



www.sharespace.eu

contact@sharespace.eu

EU Sharespace project for radically new XR technology

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How could humans use digital avatars in the near future? How can we engage in social situations that include both human and automated avatars? And what technology do we need to explore these 'hybrid' spaces together? This is what Sharespace is all about - a European R&D consortium consisting of 14 partners from eight different countries including the Ars Electronica Futurelab. The main goal of the project is to bring extended reality (XR) to a radically, ethically sound, new level of presence and sociality by furthering the possibilities of interaction in a virtual space using avatars. In total, two university hospitals, three universities, five research institutes, and four companies participate in the three-year long research project running from January 2023 until December 2025.

Shared Hybrid Spaces: collaboration between humans & avatars.

The backbone of the Sharespace project is the development of so-called Shared Hybrid Spaces (SHS). These are spaces that are shared by humans and avatars where both are engaged in embodied collaborative tasks. This is made possible by transparently capturing social sensorimotor primitives through mobile connected innovative sensors, and then reconstructing them using novel XR technology. During this research project the developed technology will be applied in three real-world scenarios (sport, health & art), and will be presented during high-profile events such as the Olympic Games 2024 and the Ars Electronica Festival 2024 & 2025.

R&D Partners

Coordinator: German Research Centre for Artificial Intelligence – DFKI conducts research on “human-centric AI” in the major groundbreaking areas of AI research and applications with a focus on socially relevant topics and scientific excellence. (<https://www.dfki.de/en/web>)

Alcatel-Lucent Enterprise - ALCATEL-LUCENT ENTERPRISE. We make everything connect by delivering digital age networking, communications and cloud solutions with services tailored to ensure our customers' success. In the Cloud. On Premises. Hybrid. (<https://www.al-enterprise.com/>)

Ars Electronica Futurelab - Ars Electronica Futurelab is a recognized transdisciplinary non-university R&D institute that performs research in the areas of media art, information aesthetics, interaction design, tangible technology experiences, robotics, and virtual environments. (<https://ars.electronica.art/futurelab/en/>)

CRdC Nuove Tecnologie per le Attività Produttive Scarl - CRdC Tecnologie Scarl is a consortium company based in the Campania region in Italy, operating on a nonprofit basis, focusing on scientific and technological research. (<https://www.crdctecnologie.it/en>)

Cyens Center of Excellence - CYENS Centre of Excellence is the Research and Innovation Centre of Excellence in Cyprus focusing on Interactive media, Smart systems and Emerging technologies aiming to empower knowledge and technology transfer in the region. (<https://www.cyens.org.cy/en-gb/>)

De Montfort University – De Montfort University oversees the integration of the Ethics by Design framework within the Sharespace project (<https://www.dmu.ac.uk/home.aspx>)

Golaem S.A. - Golaem is a french software company, leader in crowd simulation for Media & Entertainment thanks to its powerful technologies to model, animate and control plenty of expressive autonomous characters in a user-friendly way. (<https://www.golaem.com>)

Hospital Vall d'Hebron - VHIR is a public sector institution that promotes and develops research, innovation, and bio-health teaching at Vall d'Hebron University Hospital in Barcelona. (<https://vhir.vallhebron.com/en>)

Institut national de recherche en sciences et technologies du numérique - Inria is the French national research institute for digital science and technology. World-class research, technological innovation and entrepreneurial risk are its DNA. (<https://team.inria.fr/mimetic/>)

Lightspace Technologies SIA - Lightspace Technologies, a deep tech startup from Latvia – a pioneer of next-generation near-eye display technology. The first to release an AR head-mounted display truly solving vergence-accommodation conflict. (<https://lightspace3d.com/>)

Ricoh Europe – Ricoh combines globally recognized expertise across industries, technologies and domains with our wide range of hardware, software and services, we deliver fit-for-purpose solutions that achieve your business goals. (<https://www.ricoh-europe.com/>)

Universitat Jaume I De Castellon - LabPsittec is a research lab at Universitat Jaume I in Spain with over 25 years of expertise in the design and evaluation of digital solutions in the field of Psychology. (<http://www.labpsittec.uji.es/eng/index.php>)

University Medical Center Hamburg-Eppendorf (UKE) – As one of the leading clinics in Europe, UKE is based on the interconnection of medicine, research, and teaching. The emphasis in UKE's research are the neurosciences, cardio-vascular research, care research, oncology, as well as infections and

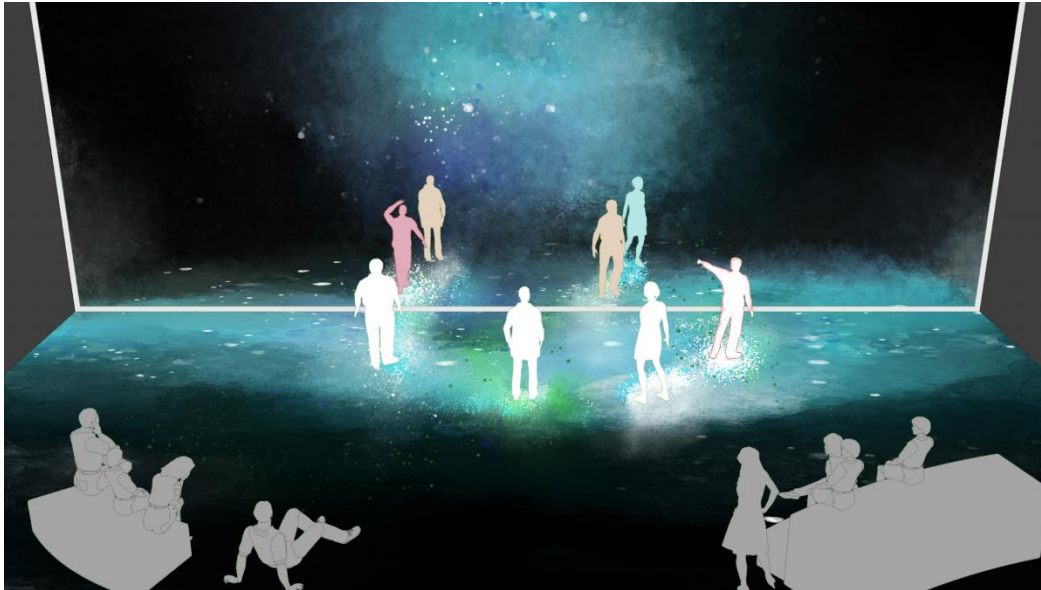
inflammations. (<https://www.uke.de/english/departments-institutes/institutes/department-of-excellence-for-neural-information-processing/index.html>)

University of Montpellier – University of Montpellier hosts EuroMov *Digital Health in Motion*, a joint research unit with IMT Mines Ales. EuroMov conducts research and innovation activities at the crossover between Movement, Health and Data sciences, with the goal to uncover movement signatures of Health. (<https://dhm.euromov.eu/>)



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Images



Shared Hybrid Space in the Deepspace 8K at the Ars Electronica Center (credit: Raphael Elias Schaumberg-Lippe)



Sharespace consortium meeting in Barcelona (credit: Ester Dachs Escarra)



People engaged in a physical therapy class in a Social Hybrid Space (credit: DFKI)