SHARESPACE Open Call for Artists 2023
Application period: 10th of September 2023-19th of November 2023, 23:59

Introduction

In the near future, more and more communication will occur in digital spaces. This leads to a further blurring of the border between humans and technology, and an increase of their close intertwining in everyday life. Therefore, steering this hybrid future towards the creation of new opportunities for human-centric, safe, rewarding, and inclusive social interaction is vital. SHARESPACE is a Horizon Europe research and innovation project that aims to create future Social Hybrid Spaces (SHS). In these SHS, humans and avatars engage in embodied collaborative tasks. Social sensorimotor primitives, which refers to how people interact and communicate with each other through their senses and movements, are transparently captured through mobile connected innovative sensors, and then reconstructed using novel extended reality (XR) and artificial intelligence (AI) technology, ultimately improving embodied collaboration in digital spaces. SHARESPACE involves a wide range of European universities, companies and institutions from various fields. More information about the project can be found at the URL: www.sharespace.eu

The objectives of the project are evaluated through three real-world scenarios. One scenario concerns art and aims to explore artistic exploitation of SHARESPACE technology and build a bridge to the digital art community. Artistic exploration within these large European R&D projects creates new possibilities for artists to experiment with cutting-edge technologies and realize new artistic concepts. Art is about exploring innovation possibilities along non-predefined lines. This can lead to comprehensive insights that focus not only on the potential successes of a new technology but also on its potential failures.

In this call we are looking for an established media artist to realize their own artistic concepts using the Deep Space 8K, located at the Ars Electronica Center in Linz, and the first prototype of SHARESPACE technology released in 2024. Artists are invited to create a multi-user, hybrid, interactive art performance that leverages embodied

interaction between people and different types of Virtual Humans (hereafter referred to as avatars). The developed artwork will be shown at Deep Space 8K at the Ars Electronica Festival 2024. This specific space, unique in the world, allows for immersive and interactive 3D experiences due to high resolution wall and floor projections. The description of the core SHARESPACE concepts and the Deep Space 8K technology can be found in the next section or on the SHARESPACE website. For the realization of the artwork, the artist receives 15.000 EUR that should cover the artists' worktime, material costs, and potential subcontracting costs. Furthermore, the artist shall receive support from the Ars Electronica Futurelab during the duration of the development phase.

What we look for:

We are looking for an established media artist to deliver a performative artwork that artistically explores different aspects of SHARESPACE's vision and technologies in a novel and challenging way. We are looking for someone who is up for the challenge of participating in an ongoing European R&D project, which entails working beyond disciplinary borders, with developing technology and prototypes and exploring unknown territories. SHARESPACE technology is still in development and only the selected artist will have access to it. In the following, we describe core SHARESPACE concepts that can be incorporated in the artistic concept.

Artistic use of different types of avatars: Since SHARESPACE revolves around embodied collaboration in SHS, the use of digital avatars, which are computer-based simulations of human beings, is central. To reach the goal of improving embodied collaboration, the project is developing different levels of avatars with differing levels of autonomy. The developed artistic concept must incorporate the use of these digital doubles.

- **L0**: A real human in a physical space.
- **L1**: The avatar replicates the movement of a human (L0) in SHS by reconstructing sensorimotor data captured by mobile connected sensors.
- **L2**: These avatars consist of L1 amplified avatars where some movements are exaggerated or slightly modified to foster synchronization and physical involvement of real humans (L0) in digital spaces. These types of avatars are only available at a later stage of the SHARESPACE project.
- **L2.5:** These avatars are specific to Deep Space 8K and base their location in the digital space on the 2D location of a human (L0) on the tracking floor in Deep Space 8K.
- **L3**: The avatar's movements are the sole result of a computation by an AI engine and fully autonomous. The movements of L3 avatars are performed with the objective to support the achievement of a collective goal or foster a feeling of connection.

Remote participation: A core reason to invest in XR research is to increase accessibility to services by enabling remote participation. In this Open Call, we are looking for an artistic concept that integrates a dimension of remote participation from one or

multiple people that can be either performers, artists, or audience. The remote participants are then represented by avatars in the digital space in Deep Space 8K. For this artwork, the remote participants are not located in Deep Space 8K, but somewhere where they still utilize the same local network.

Coherence of the group/social connection: SHARESPACE centers around embodied collaboration with multiple people in digital spaces. Research performed in the project shows that successful collaboration invokes a feeling of coherence or social connection in a group. This is something that needs to play a role in the artistic concept for this Open Call. Social connectedness can be integrated across multiple dimensions whether it is a sense of belonging amongst the avatars in SHS or being part of the audience (on site or remotely).

Synchronization: Ongoing research within the SHARESPACE project focuses on invoked social connection amongst a group through synchronous movement. At a later stage of the research, synchronization is integrated as a technical feature of SHARESPACE technology, however, for this Open Call we would like the artist to think of a concept where synchronous movements amongst performers, participants, or audience is integrated.

Amplification: Movement conveys information about human inner states, potentially serving as a social signal to others. At SHARESPACE, our goal is to identify the specific characteristics of movement that are relevant for social transmission. We then seek to amplify these features to enhance the flow of information between agents in hybrid environments. For this Open Call, we invite artists to explore the concept of amplification and its counterpart, attenuation, and experiment how playing with these concepts can shape social interaction.

Creative use of Deep Space 8K: The conceptualized artwork has to be developed as a Deep Space 8K application. This space, located at the Ars Electronica Center in Linz, enables immersive XR environments through 3D stereoscopic wall and floor projections (both 16m x 9m). Artworks shown in Deep Space 8K can be made interactive by its laser tracking system PHARUS, which enables the system to determine the 2D position of objects on the floor. Potential 3D positions can be determined by giving visitors an OptiTrack device that tracks the position of their hand. Furthermore, Deep Space 8K has space for a total audience of around 80 spectators on the ground floor behind the floor projection and on the mezzanine in the room.

Unreal Engine experience: Working with SHARESPACE technology requires specific technical knowledge. The plugin developed for the creation of the artwork is made for Unreal Engine, so experience with this software is vital for the applicant.

Overall artistic value: For the assessments of the concepts submitted to this Open Call, overall artistic value is an important aspect. It corresponds to the overall artistic excellence of the concept, its novelty, and the way in which the SHARESPACE technology is used in an artistic context.

Technical components available for the creation of the artwork:

For the conceptualization and production of the artwork for this Open Call, the artist is required to work with a pre-defined list of technologies. It is expected that either the applicants themselves have direct experience with the listed technologies and software, or they collaborate with someone who does. The Ars Electronica Futurelab team is available to support conceptualization and production but cannot take on the bulk of development. If the selected artist chooses to collaborate with others through subcontracting the costs must be covered by the budget made available for the production of the artwork. Furthermore, information about the subcontracting must be stated in the application.

The list of tools provided to the Artist:

- **Deep Space 8K**
  Immersive XR room at the Ars Electronica center utilizing wall and floor projection.
    - **PHARUS tracking system**:
      Allows for the tracking of the 2D position of objects on the Deep Space floor.
    - **OptiTrack**:
      Handheld device that allows for the tracking of a 3D position.

- **Unreal Engine with nDisplay**
  Unreal Engine is a powerful software platform used for creating interactive virtual worlds, simulations, and games. nDisplay is a feature within Unreal Engine that allows for the projection of these virtual experiences across multiple screens or display surfaces seamlessly, which is needed for artwork development in Deep Space 8K.

- **SHARESPACE Unreal reference project + plug-in**
  The SHARESPACE Unreal Project incorporates the UE-DeepSpace Starterkit, a custom template designed for the Ars Electronica museum's Deep Space screens. It is pre-configured with nDisplay to facilitate multi-screen projections and includes the Pharus tracking system for group interactions. Additionally, the Golaem Crowd plugin is integrated to enable interactive scenarios between the visitor and the digital characters through Pharus Lastertracking.

- **SHARESPACE Communication platform (Rainbow)**
  This platform will provide real-time communication means to animate and render and synchronize avatars remotely based on data collected by Mocap systems and HMD.

- **Golaem integration for Unreal**
Golaem is the software used for the avatar animation within the SHARESPACE project. The Golaem-For-Unreal Plugin allows playing and interacting in real-time with simulations serialized from Golaem-For-Maya using the Golaem Engine. All attributes of the simulation can be overridden and driven by Unreal Engine native tools (blueprints, scripts...) to generate unique and dynamic simulations.

- **SHARESPACE Cognitive Architecture**
This module stands at the heart of semi-autonomous and fully autonomous avatars. The Cognitive Architecture (CA) is capable of detecting, processing and/or generating human-like movements to achieve enhanced and facilitated group interactions in SHS.

- **(Full-body) motion capture**
The remote user that is located outside of Deep Space must have their movements tracked through motion capture technology. The selected artist has freedom in choosing what tracking technology they find most suitable.

- **Head mounted Display (HMD) for remote user(s)**
The remote user is interacting with the SHS through an HMD.

What we provide:

All coordination between the SHARESPACE consortium and the selected artist is done by the Ars Electronica Futurelab. For the development of the artwork, the selected artist is provided with the following:

- **15.000 EUR in available budget:** The selected artist is contracted by the Ars Electronica Futurelab and will receive a fee of 15.000 EUR for the production and realization of the artwork. This budget should cover all costs including travel to Linz, material costs, working hours, and potential subcontracts.

- **Support from the Ars Electronica Futurelab team:** The Futurelab will provide an Unreal plug-in that integrates SHARESPACE technologies from the project. The use of this plug-in will give artists easy and direct access to all technical components necessary for the realization of artistic concepts. In addition, the Ars Electronica Futurelab team will also support the artist in using the plugin as well as provide support during the conceptualization and production phase of the artwork development. They will also provide the artist with access to Deep Space 8K for testing.

Application Process & Timeline:

Application period (10ᵗʰ of September 2023 – 19ᵗʰ of November 2023):
In order to apply to this Open Call, the applicants are expected to provide the following:

- CV + letter of motivation
- First draft of a concept
- 2–4-minute video explaining:
    - What makes you the ideal applicant for the Open Call?
    - How does your personal artistic experience relate to the SHARESPACE project?
    - What do you see as the contributions you can make to this collaboration?
    - What is your motivation for your application?
- Artistic Portfolio

You can start your application here (hyperlink to be inserted).

(Optional) Interview with the Jury (December 2023):
Based on the number of initial applications, a selection of applicants will be invited for an interview with Ars Electronica Futurelab members as a first selection round. During the interview, applicants are asked about their ideas for the artwork, and they can ask questions about the wider SHARESPACE project. Based on the assessment of the interview, a selected few will continue to the next selection round, where they will be assessed by the User Advisory Board (UAB) put in place for the SHARESPACE art scenario.

Final Selection by User Advisory Board (UAB) + Notice of Selection (December 2023 / January 2024):
After the interviews a small selection of applicants will be discussed with the User Advisory Board (UAB) that has been put in place for this project. The UAB members are experts external to the Ars Electronica ranging from media artists, performers, and XR specialists. In collaboration with the UAB, the final project will be selected. Important to note: if both the SHARESPACE consortium and the UAB determine that there are no suitable applicants for this Open Call, they have the right to choose none of the applicants and a new Open Call will be announced.

Negotiation (January 2024):
During this phase the contract is put together and negotiated. Timelines are discussed and any other legal requirements and budgets are agreed upon. Since SHARESPACE is upholding an Ethics By Design approach, ethical approval of the concept is also necessary. Agreement of the negotiation is mandatory to proceed with the development of the artwork.

Kick-off meeting in Linz + start conceptualization (February 2024):
During this kick-off meeting the selected artist is invited to Linz to get detailed information about the SHARESPACE project and an introduction to Deep Space 8K. The artist gets demonstrations of ongoing SHARESPACE research, and the technology developed by the consortium. The travel costs to Linz must be covered by the budget made available to produce the artwork.

Delivery of the plug-in, start technical production (April 2024):

Although conceptualization of the artwork already starts before April 2024, the technical production can only start in April after the artist is provided with the technical SHARESPACE plug-in by the Ars Electronica Futurelab.

Feedback UAB (July 2024):
The artist will discuss their concept with the UAB to receive feedback and get potential input.

Presentation at Ars Electronica Festival 2024 (September 2024):
The final presentation of the developed artwork will take place during the Ars Electronica Festival 2024, taking place during the second weekend of September. Next to the official presentation, it is expected that the artist will participate in dissemination events that take place at the festival such as a panel discussion about the artistic exploitation of SHARESPACE technology.

Evaluation of the artwork (September – November 2024):
Because the artwork is developed within the frame of a European R&D project, evaluation of the results and artwork is required. The responsibility for this evaluation lays with the consortium, but the artist does need to be available for any needed input.