AK Upper Austria and Ars Electronica present new exhibition:

Working in and on the Future

(Linz, 8.6.2021) Will virtual work and test environments replace offices and laboratories? Will talking AI systems replace personal assistants? Will humans and robots literally work shoulder to shoulder in research, development, operations, assembly and construction? Although human-machine teams à la Tony Stark and J.A.R.V.I.S. will likely remain science fiction, there is no doubt that new technologies are revolutionizing the way we work and live.

That's why the Upper Austrian Chamber of Labor and Ars Electronica are devoting a new exhibition to the question of what "working in and on the future" might look like. The show clusters around a range of exciting topics such as "Work and Digital Transformation," "Cooperative Work: of People and Machines," the "Tools of the Future" or "Humanizing Technology." It also includes numerous works of art and research projects. The exhibition's narrative threads lead right through the building, past interactive installations and the Ars Electronica Center's labs. The focus is never on what new technologies can do, but rather on what potential they have to advance our society. You can visit and explore the exhibition "Working in and on the Future" starting today, Tuesday June 8, 2021.

Working in and on the future

Cluster 1 or What "work" actually means

Pop! Pop! Pop! At some point we've all enjoyed popping bubble wrap, bursting one air-filled cushion after another. Admittedly, it's a relatively pointless pastime, but it exerts its own fascination, especially when we are under stress and time pressure ... With "Under pressure" ::vtol:: takes an ironic look at the relationship between humans and robots. Robots are seen as ideal workers who never sleep, never need a break and never get annoyed. But what if instead of us trying to perform like robots, the robots became a little more like humans? What if robots simply played with bubble wrap now and then when things got stressful?

What we mean by the term "work," what role it plays in our society and what "work" means in and for the life of each individual is anything but clear. As an introduction to the ideas in the exhibition, the first station assesses our current situation and asks what "work" actually is.

Cluster 2 or Why digitization is changing everything now - and has been for years

Work in the 20th century was generally tied to fixed times and places, but that has changed, largely because of new technological possibilities. Although today only 9.1 percent of Austrians have atypical employment situations (the EU average is 14.1 percent), 15 to 24-year-olds are disproportionately represented at 33.3 percent.

News reports, conferences, lectures and workshops have been saying the same thing for years, if not decades: "Digitization is going full steam ahead and changing everything." What exactly it's changing and how, and above all why it keeps doing so "now," is never quite clear. Why is that? The second station of the exhibition addresses the fact that the omnipresent term "digitization" does not merely refer to the transformation of analog values into digital signals, but to a process that affects society as a whole in the long term. The true (digital) revolution is anything but a "big bang"; it stems not from the mere emergence of a new technology, but from the sometimes unforeseeable ways it is used and the changes it triggers in our behavior. The most recent example is the Covid crisis: It wasn't Zoom and Co that were new, but the fact that so many of us were suddenly using these tools in our home offices.

Cluster 3 or How work and digitalization go together

Let's stay with Zoom and Co for a moment. After more than a year of social distancing, most of us have experienced the advantages of working (together) with digital tools, as well as the disadvantages. This field test, which was as involuntary as it was global, will undoubtedly leave its mark on the working world – the task now is to find a social consensus on what this should look like. Station 3 of the exhibition doesn't get caught up in the much-discussed arrangements for working from home, but instead asks the more general question of the extent to which our working world will be shaped by flexibility in the future and what role digital tools will play. Regardless of which job profiles are created or disappear as a result, the question is: how can we ensure that all these changes take place in a way that is socially responsible and fair?

Cluster 4 or Our data are the new oil

"Welcome to AI Oracle. By entering this cube you agree to our terms of scanning all your existing data and selecting a future job for you. Welcome to the future! You shall now be scanned!" With the research and mediation project "AI Oracle", the international art collective no:topia addresses the handling of our data. Which data and how much do we have to give away in order to be able to participate in a future shaped by technology? Where do we draw our boundaries and how do we enforce them?

89 percent of Austrians regularly use the Internet, 95 percent of them via smartphone. People in this country spend almost 6 hours a day online, shopping, booking vacations, talking to friends, listening to music, watching videos and playing games – in short, because we move in digital spaces every day as a matter of course, we are constantly producing data. All these data provide information about our habits, interests and preferences and are therefore extremely interesting to businesses and political entities. Reason enough, then, to call for clear rules when it comes to handling our data – and that's exactly what Station 4 of the exhibition is all about. Fairness and privacy must be guaranteed in the future, just as there must be room for innovation and technological development. What is clear is that whoever has access to data can generate knowledge today, which means power tomorrow.

Can we design AI systems so that their recommendations – their "conclusions" – are fair and objective? That's exactly what Retorio GmbH is working on. Their video-based human resource software combines AI with insights from psychology and organizational research and has learned to assess people without prejudice based on hundreds of thousands of videos.

All these data have long since been processed not by humans, but by algorithms. Europeans hope these algorithms will make efficient and accurate decisions and save time, but at the same time they worry about whether programmers will gain too much power and open the floodgates to manipulation.

Cluster 5 and the tools of the future

Exoskeletons can reduce the physical strain on workers – in factories, for example – and prevent musculoskeletal disorders. Solutions vary based on the activity and the area of the body being stressed: The "Paexo Shoulder" from Ottobock provides support for overhead work by transferring the weight of the arms to the hips using a mechanical pulley system. The "Paexo Thumb" helps with repetitive work that puts a lot of strain on the thumb. The "Cray X" from German Bionix, on the other hand, is the world's first networked exoskeleton that acts as an intelligent link between man and machine; it learns on its own how to reinforce lifting movements and prevent incorrect posture.

The history of our species is characterized by technology. The oldest known tools date back to the Paleolithic Age, more than 2.5 million years ago, and it is no coincidence that we name the subsequent stages of our success story after raw materials and associated technologies or production processes. Today, we once again find ourselves in the midst of a profound transformation that many are calling the Fourth Industrial Revolution. Station 5 of the exhibition is located in the Ars Electronica Center's Labs and reveals the possibilities of processes like 3D printing, tools like exoskeletons or fields like materials research.

"Komagataeibacter Xylinus" is an aerobic acetic acid bacterium that uses oxygen to convert sugar into cellulose. This is exactly what makes it interesting for Miriam Eichinger and Emanuel Gollob and the entire "Fashion & Robotics" team; in the future, these bacteria could offer an alternative to the cotton plant in the textile sector. The "Grow Whole Garments" research project is intended to provide insights into the growth of the bacteria and how it can be controlled and managed: can we develop processes for bacteria to grow as a spatial textile object?

Cluster 6 or My colleague, the machine?

"You look a bit tired, I suggest you grab a coffee." "I would not formulate that sentence that way." "I gathered that you are a morning person. Start the afternoon in the meditation zone." With "Queen B," Studio LONK speculates on the atmosphere of a future "smart office." The work environment is packed with cameras and sensors that document, analyze and log everything that goes on. Some feel protected and supported here, others simply monitored and patronized ...

Digital assistance systems, brain-computer interfaces, machine-learning applications ... Whether at home in our free time or at work, we interact ever more frequently and closely with machines and programs. Station 6 of the exhibition is located in the middle of the big "Understanding AI" display and is about how the simple use of tools and instruments is increasingly giving way to a purpose-oriented collaboration between people and machines.

Good old-fashioned craftsmanship is the measure of all things, which is why it's often a source of inspiration for technology development. What if we could digitize and replicate highly complex and delicate things like puppetry? What possibilities would this open up? With "Pinocchio," the Creative Robotics Lab at the Linz University of the Arts and the Ars Electronica Futurelab brought the classic puppet show and modern industrial robots together for a choreography rich in symbolism, created by humans and machines....

What does this mean for us and our understanding of "work"? Will interpersonal collaboration change as a result? What status and role will "human labor" have in the future? Who will make decisions and who will take responsibility? And will machines one day really be something like "colleagues" – or will they remain just tools in the end?

The LIT Law Lab at Johannes Kepler University is researching the potential for digitizing administration and jurisdiction. The aim is to examine what is technically possible, legally permissible and politically desirable. With the installation "AI Truth Machine," the LIT Law Lab addresses the opportunities and challenges of using a machine to find the truth. A system provided by Converus® determines the truth in a completely different way than flesh-and-blood judges: Within the framework of an AI-supported process, eye movements and pupil changes of the interviewees are precisely analyzed.

Regardless of how we shape our role and that of machines in the future, in a larger, global context, the question arises as to what economic, ecological, social and political circles a world permeated by technology will draw.

"Alexa, turn on the hall lights!" Short, terse commands like this invoke a vast matrix of capacities every day in millions of homes around the world: intertwined chains of resource extraction, human labor, and algorithmic processing across networks of mining, logistics, distribution, prediction, and optimization. The scale of this system defies our imagination. With "Anatomy of an AI," Vladan Joler and Kate Crawford have done pioneering work in the field. In the course of impressively broad research, they use the example of a voice-controlled, Internet-based smart assistant like Amazon Echo to sketch an anatomical map of a single AI system that helps us sense the complexity and impact of our commerce ...

Cluster 7 and "Humanizing Technology"

Technology should become more "human." But what does that mean? Well, two things in particular: first, technology should not merely add economic value, but above all social value, and second, its development should be oriented to our needs and not the other way around, with humans having to adapt to technology. Station 7 of the exhibition shows what role we

humans and our creativity could play in an increasingly automated and digitized working world. "AI x Music" is the motto on the third floor of the Ars Electronica Center, where a series of best-practice projects will use the example of music to demonstrate how the interaction between humans and machines has developed historically, and what innovative forms it is taking today ...

Whether it's Ali Nikrang's "Ricercar: An AI-Based Music Companion", which aims to create an intuitive interface between a human artist and an AI-based composition system, or Moritz Simon Geist's music robot system "TOC ONE," which can generate sounds and rhythms from virtually any object on the planet –working in and on the future promises to be exciting!

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