

di:'Angewandte

Universität für angewandte Kunst Wien
University of Applied Arts Vienna

Fulldome / VR & AR Lab IMMERSIVE FIELDS

**Selection of 360° art works and research
University of Applied Arts Vienna**

11.09. – 13.09.2020

**Ars Electronica 2020
Festival for Art,
Technology
& Society**

**JKU Campus
Linz**



DIGITALEKUNST

The struggle for social progress is particularly visible in public space, whether it is when thousands of people take to the streets to stand up for their ideals, when coexistence in urban megacities become an urgent issue that cannot be ignored, or when climate change presents landscapes and cities with challenges that have never been faced before.

Working on social progress is one of the most important tasks of universities, as is imparting knowledge and understanding. With the latest fulldome technology, the University of Applied Arts Vienna is now introducing a social communication instrument into the public space which, in an art and science alliance together with Johannes Kepler University Linz, goes beyond traditional educational institutions by making social challenges tangible precisely where they are most fought over.

GERALD BAST

Rector of the University of Applied Arts Vienna

We have reached a threshold: VR technologies have advanced so much that their applications are infiltrating all spheres of public and private life. As these technological developments progress, there is always a risk that artistic visions are eclipsed in favour of technical perspectives. It is therefore crucial to support and promote the maturing and strengthening of these visions, which may, in turn influence the definition of the media itself.

The Immersive Fields program presented on the campus of Johannes Kepler University during Ars Electronica 2020 is a selection of 360° art works and immersive research, most of which were produced and developed at the Fulldome / VR & AR Lab of the University of Applied Arts Vienna (Angewandte) since 2013. Presented in a mobile dome structure with 360° surround image and sound projection, the works show a wide range from 3D animations and experimental short films to interactive installations and live performances.

The Fulldome / VR & AR Lab is based at the Department of DIGITAL ARTS / Ruth Schnell, a site of artistic education and research, where new fields of practice are explored with a critical approach to technologies that shape our perception and understanding of reality.

MARTIN KUSCH

Director Fulldome / VR & AR Lab

Please note that some of the works have been specially adapted to the context of Ars Electronica 2020.

PROGRAM ^A

Liminal Spaces (re-edited) 18:35 min
360° Film Screening (Part 1) 25:17 min
ALLIANCE ANGEWANDTE / JKU 22:00 min
Future Room (Part 1) 15:20 min

PROGRAM ^B

Liminal Spaces (re-edited) 18:35 min
360° Film Screening (Part 2) 26:39 min
ALLIANCE ANGEWANDTE / JKU 22:00 min
Future Room (Part 2) 18:35 min

FRI, 11.09.2020, 13:00 – 16:00

13:00 – 14:30 Program A
14.30 – 16:00 Program B

SAT, 12.09.2020, 10:00 – 21:00

10:00 – 11:30 Program A
11:30 – 13:00 Program B
14:00 – 15:30 Program A
15:30 – 17:00 Program B
18:00 – 19:30 Program A
19:30 – 21:00 Program B

SUN, 13.09.2020, 10:00 – 13:00

10:00 – 11:30 Program A
11:30 – 13:00 Program B

Protective measures against COVID-19

Maintain at least 1 metre distance between yourself and all other persons. The use of a face mask or covering is mandatory in the fulldome environment.

In order to assure a fulldome experience in accordance with the current COVID-19 regulations, the screenings (360° Film Screening) and pieces (Future Room) with a longer duration were divided into two parts. For details regarding the presentations, please consult the relevant pages in this folder.

ALLIANCE ANGEWANDTE / JKU A B

Collaborative projects

2020, 22:00 min

This program section introduces three interdisciplinary collaborative Art and Science projects specifically designed for the fulldome environment dealing with the phenomena of sound perception, artificial intelligence, and human anatomy.



site-inflexion

Multisensory environment

2020, 11:20 min

The immersive installation site-inflexion invites visitors to take part in a site-specific virtual and acoustic journey. The scenery and soundscapes of the JKU campus are the main actors in the work, alluding to Johannes Kepler's activity as a landscape mathematician. A laser-scanned topographic survey of Kepler's gardens becomes an audio-visual environment transfigured by the everyday sounds that inhabit them. Oscillating between urban pollution and phantasmagoria, structures and lawns bend and curve under the effect of sound waves, reaching their inflection point by tipping towards the unknown. In site-inflexion, acoustic parameters manifest in visual distortions, allowing users to experience the spatiality of sound through a multisensory perception of our (urban) environment. A tangible 360° composition that reveals the inextricable interconnectedness of space and sound.



Cross Perception

A work in progress

2020, 6:20 min

In a limitless space, everything is in motion – light, shapes, and colours. Human and machine let their sight wander and try to recognize something. The human beings search for orientation; the device calculates, optimized for this purpose and fed with data. The machine's detections alter the soundscape, distorting human perception. The machine is not always right; its pool of experience is limited. In this experimental set-up, we create an interplay of machine and human perception to make the machine's algorithmic bias tangible to the viewer.

site-inflexion and Cross Perception are collaborative Art and Science projects between the University of Applied Arts Vienna (Angewandte) and Johannes Kepler University Linz.

Virtual Anatomy

Multisensory environment

2020, 5:20 min

Johannes Kepler University Linz is currently building the JKU medSPACE, a future-oriented multi-purpose learning space in the Faculty of Medicine's new education and research building. Scheduled to open in 2021, it will not only be a virtual lecture hall for anatomy courses but will also provide live surgery broadcasts. The JKU medSPACE is modelled after the Ars Electronica Centre's Deep Space 8K. The Virtual Anatomy room will show high-quality visualizations of medical information such as MRIs and CT scans for educational and training purposes. This groundbreaking environment will also be available for mediation and interaction purposes.

Virtual Anatomy is a joint research project between Johannes Kepler University, Ars Electronica Futurelab, and Siemens Healthineers. The fulldome video version was realized in collaboration with the immersify.eu project.

FUTURE ROOM A B

Immersive fulldome installation

2017, A: 15:20 min / B: 18:35 min

"The future is what we make of it! We cannot foresee the future, but we can shape it."

Following up on this maxim, the Future Room is a virtual knowledge space that shows us imagined futures, providing thought, questions, and visions of the ongoing transformation of our society.

Metaphor for a predicting machine, the work takes the form of fourteen clouds of information visualized in an immersive dome environment, dealing with: Artificial Intelligence, Education, Energy, Evolution, Finance, Genome Editing/Crispr, Information, Quantum Physics, Migration, Politics, Religion, Urbanization, and Work. Visitors choose themes in immersive capsules of point clouds, an effusion of letters, and Google-Earth-type images that represent the hyper-cities of tomorrow, each capsule offering an interpretation of the possible faces of the future. An allegorical world in mutation, split between utopia and dystopia.





LIMINAL SPACES (RE-EDITED) ^(A) ^(B)

Immersive fulldome installation

2015/20, 18:35 min

Liminal Spaces attempts to capture multiple heterogeneous forms of presences generated by the digital culture while critiquing the intrinsic homogeneity that emerges through processes of surveillance and control. It interrogates the language of the fulldome as a creative environment in its own right, creating the possibility of a rich experience of audience participation.

In Liminal Spaces, the dome-space is explored as a meeting place between real and virtual, intimacy and conspiracy. The immersive environments change from an endless labyrinth to a dizzying baroque landscape amid mysterious voices whispering about the N.S.A. At the limit of the palpable, the layers of interactivity, image, sound, and text transform the dome-skin into a liminal membrane between inside and outside. A dreamlike world where visitors find themselves at the heart of a surveillance apparatus that is both playful and potentially totalitarian.

Specially re-edited for Ars Electronica 2020, the original version of Liminal Spaces was an interactive event involving live performers and audience participation.

360° FILM SCREENING ^(A) ^(B)

3D animations and short films

2012–2020, A: 25:17 min / B: 26:39 min

The 360° Film Screening section presents a selection of animations and short films by researchers, teachers, and students, revealing the artistic potential of the fulldome. Most of the works were produced in collaboration with the Fulldome / VR & AR Lab.



Roman Hansi

ODE 0.9.2.D

Video

2016

3:57 min

^(A)

ODE 0.9.2.D, a short film shot with a self-developing 360°-angle underwater camera, deals with refugee issues. Sound design: Josch Russo.



Peter Várnai

Technically Everything

Fulldome video

3D animation

2018

2:34 min

^(A)

Gigantic arms roam above our heads, spreading receivers. Humanized robot hands recklessly place antennas on the environment, on buildings, on the places where we live and work, beyond our control.



Martin Reinhart

Virgil Widrich

tx-reverse 360°

Short film

2019

5:42 min

^(A)

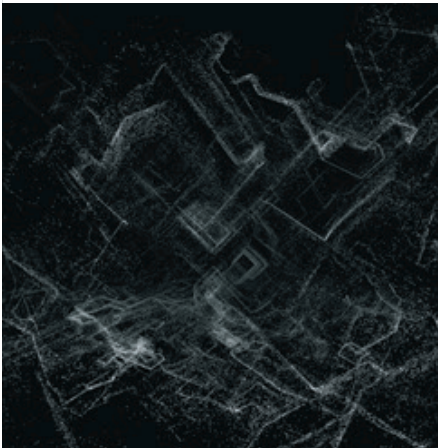
What previously-unseen world will arise when space and time are switched, this time in a 360° cinema? Produced by Virgil Widrich Film- und Multimediaproduktions G.m.b.H. in cooperation with the ZKM | Center for Art and Media Karlsruhe.



Stefan Krische
Szenen am Strand
360° fulldome animation
 2018
 4:52 min

A

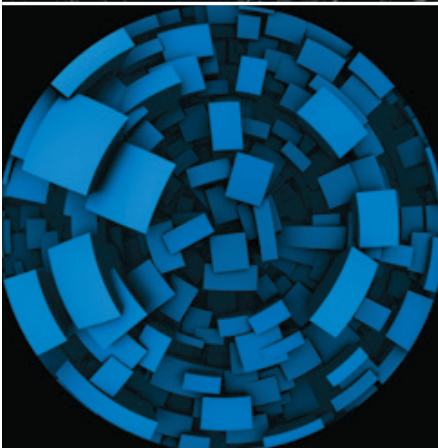
Szenen am Strand is an animation conceived for the fulldome that deals with the beach as a place that bears specific traces and signs of events, practices, and controversial conditions with global effects.



MONOCOLOR
Transient Topologies
Audio-visual fulldome composition
 2020
 7:12 min

A

In Transient Topologies, virtual audio-visual entities create fleeting structures in sound and image through their constantly changing relationships to each another. These structures oscillate between form and surface.

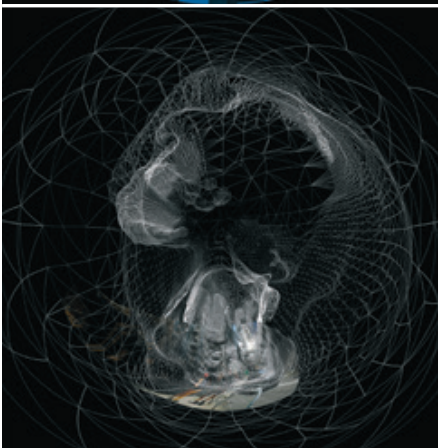


kondition pluriel
Inner Voices
Digital fulldome film
 2012
 14:45 min

B

Playing with perceptual games and optical illusions, the 3-D landscapes of Inner Voices, inspired by atmospheres close to those of David Lynch and Sarah Kane, are subject to perpetual mutations by female voices.

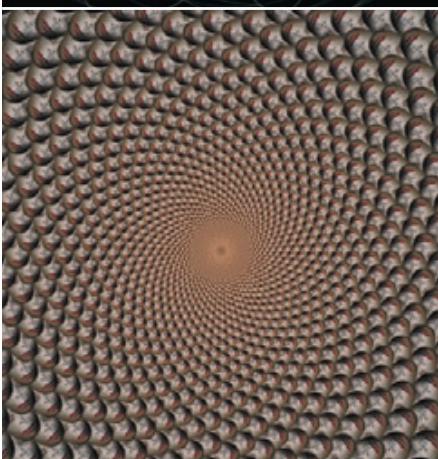
Awarded for Most Remarkable Visualization at the Fulldome Festival Jena in Germany, for its "integration of subconscious and emotional worlds in a domic visualization."



Thomas Hochwallner
periods of space
Animation
 2015
 2:57 min

B

The work employs 3D interpretations of captured environments to merge different layers of time and perspective in 3D space. A pulsating interplay between alienation and the search for structure.



Patrick K.-H.
Phase-to-face
Fulldome video/ sound installation
 2018
 8:57 min

B

In the audiovisual installation Phase-to-face, a work inspired by fractal structures, observers are immersed in a morphing fractal image and enter into an almost hypnotic state.



Fulldome / VR & AR Lab

Inaugurated in 2013, the Fulldome / VR & AR Lab at the Department of Digital Arts at the University of Applied Arts Vienna (Angewandte) directs and participates in an ensemble of artistic research projects, with a particular focus on new digital applications for fulldome, virtual reality, and augmented reality environments. Blurring the boundary between physical and virtual worlds and allowing users to experience a sense of immersion, these media environments have become increasingly pervasive. Questions and experiments on holistic audio-visual spatial experiences and on topics that are decisive for the future development of our society are central themes of the research lab.

Since the Fulldome / VR & AR Lab began, students, teachers, and researchers from several disciplines have benefitted from the interdisciplinary exchange and knowledge sharing around these new methods of capturing, synthesizing, and re-visioning our world. The dome installed at Ars Electronica is part of the lab's infrastructure.

Production Linz

Direction and artistic programming: Martin Kusch

Technical Engineering and programming: Johannes Hucek

Media production: Marian Essl, Jakob Hütter, Johannes Hucek, Martin Kusch

Technical production: Chris Eichenauer (Proper & Partners)

Dome construction: Krzysztof Wołoszyn (Freedomes)

Sound engineering: David Hucek

PROJECT CREDITS

Unless credited otherwise the pieces shown in the Immersive Fields program were produced and realized at the Fulldome / VR & AR Lab, DIGITAL ARTS Dept., University of Applied Arts Vienna (Angewandte).

Head department: Ruth Schnell; Fulldome Lab director: Martin Kusch; Fulldome Lab assistant: Johannes Hucek.

Cooperative projects: site-inflexion and Cross Perception are part of TRANSFORM, a collaborative project between the Angewandte, Johannes Kepler University (JKU Linz), and Danube University Krems funded by the Austrian Federal Ministry of Education, Science, and Research.

Participants/collaborators in site-inflexion: Marian Essl, Jakob Hütter, Johannes Hucek, Martin Kusch, Marie-Claude Poulin, and Jakob Schauer (DIGITAL ARTS Dept., Angewandte); Andreas Brandl, Alexander Humer, and Astrid Pechstein (Institute of Technical Mechanics, JKU Linz).

Participants/collaborators in Cross Perception: Kathrin Hunze, Thomas Hack; Silvan David Peter, and Jan Schlüter (Institute of Computational Perception, JKU Linz); Christine Böhler and Martin Gasser (Dept. of Cross-Disciplinary Strategies, Angewandte).

Virtual Anatomy is a joint research project between JKU Linz, Ars Electronica Futurelab, and Siemens Healthineers. The dome video version was realized in collaboration with the immersify.eu project. This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement no. 762079.

Future Room: The Future Room was created in collaboration with kondition pluriel in the framework of the HRSM project, Socially Aligned Visual Art Technology and Perception (SAVATAP). Concept and idea: Gerald Bast, Martin Kusch, Ruth Schnell, and Peter Weibel; artistic concept and realization: Martin Kusch and Ruth Schnell.

SAVATAP is a cooperative project between the Angewandte (Gerald Bast, and from the DIGITAL ARTS Dept., Ruth Schnell and Martin Kusch), the University of Vienna's Dept. of Basic Psychological Research and Research Methods (Helmut Leder), and the Austrian Research Institute for Artificial Intelligence (Robert Trappl). Funded by the bmbwf.

Liminal Spaces (re-edited): Liminal Spaces was created in a collaboration between the DIGITAL ARTS Dept., kondition pluriel and the Trans-Media-Akademie Hellerau, Dresden, within the framework of EMDL – European Mobile Dome Lab for Artistic Research, an international

cooperation project funded by the European Union Culture Program 2007-2013. Participants: David Campbell, Carla Chan, Matthias Härtig, Johannes Hucek, Martin Kusch, Marilou Lépine, Armando Menicacci, Marie-Claude Poulin, Audrey Rochette, Ruth Schnell, Alexandre St-Onge, and Nikola Tasic.

Other ongoing projects involving the Fulldome / VR & AR Lab:

Spot On MozART, with Mozarteum Salzburg; Le-Fo project with the Dept. of Interface Cultures at the University of Art and Design Linz, and Danube University Krems. Both projects are funded by bmbwf.

This program presentation is part of TRANSFORM, a collaboration between the Angewandte, Vienna, Johannes Kepler University Linz, and Danube University Krems.

The Fulldome infrastructure is realized within SAVATAP, the cooperative project between the Angewandte, the University of Vienna and the Austrian Research Institute for Artificial Intelligence, both of which are funded by the bmbwf.

Fulldome / VR & AR Lab IMMERSIVE FIELDS

11.09. – 13.09.2020

Installations and films

Future Room

Liminal Spaces

360° Film Screening

Collaborations

site-inflexion

Cross Perception

Virtual Anatomy

Venue

Ars Electronica 2020

JKU Campus

Altenbergerstraße 69

4040 Linz

Dates and times

Fri, 11.09.2020, 13:00 – 16:00

Sat, 12.09.2020, 10:00 – 21:00

Sun, 13.09.2020, 10:00 – 13:00

(see program schedule for details)

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