding of everyday culture. Unless one would assume, that there is no self-formation in democratic processes and that the masses would need a leader to exemplify and mediate life via media; Stars lead the way of life as role models of neo-liberal, economy-dominated politics. "Stars" become increasingly true-to-life via social media platforms, are references to highly differentiated referential re-contex-

tualizations of once massive trends — everyday culture presents itself as diversely differentiated cultures, as individualized self-sufficient human culture and at the same time as a highly diverse and thus enlarged market area.

Representatives of such character-centered scientific attitudes are affirmators of cultural developments determined by power — discourse analysis being one method of their control.

It is media art as an epistemological discipline, that provides to the methodical paradigm of knowledge — symbolically externalized as a culture of symbolic form, experience and its externalization as "body knowledge" — an alternative way out of the ideologically reshaped referential perspective of modern culture as a symbolic form (CASSIRER), exposing multiple individual forms of a uni-shaped experience based on the common human physicality. In contrast to symbolic media of the representation of and information about corporality, media close to the body are the extension of immediate physicality.

It is also not about highlighting parallels in the manifestations of pop music and garments, the extension of body tension within the sonic and textile membrane. From the expropriation of signs in the "semiological guerrilla" (ECO 1967) to the "amplification" of physicality as a demand of the individuality of the human condition within the body. The aim is to find an "explanation" for the semiological process, in order to experience the formation of secondary meanings out of their primary implication, and its meaning for the body, i. e. to re-listen to the beginning, which then forms dynamics of "fashions" in the practice of referential use. Such knowledge exposes the ideological use of nature for the purpose of powerful cultural control.

It is not about the use of mechanical membrane protection of the uniformed body within a military and legal state and its mechanical extension on the "bike" of the "young rebel", it is not about the use of the mechanical art of weaving as a dignified symbol of high culture via punk's counter culture, it is not about glorifying the splendor of the well-nourished high class body, threatening muscles with their power and brutal strength, the colorful clothing playing around the range of the gold-trimmed and well-oiled body, with the relentlessly urging underscore of ostinatos of

mechanical beats and rapping. It is not about the symbolic appropriation of the "undercut" either, trivializing the convenient helmet hairstyle of man (and later woman) as a mere fashion statement, while having fostered social bonding within "Hitler Youth" as its symbol of discipline, which today became an ensign of the militant and autocratic political systems of Far Eastern technocracies of the digital ages with their low-cost multimedia world of a "handsome every-body" culture as their exaggeration. Hyper-stylizing also its role model, Western culture with its belief in progress, where it is in turn re-appropriated by Western bodies calling themselves free — however, it is in all these cultural signs where counter culture / expropriation is interwoven in the reception with ignorant mainstream glorification.

It is also not about mechanical extensions of the body via musical instruments, starting with the "horn" up to motion tracking, and via clothing, starting with the ammunition belt and evolving through mobile devices and their increasing miniaturization towards wear-ables, measuring all physiological stats of present day's body down to its excretions — for the purpose of training, for survival in and the control of viral pandemics. What is initially processed in clothing, will increasingly be implanted in the body and eventually stored away together with genetic information (cf. RICHARD 1998).

It is indeed about the sonically performative self-expression based on the immediate sensation of one's own body and the emergence of signs via the semiological-linguistic reduction to rationally "cognitive" processes, representations of physical presence, the iconic replication of the index of bodily tension, towards social communication, it is about the cultural localization through the nature of primary meanings.

There may lie a danger in direct physical communication as the basis of signs, namely that in reception, removed from the knowledge of reinterpretation in a semiological guerrilla, it will be this basis, the primary meaning, that will cause tension; reinforced by the fact of its usage as a "fashionable" universal template, therefore to be lived out in everyday life. The "undercut" will not be understood as an "opposing attitude" to an attitude, but worn out the bodily experience as an intensification of the discipline of nature — lived en masse, a semiological guerrilla will experience

a tilt here. A self-absorbed late avant-garde, living out the expropriation of signs at the study desk in a progressive bourgeois "referential" game, ignores the cultural dynamic, which is more likely coming from its primary meaning than the one sought through the predominant ignorance about its secondary meaning.

It is about the self-presentation of the prepubescent body in the cheerful sound of Early Sixties youth culture, about the nature of the body and the tenderly covering garments and sounds of the hippies. It is about the raving body, interacting excitedly in technical nudity to the sounds of "acoustic driving", about physical arousal by the tempo and "sharpness" of sound. It is about the cool technique of exaggerating "hot" facial expressions and gestures by applying make-up and fashion and the technical exaltation of the vocal expression featured in 70s Glam and 80s Postpunk scenes, about plural self-design of a human body — with cultural phenomena becoming transgressed by distinguishing and not exclusively gender-relevant roles in favor of being human.

It is about tracing that pre-cognitive signal-like communication "beyond semiotics" (JAUK 2013), upon which political systems rely more than upon symbolic manifestos, it is about the sound of the words, the music, the physical appearance and its playground, the direct communicative embodiment of attitude, about what Chaplin attested to the great dictator without saying a word. While in the art of rhetoric their rulers put them before the word, their culture still teaches the primacy of language. Describing immediate physical communication as the language of the body and sound (of music) is a "cultivating" trivialization: I can contradict language as a volitional system of signs, I am part of the bodily interaction!

The aim is to trace those expressive forms of communication close to the body, that the body expresses through its tension through the perception of the outside world, especially of movement as meaning for the body. This primary meaning can merge into the designation. Describing popular culture as indexical (DIEDERICHSEN 2014) reduces this experience to mere symbolism/significance and its linguistic naming by an intermodal transposition from hearing to seeing. Experimental studies confirm the abstract quality of perception of sound (CARAMIAUX 2011) as

an artifact of movement—sound excites without knowledge about its cause, without its indexical quality referring to it. Pop music is dominated by sound, its direct form of communication defining garments and social areas of life, with scenes as pop gardens. This signal-like stimulative quality has been addressed early on by semiotics as a "signal"[1], generally disappearing in the theoretical structure of cognitivism in the 1960s and giving way to the dominance of the understanding of self-referential synthesis and analysis of pop culture in the early post-modern era. This understanding is explicitly found in pop music as a belated avant-garde, it is tradition in the understanding of fashion theory. This approach postulates, that post-modernism does not derive immediately from modernity, but rather develops in its circular re-use; it is a notion of desk perpetrators, as Cohn-Bendit claimed. Hedonism is the alternative to shaping life in all possible, not only conceivable forms of postmodern culture—as the reception of "mille plateaux" has taught us in practice. For no dancer will stay still on the floor and analyze cognitively reconstructing music and its ramifications, comprehensively arranging into a semiological continuum. "Four to the floor" is a term for the communication of an experience, namely to move physically as an experience, to "move to the groove". First of all, experience is independent of understanding and precedes it—Winckelmann mentions garments as the "echo of the body". The drapery is discussed in the aesthetics of plastic art/sculptures as a mediator of dynamics and inner emotion.

Its visual perception takes the body along, thereby putting it in a mood, in turn transferring to the sculpture—creating a physical and spiritual vitality in the interactive situation, which was also politically used for the creation of communality in the 18th / 19th century. Here, an emotional interface of collectivization is being described, leading to a bodily experience itself through imagined physical interaction, to "sympathy" in the original sense of compassion; while the idealistic view focuses on the spiritual, "emotional contagion" (HATFIELD 1994) explains this phenomenon predominantly through physical imitation. Both the

mediatized representation as well as the media perception ultimately lead to this emotional state via the bodily experience. The physical basis of such emotional interfaces is to be explored over and above their metaphorical relationship in order to be understood –- an old iconic medium regaining meaning in a post-digital human culture due to its evolutionarily stimulative effect for every body. While visual representations assume the imagination of motion through emotion, their auditory perception is immediately physically perceptible—as a cover both surrounding and touching the body. Compassionate emotion is demonstrated by "acoustic driving effects", co-agitation manifests itself in in micro-movements to the dynamic drive of music, finally formalized in dance. Musical performances are the cultural forms that are closest to the body—even if they have sometimes restricted the body as the basis of life for the purpose of powerful control over their "consumers", and denied as the symbol of carnality and its political seducibility, they are fundamentally media of the body, "amplifying" it. They are the center of 20th century body cultures, fundamentally shaped by the affirmation of the body, while occasionally interrupted by phases of undemocratic uni-formation.

Finally they emphasize the fundamentally common shape for all people and respect human life in its physical form and to recognize nature in a human culture[2]. Music and fashion can be understood as mediating this physicality in social and cultural creation, beyond the reduction of the body to its mechanical skills and its extensions in the techniques and rationality of visual arts, derived from the mobility of the body with the phylogenetically younger development of vision. This physicality of fashion and music belongs to the hedonic body, regulated by tension in a homeostatic way in its ability to survive—stimulating every explorative behavior of bodily communication, their communion, for the survival of humans, of mankind.

This primal force cannot be excluded from the digital worlds—the auditory space, the all-at-onceness of "abstract" movements around the body, it is the cover of the human being as a

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1 A „signal" is „more primitive than the symbol [...] " (Morris quoted in. Nöth 1990, p. 112), it „triggers some reaction on the part of the receiver"(Sebeok 1985, p. 121). Piaget calls the function of a stimulus a „signal", if „certain aspects of the object" (Piaget 1962, p. 278) are „linked with the immediate action" (ibid. p. 19). A signal-like character is „a physical phenomenon which provokes reactions in mechanisms and organisms, without being the cause of these reactions" (Pazukhin 1972, p 41).
2 Finally knowledge as well as culture emerge out of the "driven" nature of the body which because of this interacts with the environment, as "enactivism" postulates (MATURANA 1987).

"sensorium", as an interface to the physical and social environment. It has an adaptive effect on the homeostatic regulation to achieve a state of tension that is not dangerous to life and always newly forming — physically shaping, socially communicative, collectivizing, culture-forming.

The sound of the pleasure garden

What does music have to do with the garden? Apart from the use of music for social and intimate events within the garden as cultivated nature[3] for the pleasure of humans, hereby already indicating the context where land- and soundscape meet in human life, the garden is yet another covering of the body following the paradigm of the sound space; it is the playful interface zone to the natural and social environment.

Sound and clothing are envelopes of the body, they protect intimacy and are an interface to a social world. Where the house is in between[4], the garden can be seen as an extension of these personal shells. Apart from its extension of dwelling for physical protection, beyond the continuation of self-sufficient agro-cultural lifestyles in times of need as well as a source of increasingly regional supply and in alternative cultures, where the "quest for autarchy" in political independence often stands in conflict with states striving for a larger union, the garden interfaces between protection of intimacy and social interaction.

Its design as a cultural living space of leisure time as well as a showpiece of high culture is set for controlling nature, either in its artificial geometric design or in the creation of a cultural image of nature — both being powerful cultivations of nature. It is a physical space for movement as well as a social meeting space, whose importance has been demonstrated by social distancing as a basic playing field of human proximity. This playing field is shown in the mixture of human behavior as a social being and at the same time in the acceptance of intimacy as a peculiar necessity for the body — between the intimacy of the family home and the anonymous publicity of tabooed privacy.

The behavior of people in digital worlds generally corresponds to their behavior in the physical realm. The digital space is an image of the physical corporeality covered with a lot of make-up — its intimacy being "artificial", a para-physical image and predominantly of a symbolic linguistic nature. After the dominance of reading symbolic and seeing iconic signs physicality has to be reinstated; consequently — according to the paradigm of physical sound experience as perceiving moving events around the body — gardening, the green envelopment of the body, becomes the human intimate social listening space around the body, in the physical sense as well as in its extension as virtual gardens. Virtual gardens as transition zones between intimacy and social interface zones enrich the anonymous battlefield of pre-structured social platforms, where people adhere to the tight environment of their designers.

Garden and garments communicate emotional bodily sensation in the extension of intimacy in social spaces. This interaction communicates primary meaning as a meaning of the perception / experience for the body, setting the body in tension, expressed in its posture / movement — its mediatization being primarily gestural and "conveying" a framework of meaning, especially about what this movement fails to imply (BEHNE 1982). Music as the mediatization of hearing/listening, as the abstract experience of tension by movement around the body setting it in motion is the paradigm of mediatization of emotional interaction, of the primary meaning of perception for the body — it is hedonic interaction. While garments are primal and gardening is increasingly a cultural game of those basal stimulative qualities in their iconic use, music is, despite all efforts to achieve cultural emancipation from this primal quality, ultimately a game of bodily "tension

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3 In modern times it was musicalized by musicians wandering through an "english garden" playing together over physical distances (Stockhausen) or deconstructing the idea of modern culture by technical overlaying the translocation of the soundscape of nature to the soundscape of its cultivation in a central-city-park (Fontana).

4 Despite the idea of integrating the house into landscape on the one hand and the idea of a "smart home" for people on the other hand it was "a living piece of architecture" (J. JAUK 2017) presented at AE-festival 17 which adapted its shape due to its own needs in interaction with the physical environment (changing during day and year) and at the same time due to the needs of the bodies living in this house. Thereby a homoeostatic optimization of all "participants" of the B-E-I is achieved — thus functioning as a natural kind of social interface as well.

and relaxation" (SCHENKER 1935), raised by the code system of notation to a mode of "referential thinking" (RIEMANN 1914/15) and thus enabling the artwork as a volitional composition of codes for sounds. Its adequate reception in reading comprehension was demanded (by Adorno), as a paradigm of bourgeois emancipation over "education" — emphasizing the distinguishing culture of music as a symbolic form.

Sound-enveloping music, on the other hand, the predominant characterization of popular music, seduces politically — is precisely the point where Adorno (from the personal experience of the Third Reich and his studies of pop in America) addresses the basal power of music from its origins, the emotional sound and behavior and its "amplifying" mediatization in pop music. For him it is mass seduction and socially untrue. Yes, it has been and continues to be used politically, it is the paradigm of generating image, and at the same time increasingly the paradigm of emotional interfaces. Therein popular music takes on a new meaning, not that of seduction, but of the potentiality of body-adequate emotionality as the basal force to recognize and experience every explorative, social and aesthetic behavior. This creates a new form of body culture — a culture of humanity by and for every body.

Hedonic communication —
the nature of sound

None of the established arts is more rooted in physicality than music. Committed to the bourgeois ideology of idealism, to emancipation over education, literature plays the game with symbolic forms, theater embodies this iconically and fine art formalizes seeing in the image as a reference. Architecture and gardening are subject to physical constraints and the struggle for the command over nature as its control in either French or English tradition. Fashion design pursues a cultivation of the driving nature of instincts or, on the other hand, revolts against it as an instrument of political powers.

Nevertheless, theater is motivated by the expressive dance that gave a boost to gesture research, the wordless play with the body and its movement, while the visual arts (e.g. of Rainer) paint

out of emotional tension — here gestures don't serve as iconic references to practices, here it's the excited body acting as the center of the design. It must have been pop culture that presented the innocence of the adolescent body in its puerile nature within the fashion of the early Sixties. It is this culture that, with the hedonic play of the excited body, does not use the electric guitar as an instrument in a fixed registration to convert pre-written codes into (cultural) sounds, but rather "plays" with the shaping of feedback sound through the excited body– or rather: the sound is generated from the excited body and recipients are moved into this physical movement through emotional contagion. What Hendrix's playing stands for is a paradigm of the hedonic bodily interface of post-digital worlds connecting the body with virtuality — a world of AI augmented by AE (JAUK 2019 b). The reading of referential understanding of pop culture has a restorative effect here: it is not the index of a movement that cognitively refers to and evokes movement, it is the stimulus that implies the same tension for all bodies, while the context may determine the evaluative quality — thereby defining proximal a culture of media close to the body.

Out of the function of sound in the explorative interaction of bodies with the environment emerge the possibilities, that sound perception adds into the interaction as a specific feature — its medial form can reinforce this basic physical and human function — but first it has to be considered in a world dominated by vision. Post-digital culture performs the shift from a world view consisting of mechanistic references, which sees the body as a measure of all things "in ratio" with the environment, towards a hedonically "abstract" physical world experience, that perceives physicality as the center of all behavior "in - tension". Soundgesture-research is the young scientific discipline investigating the phylogenetically older form of hearing and the corresponding body-environment interaction. "Sound-gesture" is the deeply physical form of communication for humans and animals alike, that shall not be considered meaningless in times of linguistic as well as symbolic sign communication. Neoliberal politics in particular utilize those pre-cognitive forms of interaction to convey images, from "emotional"

experiences to the generation of economic and (with that) political leadership, that bourgeois modernism once considered "socially not true" (ADORNO 1958).

On the other hand, it is precisely this form of communication which is naturally "democratic", it is "every body" immanent to and understandable for all people — deliberately set symbolic signs have a distinguishing effect and exclude people. While deliberately set symbolic forms do equalize, the hedonic body is by nature "equal".

Communication "beyond semiotics" (JAUK 2013) is a non-referential physical interaction with stimuli from the environment communicating directly through emotional contagion. It happens "in tension" out of bodily tension. It gets its meaning from the survival value through tension and the thereby excited behavior.

Perception is an activity, a "body-environment-interaction" initiated by the "affordance" of the stimuli of the environment (GIBSON 1982), their "intensity" being basal, stimulating the body to active behavior (affection and aversion, respectively). This describes "explorative behavior", which, controlled by homeostasis, aims for a medium level of tension. The "new experimental aesthetics" (BERLYNE 1974) regards aesthetic behavior as a variety of that explorative behavior — medium-level "affordance" through medium level intensity and novelty values is supposed to lead to medium level tension and thus to the highest level of affection.

"Sound-gesture" as a concept is a descriptive model of this pre-cognitive form of perception, it is the auditory interaction of the body with the environment. As a phylogenetically older form of perception, it differs from seeing by the location-changing perception activity that is connected with seeing and puts the body "in-ratio" to the environment; rational understanding and furthermore semiological signifying is associated with seeing, while hearing is a hedonic sensation of "abstract" events (CARAMIAUX 2011) without designating their origin. Sound-gesture is the imagination of

movement around the body by its sound. Sound is an artifact of movement (JAUK 2014, 2018). Its relatively slow speed of propagation through the air leads to modulations in the perception, carrying information about the distance from the body, its position to the left and right of it and also in front of or behind it. Irrespective of such embodiments learned from the experience of the body with the physical properties[5] of the environment, the musically dominant perception of pitch is a directional perception as "illusion" lacking a physical equivalent. It is essentially correlated with the "sharpness" (BISMARCK 1974) of the sound, partly related to pitch; the higher the pitch, the greater the "sharpness", the stronger the perceived sound position "above". This linguistically enhanced phenomenon is explained by the merging of two concepts. STEVENS (1965) experimentally demonstrated that low pitch sounds are perceived psychologically with high "volume" but with less "density", whereas high pitch sounds correlate with less "volume" and high "density". In the form of a "conceptual metaphor" (LAKOFF 1993), the concept of gravitation is transferred to these psychological qualities (apart from physical equivalents): high pitch sounds of low volume are located in the experiential concept of gravitation "above", the opposite applies to low pitch sounds. This illusion of spatial location and dynamic modulation sound movement has different "exciting" effects for the perceiving person. In general, high intensities, with "sharpness" also increasing physically, are associated with sounds close to the body above the center of the body at ear level — such sounds have at same time a highly exciting effect. Corresponding physical behavior "in tension" goes hand in hand with this. It acts (almost) in synchronicity with breathing as a result of muscular tension and thus motion — the body performs this tension, leading to immediate and instrumentalized sound production.

Sound interacts with the body by enveloping it with intensity, it is perceived primarily in an abstract way by humans without signifying its origin as an index. Sound-gesture describes

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5 Left-right positioning is extracted by volume — and phase shifts of sound arriving from a source at both ears, while distances are primarily recognized by measuring the amplitudes of higher frequencies; sound from sources further away is dampened by propagation through air, this particularly is true for higher partials that are weaker in amplitude — sound becoming duller and overall lower in volume. The slight forward tilt of the ears allows for recognizing the relationship between direct sound and first-reflections (from behind the body) and hereby separating the perception of front and back. Specific bands of direction (BLAUERT 1974) occur (together with the latter) by the acoustic shadow of the head. This enables localization of a sonic motion passing above the head.

imagining of movement around the body and the expression of its meaning through tension for the body — it is the impression of movement and the expression of being moved.

Biosemiotics explain the emergence of (cultural) meaning from biological processes of perception through their mediatization, it is "the branch of semiotics dealing with the organic part of the semiosphere" (MAGNUS 2020, 649-650). This form of perception is instrumentalized and mediatized in music, its instrumentalization of expressive behavior and sound — as well as the coding of the image of the expressive behavior within the medium "notation" — in addition to "analog" singing and playing, the coded composition of the codes for sounds, the work, was hereby made possible (JAUK 2013).

Expressive behavior communicates the meaning of what is perceived for the body as tension, as "activity". Perception is perceptual activity, ultimately bodily behavior. This perceptual activity is "intentional" — however: in the pre-Enlightenment sense, as it were in the primary meaning: the body is "in tension". It was the reinterpretation of the term in the Enlightenment that "clarified" this physical perception activity as a cognitive process. According to this notion, a voluntary assumption of a "viewpoint" transposes it into the domain of the signifying seeing of rational behavior, as a view of things "in ratio" with regard to the mechanical body as a "mechanical" sequence of "shocks and thrusts" (LEVY 2000), where we imply the thinking of "causality" (as a generalization of proper movement in the visual perception).

Expressive behavior is part of the tension in its "cause", it can be seen in the observing perception of physical activity as an indexical sign — nevertheless it primarily communicates in the form of "emotional contagion" (HATFIELD 1994), the imitation of behavior and internalization of the corresponding tension associated with this behavior. The parallel two-stage form of communication can also be found in sound perception, in the sound-gesture, as an imitation of imagined movement of sound (as an artifact of movement) around the body and the internalization of the tension of this movement as meaning for the body. Both due to body knowledge /

embodiments learned by physical damping and due to a localization imagined via a "conceptual metaphor" in the vertical dimension, psychological connections between "sharp" and therefore "close" as well as sounds coming from above are experienced as exciting, in contrast to less "sharp" and less "loud" and therefore distant and at the same time unexciting sounds.

"Sound-gesture" is a communicative event, not referring to or informing about what is expressed, but directly stimulating / exciting the expressed tension within the receiver and leading to a physical commonality, to become "communis". Direct bodily communication can be explained through "emotional contagion". In doing so, the bodily behavior is first appropriated, the tension associated with the movement being stimulated.

Communication beyond semiotics

Like sound-gestures can be found in music, its composition as well as its reception, primary meanings are the base for fashionable and symbolic use of garments. The hat can be used as protection of the head, as an extension of the evolutionary fur remnant "head hair", at the same time being a decorative form emphasizing this protective function. In its primary meaning, pulling the hat can imply entering into a social interaction without protection and with trust –ultimately becoming a secondary sign, it can be a symbolic gesture of social norm, a greeting. The interference of signal and index (WIRTH 2007) shows the basic interest of this theoretical discussion: to look for the primary meaning as direct bodily interaction and to explore its general natural communication, as a communion in the making. It is not impossible that ultimately, sign-like meanings will emerge as social norms to be read indexically, even if they are "understood" in the mainstream in a symbolic way. The theory of primarily signal-like perception of primary meanings of sound and their medial "amplification" in pop music, and therein the massive and intense triggering of emotional contagion, can be transferred to the basis of the design of garments and gardens. The bodily tension in social interactions and their emotional (mutual) contagion is intensified by movement in proximal sound and body-fit garments. Political systems of rule

create and evaluate "fashions" as stimulants of corporal punishment: body culture is on the one hand the harmony of the bodies under control and uniform design, on the other hand body culture is the respect for physicality and its basal needs in individual manifestations.

These attitudes collide during the last gasp of modernity and the growth of a plural post-modernism in the Sixties. Physicality of sound and of garments and pleasure gardens of the youth are seen as animalistic and barbarically dangerous to the culture. Limiting the pleasure of (surviving) life is the highest form of human humiliation, a creeping "death penalty" — it works by instilling fear, by restricting the "needs of the body" or via the hope for the fulfillment of bodily needs in whatever is referred to as post-earthly paradise. A respect for the equality of bodily needs creates democratic individualization[6] — the step into a post-digital and individualized culture of emotional interactions overcomes such primitive mechanisms of "gouvernementalité" (FOUCAULT 2004) — for these are "barbaric".

Science is developing a respectful attention to symbolic forms derived from natural processes in biosemiotics. Even early semiology had thematized primary meaning, yet the idea of culture as a means to overcome nature and its deliberate design have superseded this way of thinking — eventually leading to the theory of signs being restricted to symbolic signs (ECO 1967), ultimately creating clarity and excluding liquid zones between signal, index and its iconic tracing as gestural forms. Hereby even interferences between primary meaning and secondary as indexical reference are avoided, or rather: withdrawn from a modern cultural evaluation of willful designation of nature and thus its intentional feasibility, classified into a post-modern attitude of natural life — the body is the limit (JAUK 2017). From its experiences it forms the "environment" (Uexküll's "Umwelt") as a model (mutually) determining the interaction with the outside world (cf. KULL 2010).

Post-digital culture as auditory culture

Sound gesture is the bodily co-execution of that imagined sound movement and at the same time the expression of its meaning for the body. This immediate form of communication "works" in an emotionally contagious way. As a mediator, however, it can now refer to the contour of a melodic phrase as an iconic (and conscious) physical expression. The graphic representation of this gestural movement has led (systematically viewed) to the first notation system, the "neumes", a hint of the choir master conveying the melody figure to the disciples. The gridding of the neumes in the time and frequency domain has paved the way to today's notation. Graphic notations in the avant-garde and the digital processing of sound follow this path "forward back" to the digital handling of physical expression (JAUK 2013) — conducting having been its representation since the era of polyphony, today it is the interface for the "artificial" visualization of dynamic sound in natural human expression.

It is not only music, however, where sound-gesture serves as a mediatization to the development from playing to music, assembling, composing the "work". In a post-digital culture, the auditory is a paradigm of action after overcoming the mechanical body in digital culture (BAUDRILLARD 1981) in robotic form, as a hedonic regulation in the "all-at-onceness" (McLUHAN 1995) of data compressing space and time by increasing the speed beyond the humanly comprehensible up to a frenzied standstill (VIRILIO 1992): we seize events existing around us due to their "affordance", motionless, without changing our own location. This emotional form of expression imagines physical movement in the outside world and expresses its importance for the body; thus it is a paradigm of emotional controls of and human interactions with machines, as well as of interpersonal communication and its transfer to collective human generation of virtualities — it enriches information processing with emotional "decision making" processes and augments AI with AE.

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6 As some kind of paradox neoliberal politics is economically based on the body´s needs and at the same time it restricts this diversity of individualism more and more by legal regulations of social interactions excluding "privacy" and creating "acting models." A democracy of "law and order" overrules the ethics of the body formalized in the concept of XPhi which is close to the theory of new-experimental aesthetics. Both go together in exploratory behavior as any interaction is grounded in the needs of the body to achieve a homoeostatic level of "tension" — "law and order" incapacitates the self-regulating system "life."

Ultimately, sound-gesture is the paradigm of the "sign formation", that denotes the mediatization of expressive behavior, which, in addition to the stimulative "contagion", can be consciously viewed by recipients as a medium / sign for the (preceding) expression—as a cultural sign based on the nature of a human and his/her homeostatic regulation of tension and thus life—a cultural life of this natural kind is a human life. Music and garments are cultivated extensions of hedonic interactions of the primarily tension-regulated body, the pleasure garden its physical social zone of interaction. In contrast to symbolic signs (as represented legibly in cultural-historical semiological mediations), they primarily mediate by way of stimulation. Primary meaning arises from the nature of regulating the body. In a kind of direct mediality, primary meaning itself becomes a symbolic sign in the form of overtension. Presenting the experience of overtension is the dominant "media" of a culture of experience, a neoliberal image culture, with tools for achievement as indexical "logoi", and social media as their distribution. As an ostensive paradox of experience-driven society, the physical "production" of tension becomes increasingly more important than physicality. Thus the natural primary meaning as homeostatic regulative of life becomes a symbolic sign through its rewarding effect in social value—for example, relaxation through a maximized tension while acquiring relaxation (PFALLER 2011) and the demonstration thereof.

Basically, mass reception builds on the uni-form, not in the sense of military equalization of groups, but on the basal human condition, on primary meanings. It imposes no distinction hereby reducing its consumption, but relies on universal validity, on physicality—postulating (DIEDERICHSEN 1996) and thus defining a broader body culture. It finds its paradigm in life in the form of auditory interaction that has grown phylogenetically before vision: body-environment interaction as an abstract perception of intensities of environmental stimuli all around the body before their signifying recognition.

Now, mediatizations are indeed extensions of the body. Digital culture, in the wake of the idealistic rational thinking of modernity and the unlimited belief in (not merely technical) feasibility of the Sixties, has extended the mechanical body thus rendering it useless (BAUDRILLARD 1981). Post-digital culture recalls humans as a hedonically regulated living being—regulated by striving for a homeostatic state of tension. "New experimental aesthetics" (BERLYNE 1974) is the theory, that, after the separation of art and science and art and life, has ultimately called for the union of the two in the 20th century. It formulates a continuation of the activation theory, which regards aesthetic as a generally explorative behavior, that at the same time gains knowledge from the experience of body-environment interaction by reducing "uncertainty": controlled by activation of the body through intensity, intensity is reduced by interactive behavior—generally speaking, the information content of stimuli of all kinds determines their complexity. Complexity is also considered as cognitive intensity, which, like any other qualitative stimulus intensity, has an activating effect. Aesthetic behavior is thus exploratory and "trains" forms of survival playfully by optimizing the level of tension and shaping environments—physical and cognitive worlds as well as their media extensions. Hearing is a primarily tension-based interaction with the environment. It is the enveloping information about movement and its meaning for the body, carried out as "sound-gesture" in its interaction behavior. This paradigm of a hedonic interface is mediatized and cultivated in music, the design of garments and gardens (in addition to the functionality of protection and usage). While being examined in the sciences as cultural "bias", as symbolic forms based on linguistic semiological concepts, these interaction zones actually communicate primary meaning and are physical, hedonically regulated culture created from nature. Hence garments and gardening are extensions of hedonic interactions of the primarily tension-regulated body that have become culture. Their symbolic value acquired from nature can reinforce this stimulative quality, namely tension as bodily tension, regulating all behavior according to the human measure of survival. This basis is increasingly regulating not only life in physical and social environments, but also in virtual worlds unifying people and their extensions as a human culture. This is a culture of analyzing events around the body according to their meaning to the body—presenting a post-digital culture as an auditory, as a human culture.

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Hana Zeqa, Laura Thaçi, Elisabeth Mirnig & Werner Jauk (2020)[1]

sounding garments & sound-gardens: emotional interface zones as auditory spaces

the transparency of envelopes of the body as social interfaces amplifying the hedonic body

I. An Every Body Culture

Human Virtualities — Extending the Needs of the Body

Where, through "robotics," digital culture extended the mechanical body — overcoming the body –, post-digital culture extends the hedonic body — where visual culture turns auditory by respecting the "needs of the body".

Media theory is the theory of how any extension of (wo)men (McLUHAN) extends "perception" as body-environment-interaction / B-E-I (GIBSON 1982) for better (optimized) "survival." While "idealistic" cultures exerted discipline over the hedonic body, pop-cultures "amplify" the hedonic body by technologies extending it "close to body." As technological amplification mediatizing hearing, popular music becomes paradigmatic of close to the body garments & gardens structured by "pleasure" — that is, extending bodily tension to amplify "pleasure". Hedonic hearing generally is the benchmark for the interaction of bodies with environments creating human virtualities: an auditory culture. Any kind of "aesthetic" behaviour is explorative. It is body-environment-interaction because of the "affordance" of the sensorial perceived intensity of stimuli in the environment. This also makes it "intentional" in the pre-enlightenment sense, before bodily hedonic processes of tension-relaxation shifted to (relational) thinking through the dominance of seeing, which just meant being "in tension". Today, biosemiotics explains the emergence of signs from those "primary meanings," and refers to tension triggered by environmental stimuli as their meanings to the body. Even early semiotics called it "signal," a "phenomenon which provokes reactions in […] organisms, without being the cause of these reactions"(Pazukhin 1972, p 41). While symbols are (political) distinctive media, because of the need to have knowledge about their referential meaning, signals are "human," that is, their meaning is common to every "body". In summary, it can be stated: tension is the "drive" of any exploratory behaviour. It is the "affordance" of the environmental stimuli; it is intensity, which brings the body "in tension" to interact with the environment in order to create a homoeostatic level of arousal and, through it, culture.

This is how we interact with physical and social environments. Intensity indicates closeness of occurrences to the body. In physical situations, motion — heard all around the body — induces "tension". In social interaction, crossing zones of privacy / intimacy induces "tension". Experiments show that there are interaction-spaces around the body: About twice the height of the body marks the social interaction space, the range of the arms covers the intimacy-space. Finally, the feeling of "tension" within these social distance-zones is modified by the duration of eye contact; reinforced over 2 sec.

Although enormous cultural differences exist, there is a natural bodily basis for the borders of the body and its interface-zones. Garments, and gardens, shield intimacy from — and play with — entry into natural and social environments.

The Sound of Music & Auditory Culture

Hearing is like an envelope covering the body, "functioning" as an interface: sound is an artifact of motion, the ear as an extension of the skin experiencing this "vibrating" motion.

Sound is an artifact of motion. Auditory controlled body-environment-interaction "perceives" motion as "vibration" all around the body setting /putting the body in tension, in e-motion. At the same time, the body expresses its tension as the meaning of this perception to the body producing expressive voice and expressive behaviour. Instrumentarisation and mediatisation of this auditory controlled B-E-I leads to music.

First it was the instrumentarisation of the bodily behaviour, as bodily imitation of the impression of motion of sound around the body and the expression of its meaning to the body; its tension, the sound-gesture, which showed the melody-contour to singers of a clerical choir in the Middle Ages. Its projection to the plain led to the first graphic-notation, the "neuma". Its gridding in time- and frequency-domain led to the notation, making possible the com-position of codes for sounds, the prescribed *Werk.* This process of mediatisation is a process of extending the body, and a modal turn from hearing to seeing, by this from experiencing "tension — relaxation," from hearing sounds to understanding codes of sounds by "relational thinking".

While notation is converted to sound through instruments, digital codes allow us to mathematically generate sound by technical conversion, finally shaping the sound by bodily tension directly. This step forward is a step "backwards" to a music close to the body, structured immediately by bodily "tension-relaxation". Despite producing music, this behaviour is a hedonic interface perceiving motions even as it expresses and amplifies their e-motions.

The Sound of Garments & Gardens

Sound-space is an interface-zone to the skin experiencing motion. Garments are extensions of the skin, feeling the environment as well as expressing the bodily tension, the e-motion of the intimacy of the body by drapery and variable morphs echoing the tension of the body. Gardens are further extensions of the body to the social and natural environment — enlarging the private space, creating a playing ground, extending intimacy to social space — in contrast to the structure by force of law; the organized, symbolic social structures of a public space. Garments, like gardens, are interface-zones of the body into natural and social environments that create them. Their symbolic communication is "fashion," which creates specific forms by referential processes of culture. Despite this symbolic use, there is a basic natural benefit of these "sounding" envelopes for human life.

This "hearing" kind of bodily interaction is common to every body; it is the natural basis democratizing the culture by / for every body; while culture, as symbolic form, is a sociopolitical distinctive medium.

II. Cultural Studies between "Kulturwissenschaft" & Epistemological Media-Art.

Culture as Symbolic Form & Culture out of Nature.

Enriching a modern culture of seeing and the extension of the mechanical body through robotics in the digital age is overcoming the (mechanical) body by the hedonic interaction of hearing; a necessary step, following the transgression of the mechanistic paradigm and the overcoming of the mechanic body, where post-digital culture converges the hedonic body with virtualities. As pertains to the needs of the body, this culture will be a human culture.

Through this, the concept of knowledge and methods to reach it changed: although the externalization of perception is aspired to, its formalization is turned from symbolic representation to immediate presence. Methods turned from seeing and standing in front of an object to understand it, to

formalizing it symbolically, to hearing being inside an occurrence-space experiencing it bodily. To get knowledge goes from *"Kulturwissenschaft"* to epistemological media-art.

While *"Kulturwissenschaft"* focuses on the culture of symbolic representations of interactions, biosemiotics focuses on the upcoming of meanings because of bodily meanings, "the branch of semiotics dealing with the organic part of the semiosphere" (MAGNUS 2020, 649-650).

In *"Kulturwissenschaften,"* (popular) music, as well as the culture of garments and gardens, are primarily discussed as self-referential systems; as "fashions" in time and space. Both have a common basis, the nature of the body; both are mediated "products" of needs of the body. Even the need to be protected and nourished more and more became shaping envelopes of the hedonic body. Protection of the physical body became its decoration: garment became fashion, nutrition became pleasure, guarding the home became gardening the pleasure-garden. Nevertheless, its theoretical exploration didn't cease to be a game with signs referring to specific cultural contexts (re-)creating "new" realities (varying in closeness to, or domination, of nature.)

The project *sounding garments & sound-gardens* is about the basis of this semiotic "point of view." Where do signs come from? Is there a natural basis to culture, a pre-semiotic communication "beyond semiotics" (JAUK 2013) based on the nature of the body? This explores the hedonic basis of rational "symbols" signifying point of view. The specific, phylogenetically older "hearing" that focuses on the tension of any behaviour referring to the "needs" of the body is the basis for any explorative mechanical interactions. This is the basis of an *Erlebnisgesellschaft,* as well as for the turn from the mechanical-digital overcoming the mechanical body to the post-digital integration of the hedonic body and, through it, to an "auditory culture" as new humanism.

Hearing, mediatized and, through this, formalized as music, becomes the paradigm for interaction in creating a digital humanism.

Science & Arts — Methods of Re-Constructing Realities

Epistemological media art is interested in knowledge. While science represents the presence, media-art experiences the presence. While sciences tries to get knowledge by externalising experiences through codes that represent presence, media art externalizes bodily experience through bodily experience (communicating bodily experiences directly by experiencing the presence) to reach body-knowledge. This, however, happens within the same experimental design: varying a "variable" to observe the effects on another, which is to be "explained"; observation in controlled labour-situations replaced by real-life bodily experience in social public spaces. Research is a part of reality-construction.

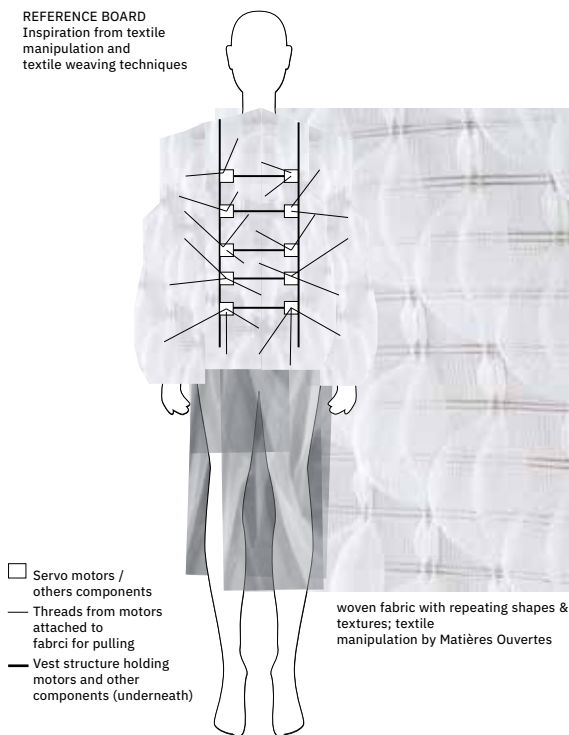## III. A Piece of Art & Science.
Experiencing Body-Knowledge
and its Extension

(Pop-)Music as Paradigm.

To "explain" and act culturally with natural bodily tension as meaning (of sound) to the body and its extension is to formalize and communicate body-knowledge.

Auditory behaviour as hedonic B-E-I is the paradigm for any explorative behaviour and its extension. The interaction of the body with the environment to create garments and gardens is a hedonic extension of the hedonic body. These extensions amplify the tension. Auditory interaction is not only the basis of hedonic interaction; sound also externalizes this tension to make it not understood, but experienced.

Hypotheses: in extending the body close to the body, music — as well as fashion — are primarily extending the hedonic body by mechanical instruments. How the mechanics of the body "move" is given by the tension of the body expressing this meaning to it im-mediately and communicating it through "emotional contagion" (HATFIELD 1994), copying the behaviour and internalizing the tension. The same can be said for "sound-gesture".

REFERENCE BOARD
Inspiration from textile manipulation and textile weaving techniques

Servo motors / others components
— Threads from motors attached to fabrci for pulling
■ Vest structure holding motors and other components (underneath)

woven fabric with repeating shapes & textures; textile manipulation by Matières Ouvertes

Esther Schuylenbergh

Example of red thread embroidery on the strips to represent blood cells or maybe nervous system.

Shape reference / design by: Krystyna Kozhoma
Example of the shape covering arms and the body
Example of manipulation with the strips

Peggy Osterkamp

Garments and gardens are hedonic interfaces to the social spaces following the paradigm of auditory space.

Experimental Art Setting: in some kind of experimental setting, we vary the kind of extension of the tension of the body (to indicate emotional qualities in a social interaction). This kind of mediatisation of bodily tension is varied, to experience the effect on communicating bodily expression. So we have a more "physical" extension of the expressive body vs. a more "artificial" extension of the expressive body, for the (possible) differ-ences of the "effect" on bodily communication to be experienced as body-knowledge.

Process of Operationalization: based on the theory of the development of music as the media-tisation of bodily tension in interaction with the (social) environment, and according to the aims of an epistemological media-art, the project has to make this process of mediatisation through garments felt.

Despite a labour-experiment, tension is induced in a real-life-situation by bodily interactions of critical closeness. Social interaction takes

placed within a range, where attention — or rejection — inducing behaviour is initiated to "produce" tension in the participants. In addition to its expression through garments, this tension is externalized and amplified as sound (following the basic theory of "sound-gesture") to create an emotional-social sound-garden of pleasure, communicating body-knowledge.

Finally, any kind of media "creates" specific mediated realities. How are these different realities experienced?

The extension of the hedonic body is varied through two qualities of garments expressing bodily tension in social interaction in their specific "medium": a) the dynamics of drapery by hand-crafted tailoring-techniques and b) the dynamics of morphing by digital interface-techniques.

a) *the dynamics of drapery* (Elisabeth Mirnig) operationalizes the dynamics of tension by focusing on the drapery of a loose body-suit with openings for the natural interfaces, externalizing the dynamics of (e-)motion through the dynamics of clear "lines" (as it is simplified in motion tracking systems), making tension visible. Winckelmann calls garments "the echo of the body", their tension. By means of tailoring techniques and the use of the imagination in the fine arts and sculpture, garments amplify the body echoing its tension. In addition, they "modification" of the body-shape through mechanical tools (e.g. belts, etc.)

b) *the dynamics of morphing* (Hana Zeqa & Laura Thaçi) operationalizes the dynamics of tension by "extending" specific body parts of "garments," based on natural ex-tension of the body associated with "emotion" in specific (social) interactions. Based on studies of the "acoustic driving effect," which shows respiration frequency and amplitude as synchronous to temporal dynamic aspects of sound and music, these parameters are detected by strain gauges measuring the movement of a person's chest. If sufficient movement is detected, the garments feature is triggered, and the garment of multiple woven fabrics reshapes the natural extension. At the same time, a signal is sent to the central workstation, where sound and light externalizes and amplifies the body-tension.

This amplifying externalization of the different kinds of mediatisation of bodily tension in garments through sound and light makes the garden a sound-garden and brings knowledge as a bodily experience, as body-knowledge; being part of a real-life-situation. *sounding garments & sound-gardens* studies the hedonic social interaction even as it creates a cultural situation. This follows post-modern and post-digital concepts of "science & art" experiencing and creating realities as cultural process, as human life.

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ARS ELECTRONICA SOLUTIONS

Ars Electronica Solutions conceives, creates and implements interactive worlds of experience as visionary installations. We develop creative, individualized solutions in the form of interactive products and services for exhibitions, brand lands, trade shows, events, and in the urban development field. Whatever your needs — single touch applications or an entire exhibition, leasing reliable products or the creation of a bold prototype; whatever the occasion — a trade fair, a Smart City workshop, a showroom or a whole museum — Ars Electronica Solutions has the expertise and experience it takes to do a superb job!

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ESA Φ Experience

Over the last six years, Ars Electronica Solutions has been working with the European Space Agency (ESA) and the German Aerospace Center (DLR) on several Earth observation exhibitions. In 2018, the Φ-Experience, an interactive exhibition, was created for ESA's establishment in Frascati, Italy. This new centre presents ESA's vision and missions in a way that is understandable to the public. More recently, ESA and DLR have started the Φ-Experience-Evolution project to enhance the exhibition with new visions and state-of-the-art technology.
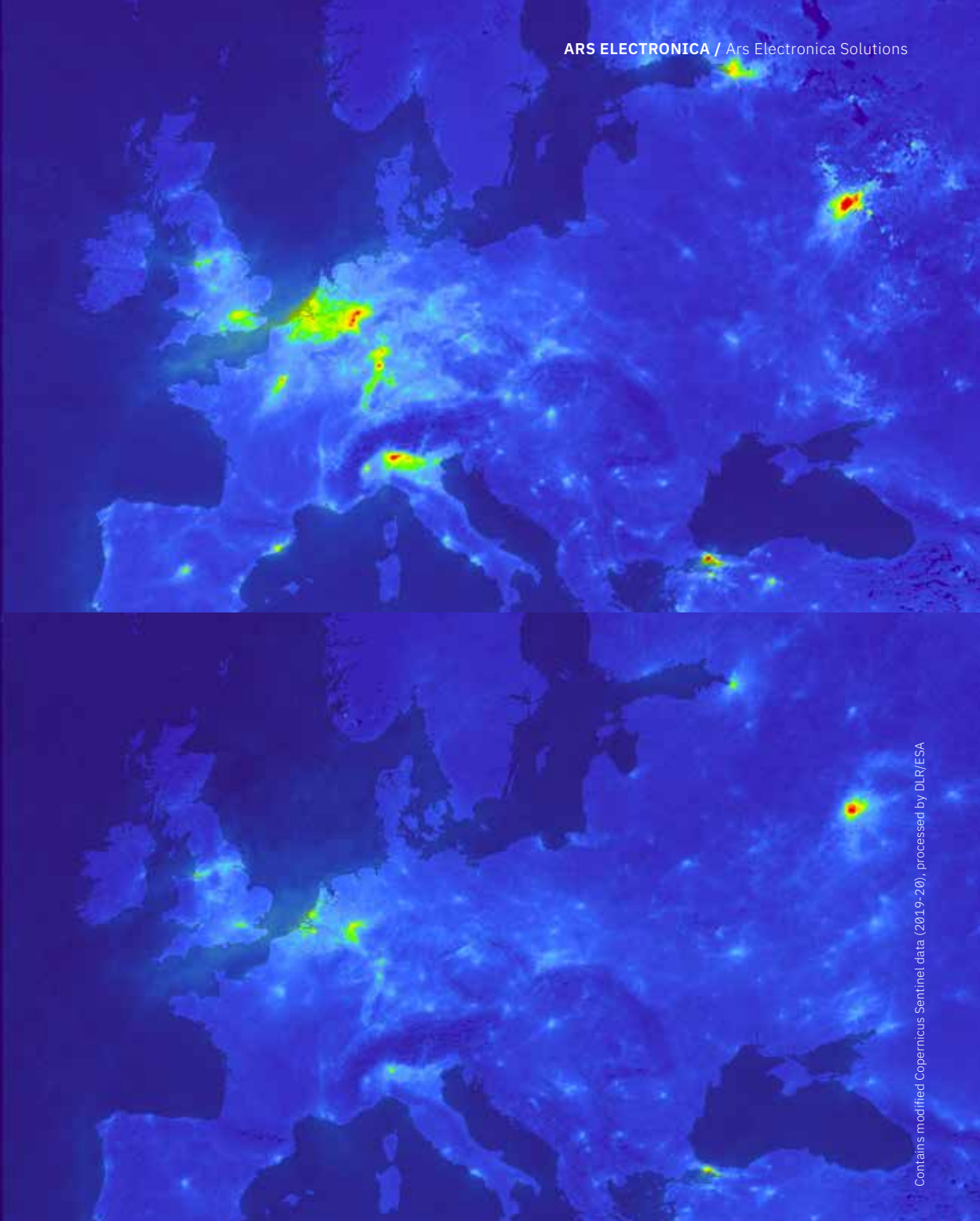
Contains modified Copernicus Sentinel data (2019-20), processed by DLR/ESA

The Sentinel 5P satellite of the European Copernicus fleet shows a significant drop in concentrations of atmospheric nitrogen over Europe in March–April 2020. Over some cities, there was a 40–50% drop in concentrations compared to the same period in 2019. The drop is a consequence of the isolation measures to reduce the spread of the Covid-19 virus.

CUBO NEGRO
Centro de Ciencias in Culiacán, Sinaloa

Since its opening in 1992, the Sinaloa Science Center in Culiacán has been one of the most important meeting places for the conveyance of information, science and technology in northern Mexico. For the first time in 25 years, the building was renovated, redesigned and the exhibition concept revised. With the vision of generating an immersive environment for contemporary knowledge transfer in various dimensions of emotional, sensitive and physical learning, the plan was born to integrate "Deep Space 8K" as one of the main attractions of the new Science Center.

© Oliver Elias

Ars Electronica Solutions was commissioned to create the so-called "Cubo Negro" (Black Cube), a multi-dimensional, interactive presentation and experience space with wall and floor projections in 8K, based on the Ars Electronica Center's original "Deep Space 8K".

After various phases of work — workshop, consulting report, planning, realization, roll-out and training — the "Cubo Negro" was finally put into operation for the test phase in December 2019. Its successful opening followed in January 2020.

DEEP SPACE

Artist Impression, © Scott Brownwig

Deep Space as a highlight: The Museum of Military Medicine (MMM) facilitates public engagement with the history and development of the Army Medical Services.

In the course of the new construction in Cardiff (UK), a Deep Space similar to the one in the Ars Electronica Center in Linz will serve as an attraction for the public.

AUSTRIA@EXPO DUBAI
The Austrian Pavilion

The first world exhibition in an Arab country starts in October 2021. Over 438 hectares between Dubai and Abu Dhabi, three pavilions will be built to represent the themes of sustainability, mobility and opportunity. Among the 192 participating nations, Austria will be represented with the motto "Austria Makes Sense". Together with querkraft, bleed and büro wien, Ars Electronica Solutions was responsible for the concept of the event spaces and will implement them in the next phase for the World Expo.

The innovative pavilion architecture, designed by the Austrian team of architects "querkraft", works with intercut clay cones that are cut at different heights, resulting in different light and airflow openings that transform the interior of the pavilion into a sensual landscape. In this trendsetting interweaving of architectural tradition, modern building concept and the latest technology, media art installations communicate with the atmosphere of the interior to challenge and enliven all human senses.

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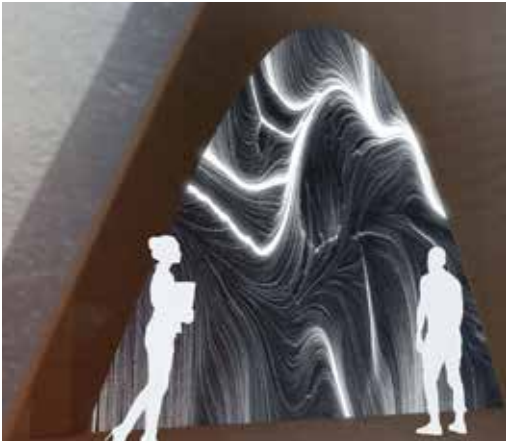
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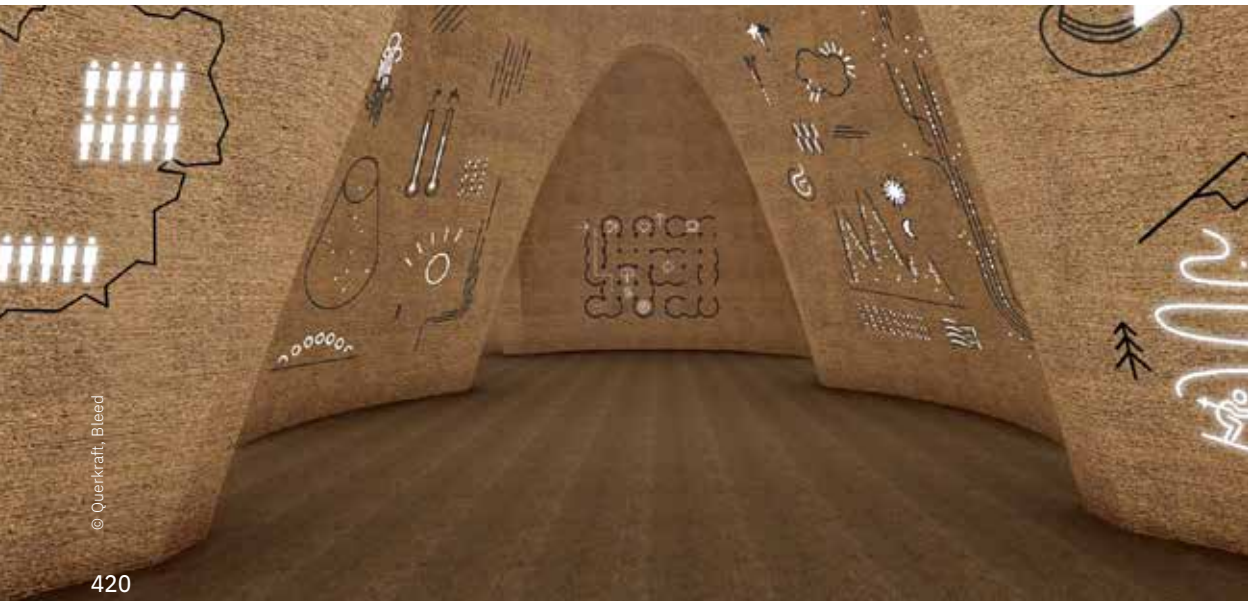
© Querkraft, Bleed

AUSTRIAN STANDARDS
Austrian Standards
celebrates 100 years anniversary

With this exhibition, Austrian Standards' 100 years of history will be put into focus and the standards and norms which surround us in everyday life but are hardly noticed will be staged.

The individual installations designed by Ars Electronica Solutions are part of a larger overall picture, which is ensured by finesse in content, stringent visual language and well thought-out placement.

A sculpture in the shape of an infinite triangle welcomes visitors to the foyer. The three legs of the sculpture represent past, present and future and are made of three different materials, by means of which the historically first standards are represented (ÖNORM, EN, ISO). Norms and their surrounding framework are represented as a neural network. At the photo station, anyone can become part of the family of Austrian Standards. In the elevators there are screens that present corresponding standards or animated information depending on the movement of the lift.

Additional installations that continue the design language developed specifically for Austrian Standards include an interactive water pool, an interactive wall print and an interactive display case.

SAMURAI ART MUSEUM
Berlin

Ars Electronica Solutions conceives and realizes together with project partners the new Samurai Art Museum in Berlin Mitte for the world-famous collector Peter Janssen. For decades, Janssen had been collecting one of the world's largest Samurai collections. The new Samurai Art Museum will use the latest media technologies to open up the collection to new target groups.

HUMBOLDT FORUM
Berlin

Ars Electronica Solutions is developing a software for the Humboldt Forum in the Berlin Palace that will make the recordings of the famous music-ethnological archives — Berliner Phonogram Archiv and Lautarchiv — artistically accessible to the public. The Humboldt Forum will be a unique place of experience and encounter in the heart of Berlin's historic centre. A place with a special history. A place of culture and science, of exchange, diversity and polyphony.

LAGERMAX
Straßwalchen
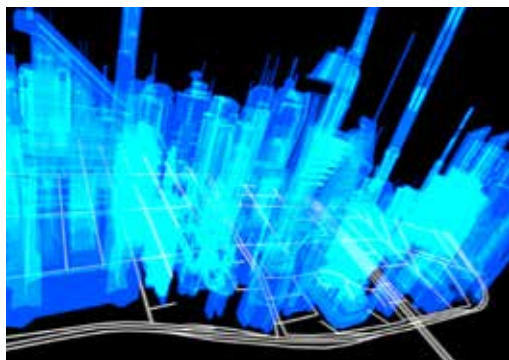
On the occasion of the celebration of the 100th anniversary of Lagermax, a staging of the history and future visions of Lagermax and the logistics industry is planned in the form of a roadshow through ten countries. Ars Electronica Solutions is designing and developing interactive installations, using creative technologies like AR, for an innovative brand experience.

GLOBAL SHIFT
Bregenz

The impact of various technological achievements on our society is often the subject of controversial and passionate public debate. From the new digital infrastructure to earth observation by satellites and the data that we humans collect every day, Global Shift is showing an excerpt of the current state of our living environment with a special focus on Vorarlberg.

© Ars Electronica Solutions

ROSENBAUER
Linz

© Ars Electronica Solutions

Since 2014, Ars Electronica Solutions has enjoyed a partnership with Rosenbauer International AG in the fields of trade shows and events. The focus is on the immersive and interactive communication of Rosenbauer's competencies in the fields of innovation and digitalization for specific target groups.

THEATER DER WELT
Düsseldorf

As part of the international "Theater der Welt" festival in Düsseldorf, Ars Electronica Solutions is curating and staging the program Gloomy and Glamourous — Weltfoyer After Dark — featuring female DJs from around the world. The program featuring 13 female musicians from all continents is a statement. It offers a broad overview of the bandwidth and creativity of female artists in the originally male-dominated electronic music scene.


Theater der Welt Düsseldorf 2020
c/o Neue Schauspiel GmbH

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ARS ELECTRONICA EXPORT 2020

artists, researchers and creative technologists and their knowledge in the context of a curatorial practice

Ars Electronica Linz has always been interested in international cooperation and partnerships, but since 2004 this interest has been expressed through its own special brand: Ars Electronica Export. Conceived with an international mindset, Ars Electronica Export was able to actively develop worldwide cooperation requests. While in the early years the focus was mainly on requests for exhibitions, this has recently changed to include additional consulting activities. Over the years, Ars Electronica's knowledge of art in the context of the digital world has increasingly been inquired about, reflected upon and visualized in joint forms of presentation. In addition, it was precisely in the process-oriented arts at the interface to the (natural) sciences, and in artistically researching practices, that we gained our experience and know-how, which are appreciated by partners in academia and the sciences as well as by companies worldwide. This tendency toward interdisciplinary art forms is not a new thing for Ars Electronica, but it has been enjoying greater attention for some time. In particular, Ars Electronica Export has succeeded not only in treating and highlighting these interfaces, but in understanding how to cultivate, nurture and promote them while respecting and learning from the cultural diversity that network of partners brings.
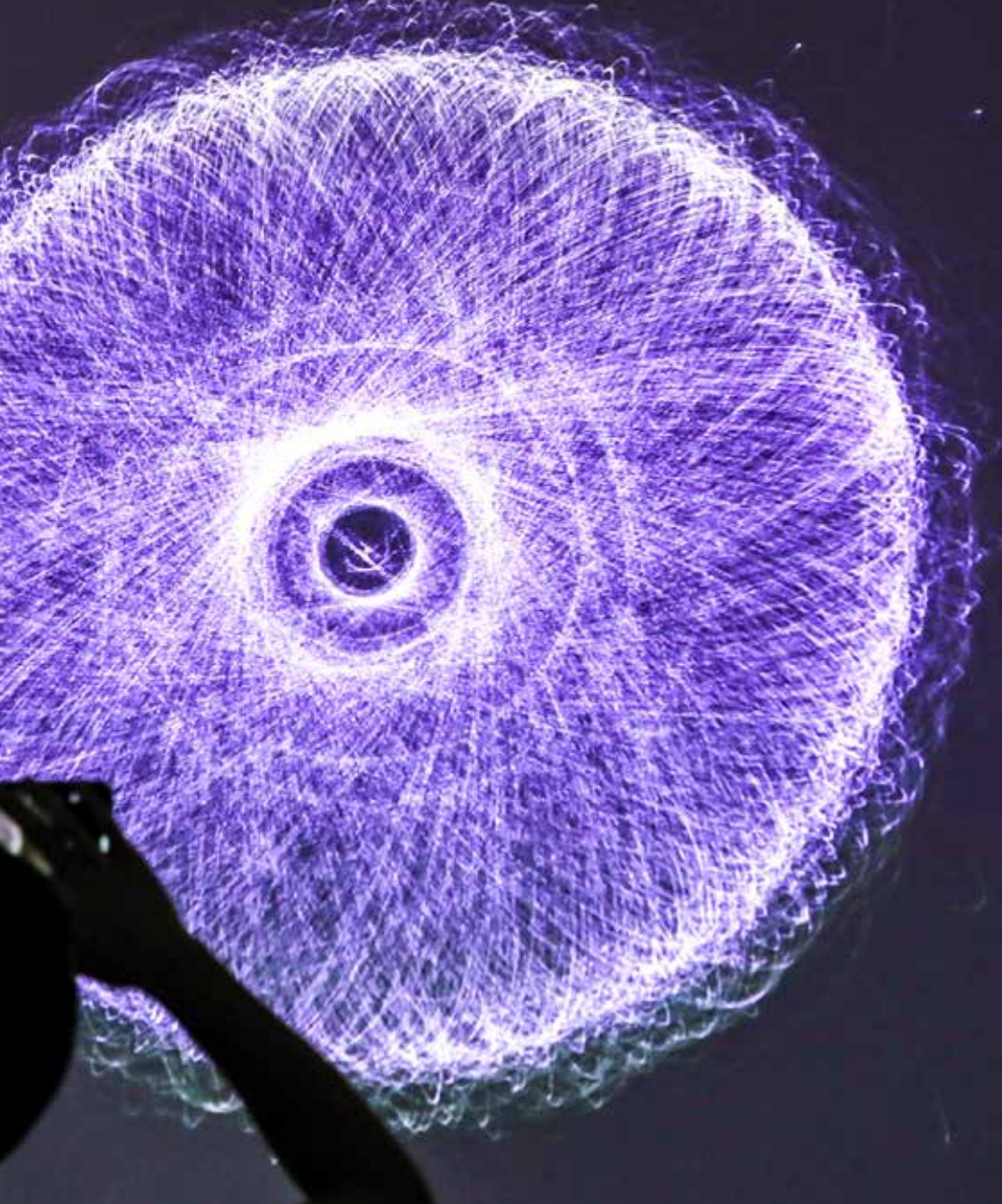
This makes us more than a mere international outreach organization. With the help of external partners in joint efforts, Ars Electronica Export enables constant further development and critical reflection of content from the media arts and contemporary sciences, promotes artists and creative partners in these fields, and can contextualize and convey content in a curatorial manner that individual artists and researchers are only just beginning to provide.

Due to the Corona pandemic, Ars Electronica Export has also had to rethink some of its strategies for collaborating with partners scattered around the world. We are particularly pleased that we were able to process almost all inquiries and orders through a coordinated combination of video conferences, conventional telephone calls or short message services and various platforms for mood or whiteboards, which led to a positive result for the people involved. In addition, we concentrated more on preparatory measures and mediating support as well as consolidating work and are convinced that we can use these experiences for our partners in upcoming activities — whether it is consulting, conception or production for exhibitions, screenings or performances, for new forms of residencies and competitions, or for general developments of new formats.

Deutsches Hygienemuseum Dresden
Two-part workshop
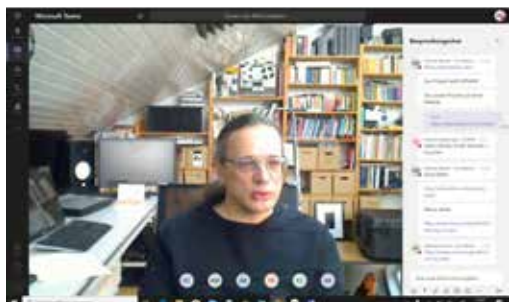
Since January 2020, Ars Electronica Export has been involved in workshops with the Deutsches Hygiene Museum in Dresden. This involves preparing an exhibition for the museum in Dresden in 2021 that deals with the topic of artificial intelligence and presents the necessity of human beings at the center of and as the starting point for deliberations on the subject. From historical insights and computational tools to the latest predictive analytics, a curatorial framework will be jointly developed in the first workshop. A second workshop concretizes the meta-themes of the exhibition on scientific and artistic exhibits. In this cooperation, mediation as a method of knowledge exchange, which takes place not only during the exhibition visit, but should also be understood in the run-up to the exhibition and afterwards, will be tested as a joint effort.

Tabakalera in San Sebastián
Workshop / Consulting / Residencies

The Tabakalera is a former tobacco factory in the Basque city of San Sebastián, Spain, which has been transformed into a center for contemporary culture. Since December 2019, Ars Electronica Export has been advising the program management of the Tabakalera on a new strategic repositioning of the Hirikilabs, an open laboratory for digital culture and technology, located in the open library of the cultural center. The possibilities of Hirikilabs will be expanded with the help of local knowledge carriers from the International Physics Center and the Basque Culinary Center

and constantly developed in exchange with the knowledge and work of international artists and researchers.

Esch2022 — European Capital of Culture
Workshop / Consulting / Exhibition

Esch2022, the cross-border area in the south of Luxembourg, reflects its status as a busy innovation hub: from a former metalworking industry, the region has developed into a center for future-oriented knowledge and new creative technologies. Ars Electronica Export was invited to participate in the capital's main theme REMIX CULTURE in order to actively shape cultural and social change together with Esch2022 and in association with other partner institutions. Workshops and discursive settings will be incorporated into the conception of exhibitions and into artistic participation processes to offer the opportunity in Esch2022, as a cross-border region, to question the conventional understanding of Europe.

ArtScience Residency Program enabled by Deutsche Telekom

This year marks the beginning of a new cooperation between Ars Electronica Export and Art Collection Deutsche Telekom: a three-year Artists-in-Residence Program aimed to foster an interdisciplinary exchange between artists, research and industry. The first residency is planned for 2021. In keeping with the focus of Art Collection Deutsche Telekom on contemporary art from Eastern Europe, the new residency will be dedicated to artists from this region, who work at the interface between art, technology and science and who are particularly interested in researching the social impact of technological developments.

Residency program enabled by Ministry of Culture, Kingdom of Saudi Arabia

One of the Saudi Ministry of Culture's key objectives is to support and foster creative practitioners by providing them with opportunities and platforms through which to hone their talents on the international stage. Collaborations with world-leading institutions such as Ars Electronica are fundamental to this. Through the residency program, Saudi artists and technologists will be able to learn from and co-create with their peers from around the world, pushing the boundaries of what is possible in the converging space of art, technology and research.

Matsudo International Science and Art Festival Citizens of the Future

Matsudo International Science Art Festival is an annual festival held in Matsudo City, Japan. Innovative artists, scientists, and researchers from around the world come together to present their latest projects at the event.

The festival aims to connect art, science, and nature, and is held in the historic architecture and landscape of Tojo-tei, and Tojogaoka Historical Park.

The theme of this year's festival was Citizens of the Future — citizens with their own ideas and vision, taking action on future issues, and resiliently surviving the uncertainty of the 21st century. Through exhibitions, workshops, and talks, we create an agora of citizens, prompting discussions on citizen science and creating social awareness of our environment. The future of coding, prototyping, media, governance, aging, and life was presented in the festival under the theme of Citizens of the Future.

The project was realized under the artistic direction of the Ars Electronica Futurelab.

Listening to Nature/Ars Electronica Futurelab
© Hajime Kato

Virtual Currency Offering Festival/
Estuko Ichihara + Taiki Watai, © Hajime Kato

TOKYO MIDTOWN: School of the Future Festival
in TOKYO MIDTOWN, Tokyo, Japan

This year's School of the Future Festival — a cooperation between Ars Electronica and TOKYO MIDTOWN — took place from February 20 to 24 2020 in Tokyo, Japan. The second edition of this event was an extra-curricular place where visitors are invited to think about our future society together with artists, companies and universities at exhibitions, performances, workshops and talks. Dappi, which means "shedding" in Japanese, is the theme of this year's festival. The topic includes discussions about new perspectives and roles of technology-supported societies and individuals, rediscovering and reflecting yourself, breaking free from self-limiting beliefs and the unstoppable adaptation of social rituals in a society that is constantly changing.

During the five festival days, a total of 130,000 visitors took part in 36 events, and 368 media reported. The following artists and artworks were presented: LIMINAL, Louis-Philippe Rondeau (CA); Alter Ego (Version II), Moritz Wehrmann (DE); I Wear the Dog's Hair, and the Dog Wears My Hair, AKI INOMATA (JP); What a Ghost Dreams Of?, h.o (INT); Revolutionary 20xx! Tool Kit, Ai Hasegawa (JP); La parade engloutie, Guillaumit and Les Plasticiens Volants (FR); Project Alias, Bjørn Karmann (DK), Tore Knudsen (DK); Piano Performance, Maki Namekawa (JP), Ars Electronica (AT); Dear Glenn, Yamaha A.I. Project with Akiko Nakayama, Glenn Gould as A.I.(JP; Yamaha Corporation), Akiko Nakayama (JP); Hiroya Tanaka Laboratory + Keiji Takeda Laboratory, Keio University SFC (JP); Media Lab, Art & Media Course Department of Information Design, Tama Art University (JP); Research Unit on Art and Technology, University of Tsukuba (JP); Department of Visual Communication Design,

Musashino Art University (JP); Fashion & Technology, University of Art and Design Linz (AT); https://www.tokyo-midtown.com/jp/event/school_future/english/english.html

School of the Future Festival, © TOKYO MIDTOWN

A global journey mapping the 'new' world
In Kepler's Gardens

A journey in which it is not *we* who set out to travel, but our ideas and projects, which span a global network in which we gather to discuss what needs to be done.

Autonomy—Democracy
Ecology—Technology
Humanity
Uncertainty

Hardly any other phrase has been used so often in recent months: "The world will be a different place after this crisis"—spoken prophetically, often as a glimmer of hope, more often as a threat. Is this true, and if so, what will the changes be? That question is the focus of this year's Ars Electronica.

Following last year's brilliant 40th anniversary festival, which brought more artists, exhibitors and international experts to Linz than ever before, this year Ars Electronica is going on a journey, or rather the festival itself is becoming a journey—a journey through "Kepler's Gardens." A journey through the networked biotopes and ecosystems in which people in over 120 locations worldwide are working to develop and shape our future, and these days that means, above all, working to save our future.

A journey to and with many committed communities that have already begun not only to think about the current problems, but to work on concrete ideas, actions and solutions. Places, initiatives and institutions where artists and scientists work together, challenge society and try out new alliances and forms of cooperation.

ars.electronica.art/keplersgardens

HUMANITY

Bergen

Amsterdam

Hong Kong

Athens

TECHNOLOGY

Belgrade

AUTONOMY

London

Munich

UNCERTAINTY

Prague

Milan

Jakarta

Johannesburg