Alcatel-Lucent Enterprise and 14 European Partners Collaborate on Extended Reality Sharespace Project to Create Future Social Hybrid Spaces

Alcatel-Lucent Enterprise Rainbow will support the SHARESPACE research and innovation programme to enable people in remote locations to interact in a shared space

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Alcatel-Lucent Enterprise, a leading provider of network, communications and cloud solutions, is taking part in the **SHARESPACE** consortium, a 6m€ initiative funded by the European Commission through the Horizon Europe research and innovation programme.

The vision of SHARESPACE is to create future **Social Hybrid Spaces** (SHS) shared by humans (wearing XR glasses and mocap) and avatars, where both are engaged in embodied collaborative tasks which model body movements and create interactions between the participants. This is made possible by capturing social sensorimotor primitives (actions involving both sensory and motor functions or pathways) through mobile connected innovative sensors. The environment is then reconstructed using novel **extended reality** (XR) technology.

Through cognitive architecture, virtual avatars will facilitate joint-action, distance-based learning and social cohesion in the hybrid societies of the future. The aim of the programme is to expand interaction in a virtual world, with XR technology enriching key social features of communication tailored to the participants' personal characteristics. With future deployment in sectors such as health, learning, entertainment, sport and in the workplace, the technology has the potential to revolutionise hybrid working and learning.

With its ability to connect in real time any person, device, process or application, **RainbowTM** CPaaS (Communication Platform as a Service) provided by ALE and tailored for the project will allow the onboarding of avatars as a new type of endpoint, enriching the remote collaborative experience. This will bring an entirely new approach to the metaverse paradigm where real-time social interaction, ethics, sustainability are key.

Sylvain Rivier, SHARESPACE coordinator for Alcatel-Lucent Enterprise, commented:

"We are delighted to take part in this amazing project that will put Extended Reality at European users' fingertips. With SHARESPACE, we have developed open human-centric virtual worlds with new real-time remote interactions and capabilities into Rainbow's

collaborative space. The capability to integrate human-driven or full-virtual avatars will improve the performance of human-avatar and human-robot motor coordination in complex scenarios."

The SHARESPACE consortium comprises 14 organisations across seven countries that will work together for three years. In delivering this vision, three scenarios will be developed by leading researchers and deep-tech companies with unique expertise in health, sport, and art. SHARESPACE will provide logistical, administrative and technical preparation of these real-world use cases with relevant institutions. Some examples include:

• The Hospital Vall d'Hebron pain unit will **provide remote assistance to people suffering from chronic back pain**. Public demonstrations featuring the engagement of users and communities, utilising virtual reality (VR) and augmented reality (AR), will be presented during the World Pain Conference 2024 and 2025.

• The "**peloton cycling challenge**" sport use case aims to open up new perspectives in sport training, sport entertainment and augmented virtuality in sport. Using personal, autonomous, and semi-autonomous avatars for optimised perceptual motor skills, amateur cyclists can learn how to ride in a virtual peloton. This will be showcased at the Paris 2024 Summer Olympics and the Tour de France 2025.

• The "**shared creativity improvisation**" use case will allow artistic co-creation of an aesthetic environment intuitively produced from dancers' movements using AI avatars. This will be demonstrated at the Ars Electronica Festival 2024 and 2025.

The participating academic groups, industry and clinical **partners** have cutting-edge expertise in all disciplines required for the successful implementation of the SHARESPACE platform, including AI, XR, mathematics and control, research ethics, psychosocial factors and technology, health psychology and cyberpsychology, and cognitive neuroscience and movement science. This also extends to expertise in wearables and mobile technologies, as well as the deployment of digital technologies in healthcare, sports, and the arts.

Notes to the editor

The participating academic groups, industry and clinical partners have cutting-edge expertise in all disciplines required for the successful implementation of the SHARESPACE platform. In particular, the consortium will combine expertise and research approaches from AI and XR (**DFKI** , **CYENS** , **Golaem**, **INRIA**), mathematics and control (**CRdC**), research ethics (**De Montfort University**), psychosocial factors and technology, health psychology and cyberpsychology (**Universitat Jaume I De Castellon**), cognitive neuroscience and movement science (**University of Montpellier**, **UKE**) with expertise in wearables (**LST** , **Ricoh**) and mobile technologies (**Alcatel-Lucent Enterprise**), as well as in the deployment of digital technologies in healthcare (**VHIR**), sports (**INRIA**), and the arts (**Ars Electronica**).

SHARESPACE is a 6 Million-euro initiative funded by the **European Commission** through the Horizon Europe research and innovation programme. The consortium is composed of 14 organisations across seven countries that will work together for 3 years.

About Alcatel-Lucent Enterprise

Alcatel-Lucent Enterprise delivers the customised technology experiences enterprises need to make everything connect.

ALE provides digital-age networking, communications and cloud solutions with services tailored to ensure customers' success, with flexible business models in the cloud, on premises, and hybrid. All solutions have built-in security and limited environmental impact.

Over 100 years of innovation have made Alcatel-Lucent Enterprise a trusted advisor to more than a million customers all over the world.

With headquarters in France and 3,400 business partners worldwide, Alcatel-Lucent Enterprise achieves an effective global reach with a local focus.

- *Mocap: Motion capture is the process of recording the movement of objects or people*

- *German Research Center for Artificial Intelligence*

- *Research and Innovation Centre of Excellence in Cyprus*

- *National Institute for Research in Digital Science and Technology*

- *Regional Competence Centre for new technologies*

- *University Medical Center Hamburg-Eppendorf*

- *SIA Lightspace Technologies*

- *Vall d'Hébron Research Institute*

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XTENDED REALITY SHARESPACE PROJECT   FUTURE SOCIAL HYBRID SPACES

SHARESPACE RESEARCH AND INNOVATION PROGRAMME   SHARESPACE

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