



Annual Report

2021

EPFL
Pavilions

Amplifier for Art,
Science and Society

Lausanne



Replica / Real / Replica, 2021, ScanLAB Projects,
Deep Fakes: Art and Its Double, Photo: Alain Herzog



Otto, 2015, Jürg Lehni, Nature of Robotics: An Expanded Field, Photo: Alain Herzog

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1 Introduction



The Abbey St Michel Bamberg, 2021, Bauhaus-Universität Weimar, ArcTron3D & Consensive with Digital Projection, Deep Fakes: Art and Its Double, Photo: Alain Herzog

Despite the uncertainty caused by the COVID-19 pandemic, 2021 is the year in which EPFL Pavilions bloomed. Taking advantage of the lockdown period to refine its transformation, in spring 2021 ArtLab reopened its doors as EPFL Pavilions, with each of its three spaces being clearly identified as Pavilion A, B and C. The first exhibition to welcome the public was the ground-breaking *Nature of Robotics: An Expanded Field*. A range of installations from the *Nature of Robotics* were subsequently presented in the framework of Stuttgart's House of Switzerland under the title of *New Science of Robotics*, before being featured in the experimental exhibition *BioMedia: The Age of Media with Life-like Behavior* at the ZKM Center for Art and Media, Karlsruhe, Germany.

From March to July 2021, Pavilion A was buzzing with activity. It hosted *Babylonian Visions*, a project by 2019 artist-in-residence Nora al Badri, as well as *Watt is Art* – a collaboration between Be-Smart and the European Union, then *Defying Gravity* – the result of a collaboration between CDH Culture and the Asclepios Student Association, and lastly *Technorama@EPFL* which arose from a EPFL and Technorama (Winterthur) partnership.

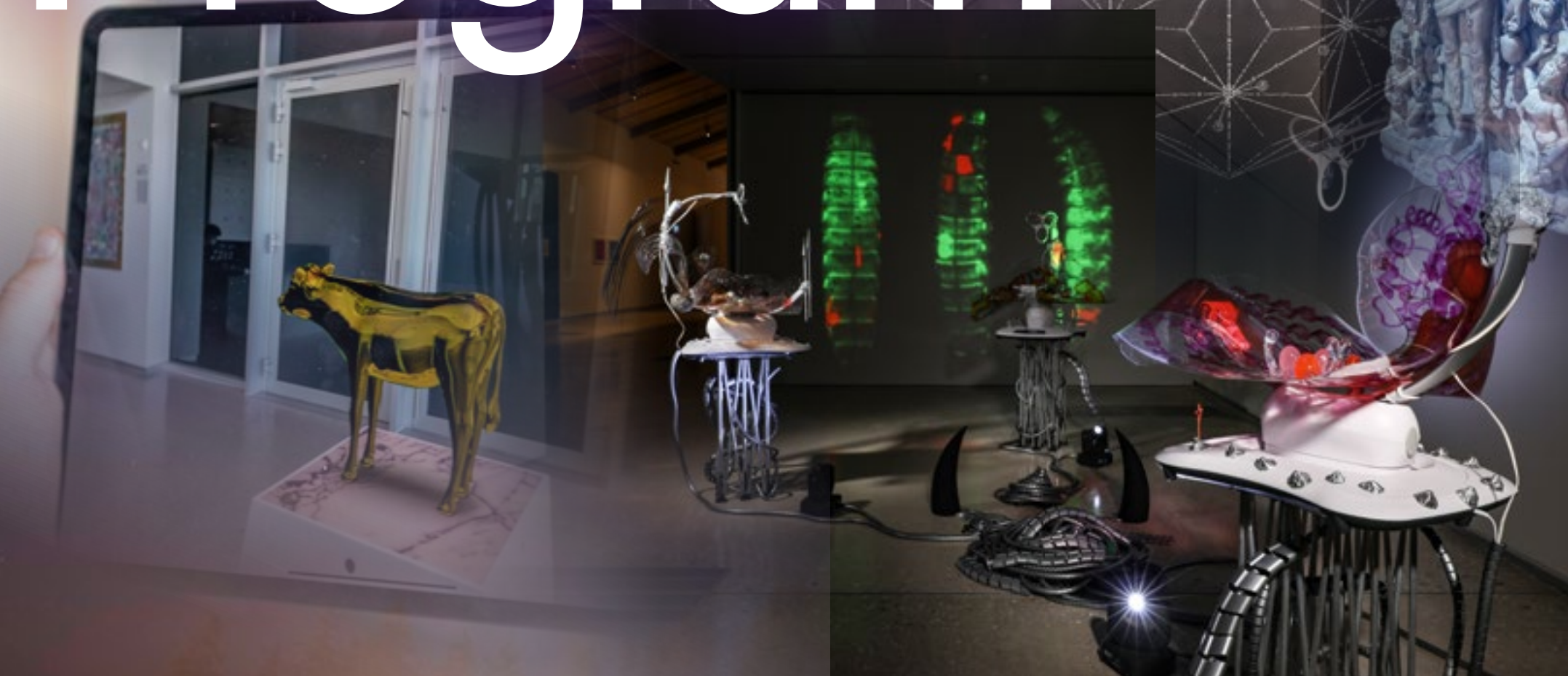
September was a month of celebration, marked by the return to a certain normality and the launch of the flagship exhibition *Deep Fakes: Art and Its Double*. This project laid the foundation for the new concept of cultural deep fakes. Spread over more than one thousand square metres, the exhibition featured 21 installations, almost half of which were world premieres. Due to popular demand and sold out VIP tours, this exhibition was extended by five months, to May 2022.

In addition to on-site activities at EPFL Pavilions, the development and launch of our new website has made it possible to host the digital version of each of our major exhibitions as well as online events, such as discussions with contributing artists and scientists. This core content is also permanently stored and accessible in our online archive.

Remarkably, and for the first time, EPFL Pavilions presented a 100-percent virtual exhibition in partnership with the Ludwig Museum in Budapest and the ZKM Karlsruhe, as part of the international project *Beyond Matter*. “Spatial Affairs. Worlding”, the digital counterpart of the exhibition *Spatial Affairs*, is a multi-user exploratory environment in which virtual works of art coexist with avatars of visitors, all sculpted in the same digital fabric.

Last but not least, 2021 was an important time to reshape and launch the first international call for the new EPFL-CDH artist-in-residence program, renamed “Enter the Hyper-scientific” and amplified by EPFL Pavilions.

2021 Program



and
Activities

2 Large exhibitions and associated programs – Pavilion B

2.1 Nature of Robotics: An Expanded Field

Exhibition
11.12.2020 – 16.5.2021

Curator: Dr. Giulia Bini



Nature of Robotics: An Expanded Field aimed to encourage reflection on emerging perspectives and scenarios in the field of robotics, framing robotics in environment-related thinking. The premise of the exhibition was to offer an unconventional perspective on this rapidly expanding field and to extend its understanding to broader notions situated at the frontier between science and the visual arts. Modular, reconfigurable, soft, micro and bio robotics were manifested in emerging scenarios of a discipline facing constant renewal.

Nature of Robotics revealed how technological advancements and developments are structurally dependent on a process of investigation and learning through “observation” of the natural world. Visions emerging from EPFL laboratories were juxtaposed with speculative creatures, drawings, diagrams, and videos produced by contemporary artists. Opening a realm of speculation common to scientific and artistic research, the exhibition investigated the interdisciplinary concerns of robotics today, as well as its impact on society and environment. Cautious observers and inventive creators, artists and scientists explored the complexities of our environments, magnifying our observation, knowledge and our imagination of past and future hybrid ecosystems.

Contributing EPFL laboratories included:

- EPFL Biorobotics Laboratory
- EPFL Soft Transducers Laboratory
- EPFL MicroBioRobotic Systems Laboratory
- EPFL Reconfigurable Robotics Laboratory

This project was developed in collaboration with the National Centre of Competence in Research (NCCR) Robotics, under the Swiss National Science Foundation, and supported by Pro Helvetia.

Contributing artists:

- Haseeb Ahmed (new commission)
- Claudia Comte
- Alexandra Daisy Ginsberg
- Agnes Denes
- Melissa Dubbin & Aaron S. Davidson (new commission EPFL CDH AiR)
- Urs Fischer
- Jürg Lehn
- Basim Magdy
- Adrien Missika
- Katja Novitskova
- Trevor Paglen
- Léa Pereyre & PATHOS
- Jean Tinguely
- Suzanne Treister

In conversation

To deepen our dialogues with the artists and scientists contributing to our major shows, in 2021 EPFL Pavilions launched “In Conversation”, an online video discussion series.

Nature of Robotics: In Conversation unfolded over four weeks in June and July 2021. In all, four discussions were broadcast with the artists and scientists who took part in the exhibition.

- Episode 1 – *Gravity and its Loss* with Basim Magdy
▶ go.epfl.ch/NoR_Conv_Magdy

- Episode 2 – *Geological Time / Phenomenology of Landscapes* with Haseeb Ahmed
▶ go.epfl.ch/NoR_Conv_Ahmed

- Episode 3 – *The Spell of a Soft Manta* with Melissa Dubbin, Aaron S. Davidson, Prof. Auke Ijspeert and Jonathan Arreguit
▶ go.epfl.ch/NoR_Conv_DubbinDavidsonIjspeert

- Episode 4 – *On Design, Environments, Space Exploration and Colonisation* with Alexandra Daisy Ginsberg and Prof. Jamie Paik
▶ go.epfl.ch/NoR_Conv_GinsbergPaik



Pattern of Activation, 2017, Katja Novitskova, *Nature of Robotics: An Expanded Field*, Photo: Alain Herzog



Regarde Les Mouches Voler, 2012, Adrien Missika, *Nature of Robotics: An Expanded Field*, Photo: Alain Herzog

Maybe, 2019, Urs Fischer, *Nature of Robotics: An Expanded Field*, Photo: Alain Herzog

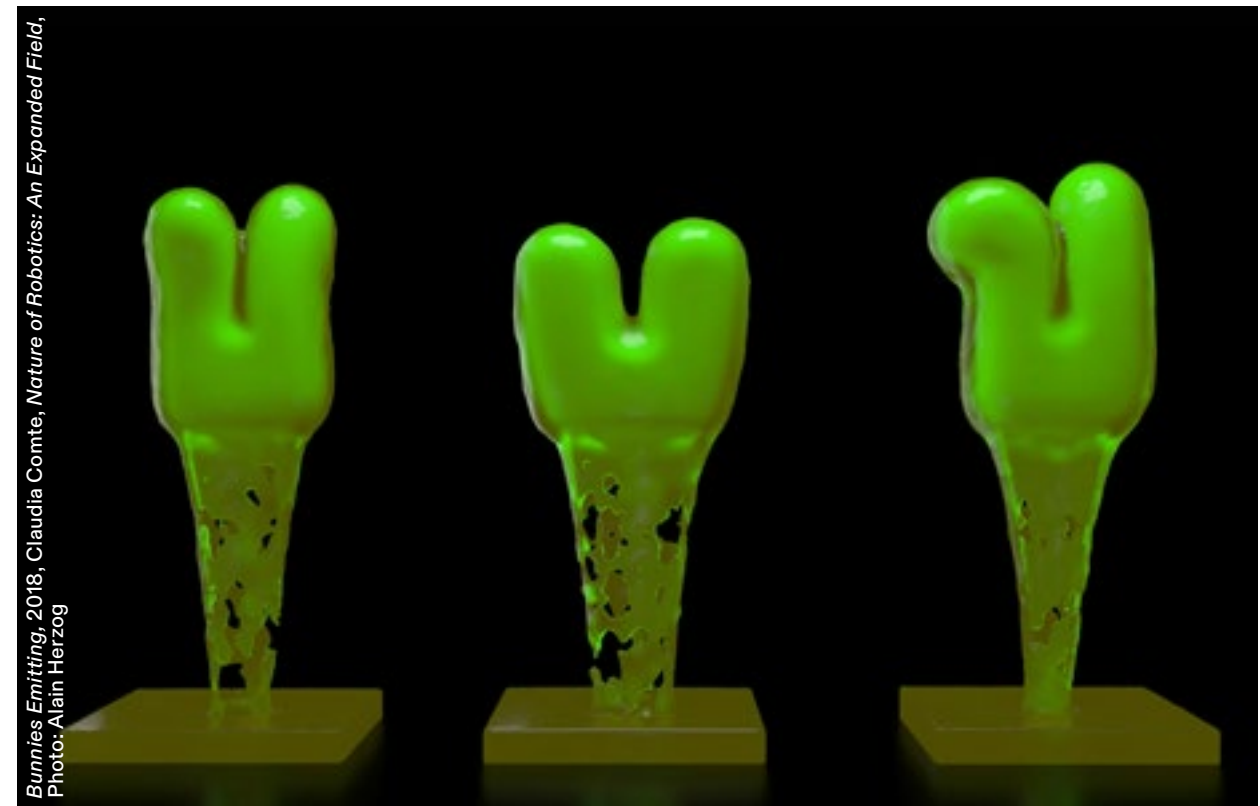


Traveling installations

New Science of Robotics House of Switzerland, Stuttgart 1.7. – 30.10.2021

A selected list of scientific and artistic exhibits from the *Nature of Robotics* exhibition was presented in Stuttgart in the framework of the House of Switzerland, organised by Presence Switzerland, the unit of the Federal Department of Foreign Affairs in charge of promoting Switzerland's image abroad. The exhibition was re-named *New Science of Robotics* and featured works by Jürg Lehni, Léa Pereyre & PATHOS, Melissa Dubbin & Aaron S. Davidson, as well as EPFL Scientific display.

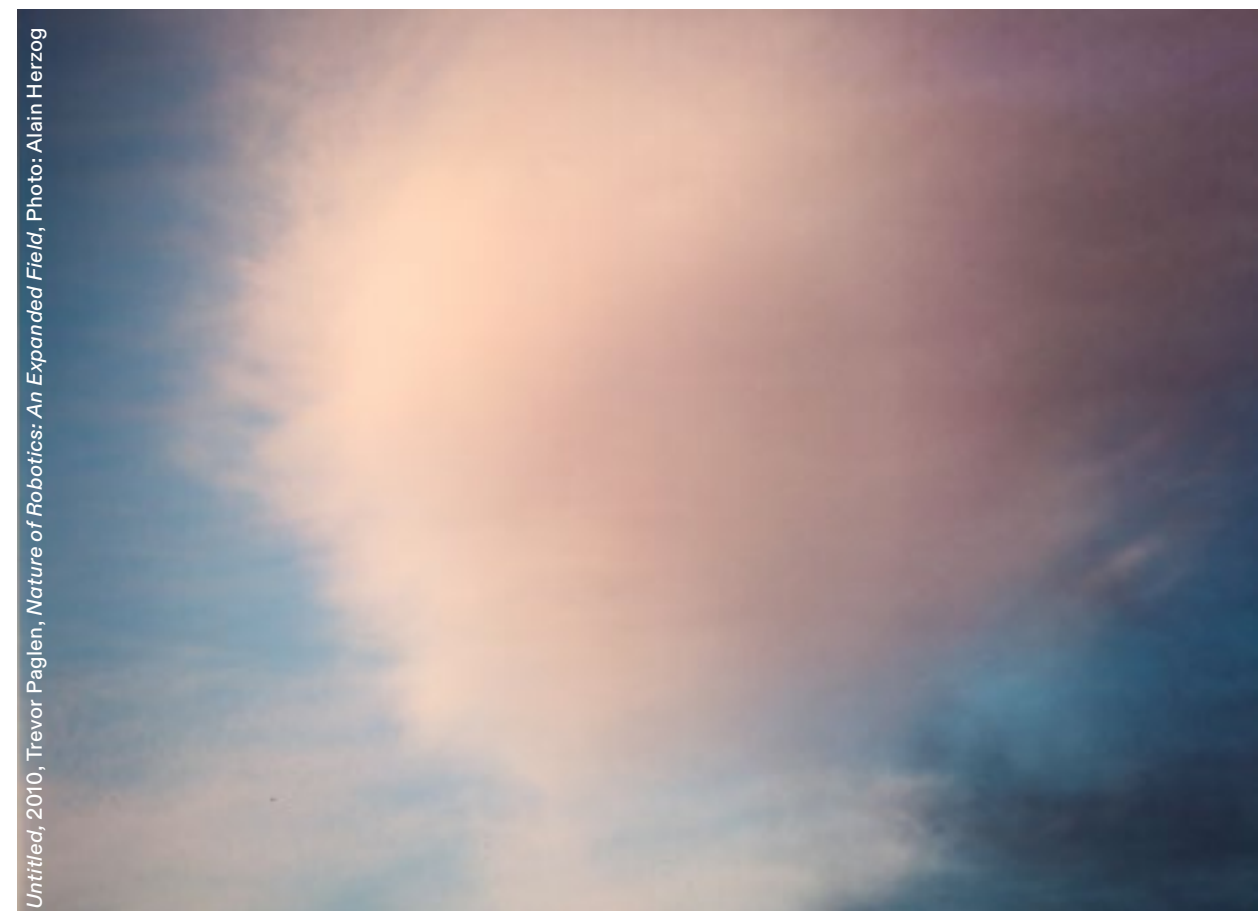
► go.epfl.ch/NoR_Stuttgart



BioMedia: The Age of Media with Life-like Behavior ZKM | Center for Art and Media Karlsruhe 4.12.2021 – 28.8.2022

The work of Melissa Dubbin & Aaron S. Davidson, produced for the *Nature of Robotics* and the EPFL Scientific display was featured in the exhibition *BioMedia: The Age of Media with Life-like Behavior* at the ZKM Center for Art and Media, Karlsruhe.

► go.epfl.ch/NoR_Karlsruhe



2.2 Deep Fakes: Art and Its Double

Exhibition
17.9.2021–2.5.2022

Curator: Prof. Sarah Kenderdine

Few fields of knowledge denounce copies as 'fake' more than those of art history. Few are as concerned with the authenticity and provenance of objects as those of curating and collecting. In response, *Deep Fakes: Art and Its Double* poses crucial questions about the potency of digital replicas to absorb audiences in enduring emotional encounters with universal art treasures.

Through 21 installations across Pavilions A and B, *Deep Fakes: Art and Its Double* engaged with the applied and critical implications of digital materialities and their dual power to entangle and emancipate cultural heritage objects. The ongoing global pandemic starkly focused the use of the digital as a mechanism for shared cultural futures and as a result the digital object has taken on new and powerful potencies. Simultaneously, in cases of heritage at risk due to warfare, iconoclasm and climate induced catastrophes, digital copies have enabled communities to become more resilient to loss. They can also provide reservoirs of cultural memory and instruments for those on the margins to "speak back" to their oppressors.

On 16 September the exhibition launch event welcomed as speakers two internationally renowned figures: Mrs Irina Bokova, former Director General UNESCO, and Mr Michel Al-Maqdissi, researcher in the Department of Oriental Antiquities, Musée du Louvre, France, and former Director of Archaeological Studies and Excavations, Directorate-General for Antiquities and Museums, Syria.



A collaboration with UNIL and EPFL, the exhibition was generously supported with substantial philanthropic donations from many institutions and foundations, including:

EPFL, Loterie Romande, Office Fédéral de la Culture, Fondation pour l'Université de Lausanne, Société académique vaudoise, Fondation Leenaards, UBS Culture Foundation, SICPA

Contributing artists:

- Oliver Laric
 - Jeffrey Shaw
 - Sarah Kenderdine
 - Pablo Picasso
 - Andrew Yip
 - Eve Sussman
 - Alex Segre
 - Bernd Lintermann
 - Florian Hertweck
 - Christian Mio Loclair
 - Terry Kilby
-

Exhibition Partners:

- Laboratory for Experimental Museology (eM+), EPFL
 - Association Paul Collart au Proche-Orient, University of Lausanne
-

Technology Partners:

- Laboratory for Experimental Museology (eM+), EPFL
 - CultLab3D, Fraunhofer IGD, Germany
 - Digital Projection Ltd, United Kingdom
-

Scientific Partners:

- AITReC, Japan
- ArcTron 3D, Germany
- ALIPH, Switzerland
- Art Gallery of New South Wales, Australia
- ARTMYN, Switzerland
- Association Paul Collart au Proche-Orient, University of Lausanne, Switzerland
- Australian Research Council
- Bauhaus-Universität Weimar, Germany
- Centre for Chinese Ritual Studies, Tsinghua University, Mainland China
- Consensive, Germany
- CultLab3D, Fraunhofer IGD, Germany
- Dunhuang Academy, Mainland China
- Dunhuang Foundation, Hong Kong
- Egyptian Ministry of Culture, Egypt
- Laboratory for Experimental Museology (eM+), EPFL, Switzerland
- EPIDEMIC, France
- Factum Foundation, Spain
- ICONEM, France
- Institut d'archéologie et des sciences de l'antiquité, University of Lausanne, Switzerland
- Institut du monde arabe, France
- Kongo-ji Temple, Japan
- Parco Archeologico di Pompei, Italy
- Phase One, Denmark
- Polytechnic University of Turin, Italy
- QoQa, Switzerland
- Rufus Foundation, United States
- Sabancı University, Turkey
- Samurai Art Museum, Germany
- ScanLAB, United Kingdom
- Sir John Soana's House, United Kingdom
- Snark.art, United States
- Supreme Council of Antiquities of Egypt, Ministry of Tourism and Antiquities, Egypt
- Ubisoft, France
- UNESCO, France
- University of Cambridge, United Kingdom
- University of New South Wales, Australia
- UNOSAT, United Nations
- Satellite Centre, Switzerland
- Victoria & Albert Museum, United Kingdom
- Wunderman Thompson, The Netherlands



Helin, 2019, Christian Mio Lo Clair, Deep Fakes:
Art and Its Double, Photo: Alain Herzog

In conversation

- Episode 1 – *On GANs, Artificial Intelligence Art, Deepfakes, and the Metaverse*, with Christian Mio Loclair
▶ go.epfl.ch/DF_Conv_Loclair
- Episode 2 – *On contemporary cultural heritage, drones, 3D photogrammetry, and the metaverse*, with Terry Kilby
▶ go.epfl.ch/DF_Conv_Kilby
- Episode 3 – *On cultural heritage, the importance of digitizing our history, Palmyra, Syria, 3D photogrammetry, and archeology*, with Patrick Michel
▶ go.epfl.ch/DF_Conv_Michel
- Episode 4 – *On new media art, religious icons re-living through augmented reality, Mogao caves, and hope in COVID times*, with Jeffrey Shaw
▶ go.epfl.ch/DF_Conv_Shaw

Further episodes followed in 2022, to be included in the 2022 annual report.



Open Air cinema

16.9. – 25.9.2021

To celebrate the opening of *Deep Fakes: Art and Its Double*, EPFL Pavilions co-curated a series of films projected on a giant inflatable screen in the forecourt of EPFL Pavilions. Each film was linked to the topic in a program, curated in collaboration with Richard Castelli of EPIDEMIC and GIFF (Geneva International Film Festival), as well as Ecrans Urbains.

Films screened included:

- *Real Snow White*, 2009, Pilvi Takala
- *The Real Thing*, 2018, Benoit Felici
- *The Congress*, 2013, Ari Folman
- *The Centrifuge Brain Project*, 2011, Till Nowak
- *Between Nature and Technology*, 2019, Shiro Takatani
- *The Challenge*, 2017, Yuri Ancarani
- *A Machine To Live In*, 2020, Yoni Goldstein and Meredith Zielke
- *Sexmission*, 1984, Juliusz Machulski



Professional workshops

16.11. – 19.11.2021

In conjunction with the exhibition *Deep Fakes: Art and Its Double* at EPFL Pavilions, the College of Humanities and Digital Humanities Institute (DHI) proposed a series of intensive workshops in three sessions, from Tuesday 16 to Friday 19 November. The workshops included a guided tour of the exhibition by its curator Sarah Kenderdine, as well as a presentation of the CultArm3D robotic scanning system by its creators from Fraunhofer Institute for Computer Graphics Research in Darmstadt, Germany.

As part of its strategy to expand its cultural heritage digitization centre, the DHI at EPFL have acquired the CultArm3D scanner, a 3D digitization system for cultural heritage artefacts at super high resolutions. This automatic robotic 3D image acquisition technology, developed by Fraunhofer Institute for Computer Graphics Research IGD, offers repeatable high quality digitization of objects while ensuring object safety. The scanner uses photogrammetry and combines intelligent view planning with colour-faithful capture of arbitrary objects that have challenging surface materials. This system efficiently produces virtual replicas of objects at the highest possible fidelity and thus enables the efficient digitization of entire collections in 3D.



CultArm3D, 2021, CultLab3D, *Deep Fakes: Art and Its Double*,
Photo: Catherine Leutenegger

The following institutions attended to these workshops:

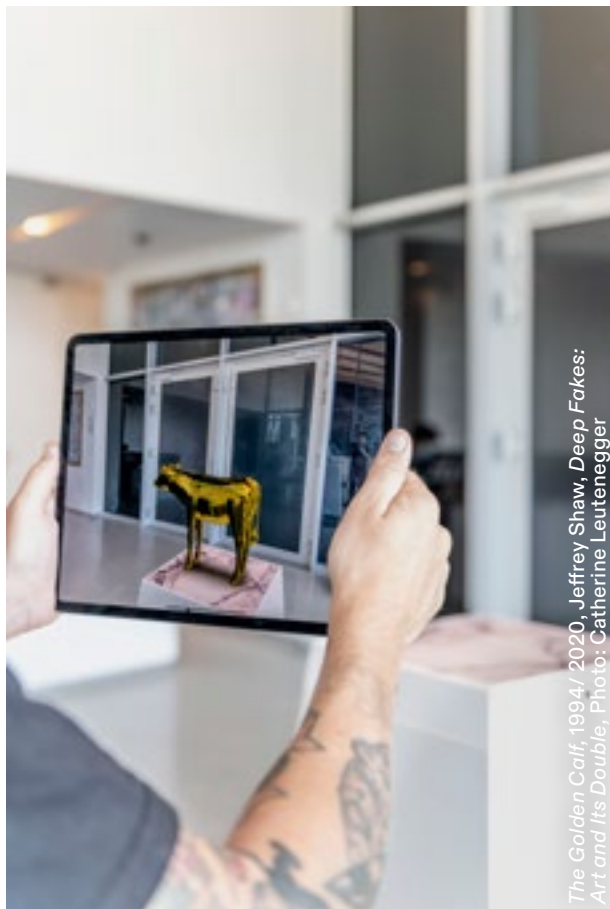
- Museum für Gestaltung Zürich, Zürich
- Musées cantonaux du Valais, Valais
- Augusta Raurica, Basel
- Museum Rietberg, Zürich
- Musée d'Estavayer-le-Lac et ses grenouilles, Fribourg
- UN Geneva Visitors' Services, Genève
- Muséum d'histoire naturelle de Neuchâtel, Neuchâtel
- Conservatoire et Jardin botaniques, Genève
- Musée d'ethnographie de Genève, Genève
- Stadtmuseum Aarau, Aargau
- HEK – Haus der elektronischen Künste Basel, Basel
- Schweizerisches Nationalmuseum – Landesmuseum Zürich, Zürich
- Zoologisches Museum der Universität Zürich, Zürich
- Portail des Nations, Genève
- The Olympic Museum, Vaud
- Musée International de la croix-rouge et du croissant-rouge, Genève
- Musée national suisse – Château de Prangins, Vaud
- Museum für Kommunikation, Bern
- Regionalmuseum Chüeclihus, Langnau, Bern
- Château de Grandson, Vaud
- Kunstmuseum Basel, Basel
- Cahiers d'Art Institute
- Ahrenberg Foundation
- R. Geigy-Foundation
- Institute for Urban Futures
- Urban Complexity Lab, Potsdam
- So Real
- Uzufly
- Musée d'Histoire des Sciences, Genève
- LHTC-EPFLCHC-EPFL
- DHLAB-EPFL
- LHTC-EPFL

Organised in conjunction with eM+ Laboratory, these workshops were also professional meetings, which reinforced EPFL's commitment to research into digitization for the cultural sector in Switzerland, spawning a range of new relationships with the GLAM sector. Apart from its uses in preservation, conservation and representation of objects, 3D replicas promise to be a crucial means to explore new models of cultural ownership, which we have seen exploding in blockchain and NFT technologies.

Digging Deeper

As part of *Deep Fakes: Art and Its Double*, the Pavilions invited EPFL students to a series of guided tours of the exhibition, followed by discussions on related themes at Satellite Bar. Dates and events included:

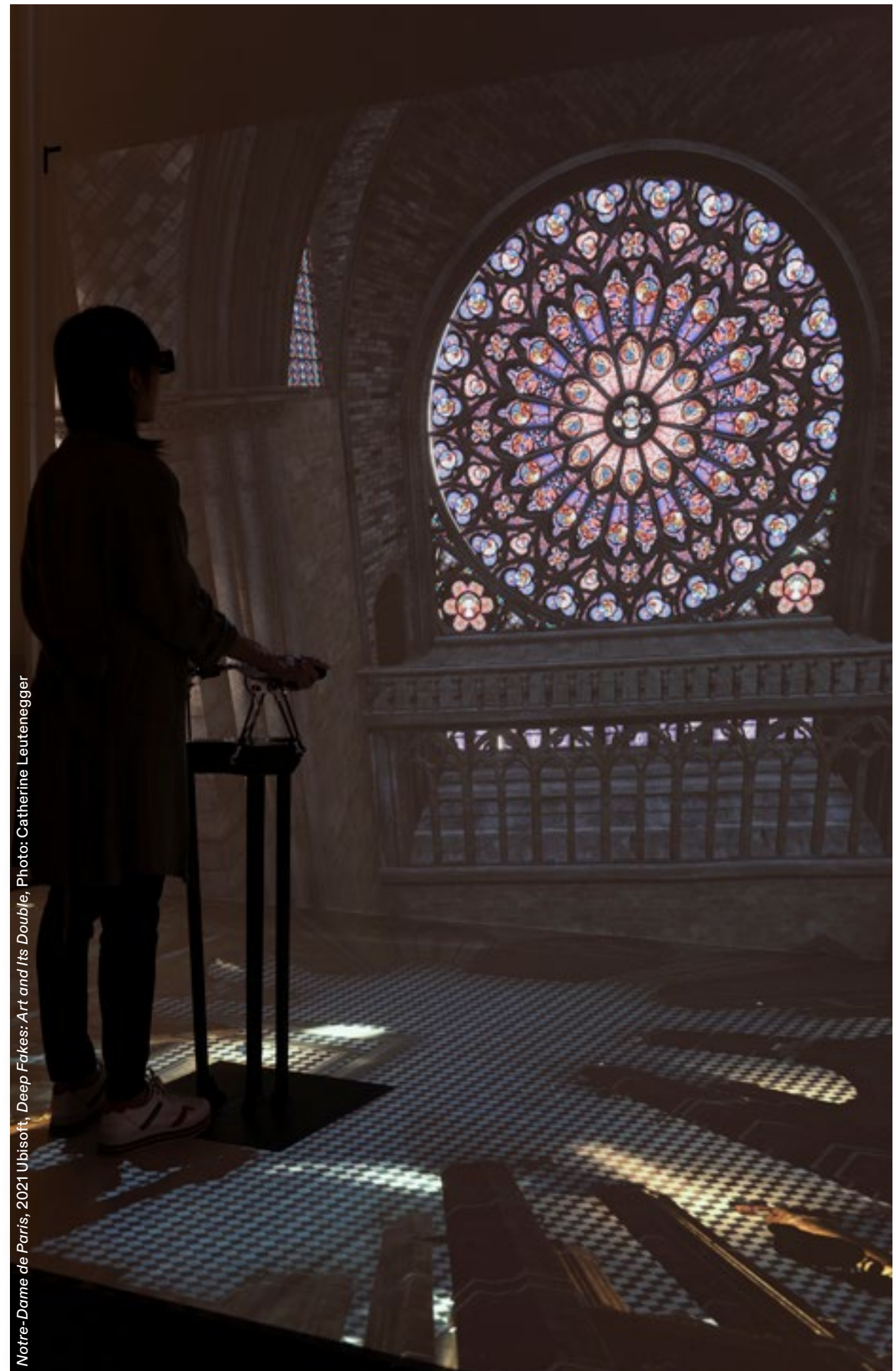
- 19 October 2021:
Art Recognition AG and ArtMyn, with Christiane Hoppe-Oehl of Art Recognition AG, Loïc Baboulaz of ARTMYN
- 9 November 2021:
About art in the digital age, with Nathalie Dietschy, UNIL, Isaac Pante, UNIL
- 14 December 2021:
Innovation by Imitation, with Ion Mihailescu, EPFL, Simon Dumas Primbault, EPFL



The Golden Calf, 1994/2020, Jeffrey Shaw, *Deep Fakes: Art and Its Double*, Photo: Catherine Leutenegger



Speaking Back, 2021, Terry Kilby, *Deep Fakes: Art and Its Double*, Photo: Catherine Leutenegger



Notre-Dame de Paris, 2021 Ubisoft, *Deep Fakes: Art and Its Double*, Photo: Catherine Leutenegger

3 Pop-up exhibitions Pavilion A



3.1 Babylonian Vision

9.3. – 28.3.2021

In 2021, Nora Al-Badri presented *Babylonian Vision* at EPFL Pavilions, the result of her work as CDH / EPFL Pavilions artist-in-Residence during 2020–2021. As part of her project, Al-Badri trained a neural network using GAN technology (General Adversarial Networks) to generate new synthetic Babylonian objects based on ancestral ones, thereby taking back and re-possessing cultural datasets from colonial Western museum collections.

3.2 Watt is art

26.3. – 25.4.2021

Watt is art showcased the groundbreaking work of Compáz and Be-Smart, who were collaborating at the time on a EU research project that aimed to increase the deployment of building-integrated photovoltaics (BIPV) as well as cutting their costs by up to 75 percent by 2030. The project was launched in October 2018 in response to EU regulations that require new buildings to be as close to energy neutral as possible.

Compáz and Be-Smart thus imagined “boldly-artistic multi-functional solar panels” that were intended to bust myths and break through preconceptions associated with what solar panels might do and what they can actually do.

3.3 Defying Gravity

4.5. – 23.5.2021

In May 2021, EPFL Pavilions and CDH Culture presented *Defying Gravity*, an exhibition showcasing the work undertaken as part of the project Asclepios. This project was conceived by the EPFL student association Space@yourService, whose objective is to make space sciences more accessible to the wider public.



3.4 Technorama @EPFL

12.6. – 4.7.2021

From 12 June to 4 July, EPFL Pavilions, Pavilion A hosted a dozen experiments set up by the science center Technorama. This original exhibition was a truly unique opportunity to discover, or rediscover, some of the major scientific principles. The experiments on show included a giant tuning fork to explore sound waves, a range of optical illusions that challenge our visual perception, a series of mechanical gears to test and one of the largest plasma balls in Europe.



4 Online Exhibition

4.1 Spatial Affairs. Worlding

29.4.2021 – 31.8.2023

Curators: Dr. Giulia Bini,
Livia Nolasco-Rózsás

Conceived as part of the exhibition *Spatial Affairs*, presented at the Ludwig Museum of Contemporary Art, Budapest, *Spatial Affairs. Worlding* comprised an exploratory online environment, and a virtual multi-user exhibition populated by crawling artworks, where visitors' avatars coexisted with moving bodies of internet art and browser-based projects.

Designed by post-critical Dutch design studio, The Rodina, *Spatial Affairs. Worlding* was inspired by Konrad Zuse's 1969 theory of "calculating space", which described a universe consisting of an abundance of living and evolving automata, and of discrete computational systems composed of cells that add up to a large self-reproducing cellular automaton. The artworks and visitors that inhabited the virtual world of this exhibition were thus computational, biological, and geological bodies without organs, and the walls and floors were technical beings: everyone and everything being sculpted from the same digital tissue.

Spatial Affairs formed part of the international cooperation project *Beyond Matter: Cultural Heritage on the Verge of Virtual Reality*, in collaboration with the ZKM Center for Art and Media, Karlsruhe, and the Ludwig Museum of Contemporary Art, Budapest, with the contribution of the Aalto University, Helsinki.



Spatial Affairs. Worlding was co-produced by ZKM Karlsruhe and EPFL Pavilions.

Participating artists:

- Morehshin Allahyari
- Petra Cortright
- Louise Drulhe
- Sam Ghantous
- Jodi
- Oliver Laric
- Sam Lavigne & Tega Brain
- Jan Robert Leegte
- Rosa Menkman
- Sascha Pohflepp & Alessia Nigretti & Matthew Lutz
- Rafaël Rozendaal
- Unrated/Besorolás Alatt

Design and Programming: The Rodina

Soundscape: Enrico Boccioletti

► spatialaffairs.epfl-pavilions.ch

5 Onsite Events

5.1 FIFDH-IdM events

11.3.2021

Since the year 2020, EPFL Pavilions has closely collaborated with FIFDH (International Film Festival and Forum on Human Rights) Ingénieur.e.s du Monde (EPFL students association from EPFL) and Prof. Marc Troyanov to propose a projection followed by a panel discussion.

The documentary *Coded bias* brings to light the biases unconsciously hidden in facial recognition programs, particularly against those who do not resemble the white men who originally designed these algorithms. Though seen as an objective, logical and fair tool, algorithms may reproduce biases existing within their respective training data and when unregulated, unchecked or unwanted, it can amplify racism, sexism, ableism and other forms of discrimination. Focusing on the United States, China and London, *Coded bias* exemplifies the power of free will, which includes our right to learn about something, and the right to shut it down.

5.2 Communicating the arts Conference

29.9.2021

After being postponed from 2020 to 2021, due to COVID-19, the 25th CTA Conference in Europe took place in Lausanne from 26 to 29 September 2021. EPFL Pavilions hosted about 50 participants for the Learning Safari on 29 September, with a talk by Prof. Sarah Kenderdine on the theme *muse: the voice of the visitor in place-making*.

This talk firstly touched on the recent history of cultural spaces and events as places of “civic seeing” that continually evolve through participatory practices and visitor agency. The presentation then introduced *Muse: voice of the visitor* to consider how visitor feedback might be harnessed as a fundamental component of co-creating museum experiences. ‘muse’ is a world-first real-time evaluation tool that allows organisations to embody their audiences.

This workshop was partly conducted in the *Deep Fakes: Art and Its Double* exhibition, organised in partnership with Agenda and Plateforme 10, Lausanne.



Behind the Scenes

6 Future Productions

6.1 Cosmos Archaeology: Explorations in Time and Space

16.9.2022–5.2.2023

Curators: Prof. Sarah Kenderdine, Prof. Jean-Paul Kneib

Through a range of artistically inspired installations and visualisations, and the conjoining of art and science, the 2022 *Cosmos Archaeology* exhibition will re-conceptualize the wealth of imaging data captured by from the Hubble Space Telescope as well as other wide-field ground-based telescopes to create a series of installations and artworks on exhibition in EPFL Pavilions in 2022.

A range of immersive experiences will take visitors through space and time across the cosmos, ranging from the Earth environment, the Solar System, exoplanets, nearby stars, the Milky Way spiral and the Local Group, up to the outer edges of the known Universe. Various journeys will transform how we apprehend the hierarchical organisation of our Universe at different scales and through different technologies and ways of seeing.

As of late 2021, at this early stage of research, a number of systems have been chosen for this project, with the intention to develop an interface for science and also for the mass public to comprehend big telescopes datasets. EPFL systems include the Panorama, the Half-Cave and the Full Dome.



6.2 Lighten up: Biology of Time

24.3.2023–30.7.2023

**Curators: Prof. Marilyne Andersen,
Prof. Anna Wirtz-Justice,
Prof. Sarah Kenderdine,
Dr. Giulia Bini**

We live on a rotating planet whose geophysical environment, alternating between day and night and changing day length with seasons, has provided the framework for evolution. All living organisms, from cyanobacteria, fungi and plants to humans have internalised this external light: dark cycles in the form of circadian (circa diem, about a day) rhythms that are optimally prepared for the right behaviour at the right time. Unravelling the secrets of how clock genes tick was awarded a Nobel Prize for Physiology or Medicine in 2017.

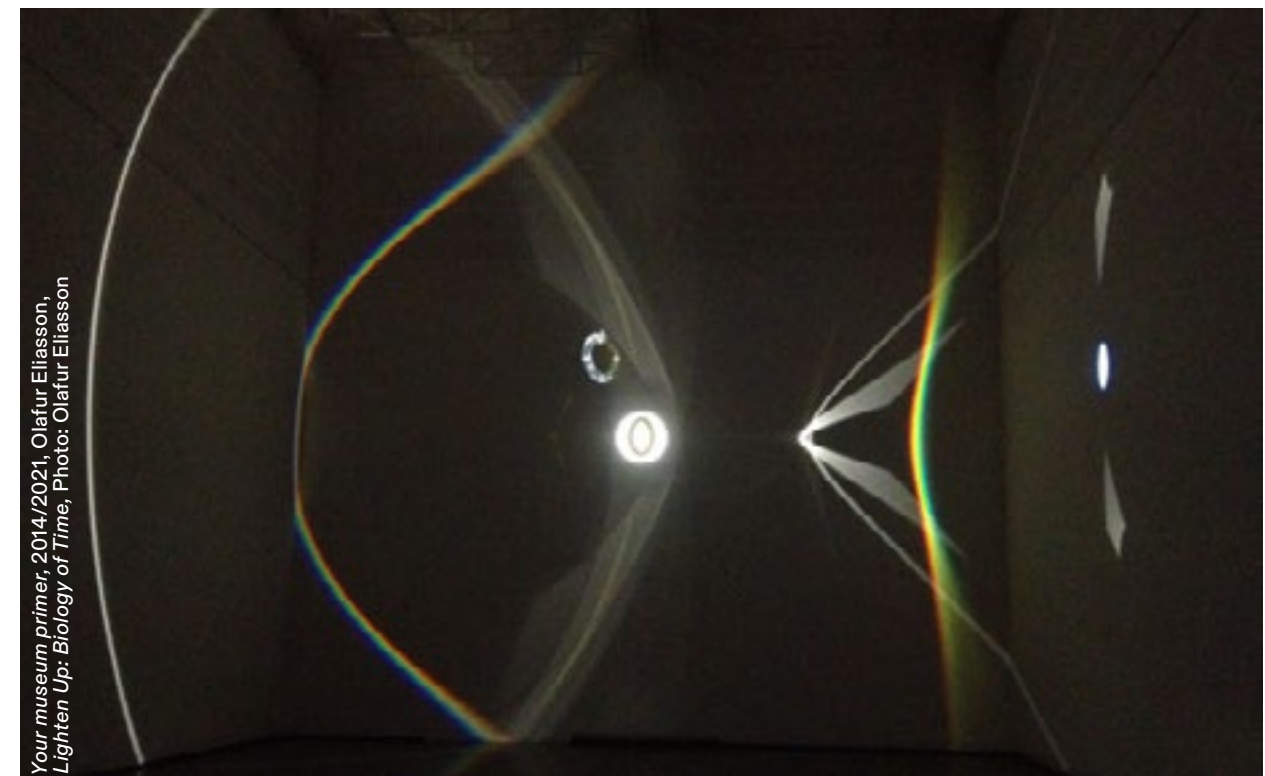
In this exhibition, artists take concepts of circadian rhythms and the powerful role of light to create works that remind us of the importance of biological rhythms and daylight. Its core themes are the day-night changes in light intensity and spectra, the critical role of twilight as a signal for the biological clock, and the obvious relationship of these external cycles to our internal cycles of sleep-wake, alertness, mood, body physiology and overall health, performance and well-being. Light via the eyes is the key synchronising agent for the biological clock, daylight the original entrainment signal. In a 24/7 society, where urban lifestyles and work habits have gradually disconnected us from “natural” light exposure, rhythms are fluid and no longer well adapted to the environment, resulting in “social jetlag”, depression, sleep disorders, and in long-term medical sequelae.

6.3 New Artist-in-Residence Program 2021

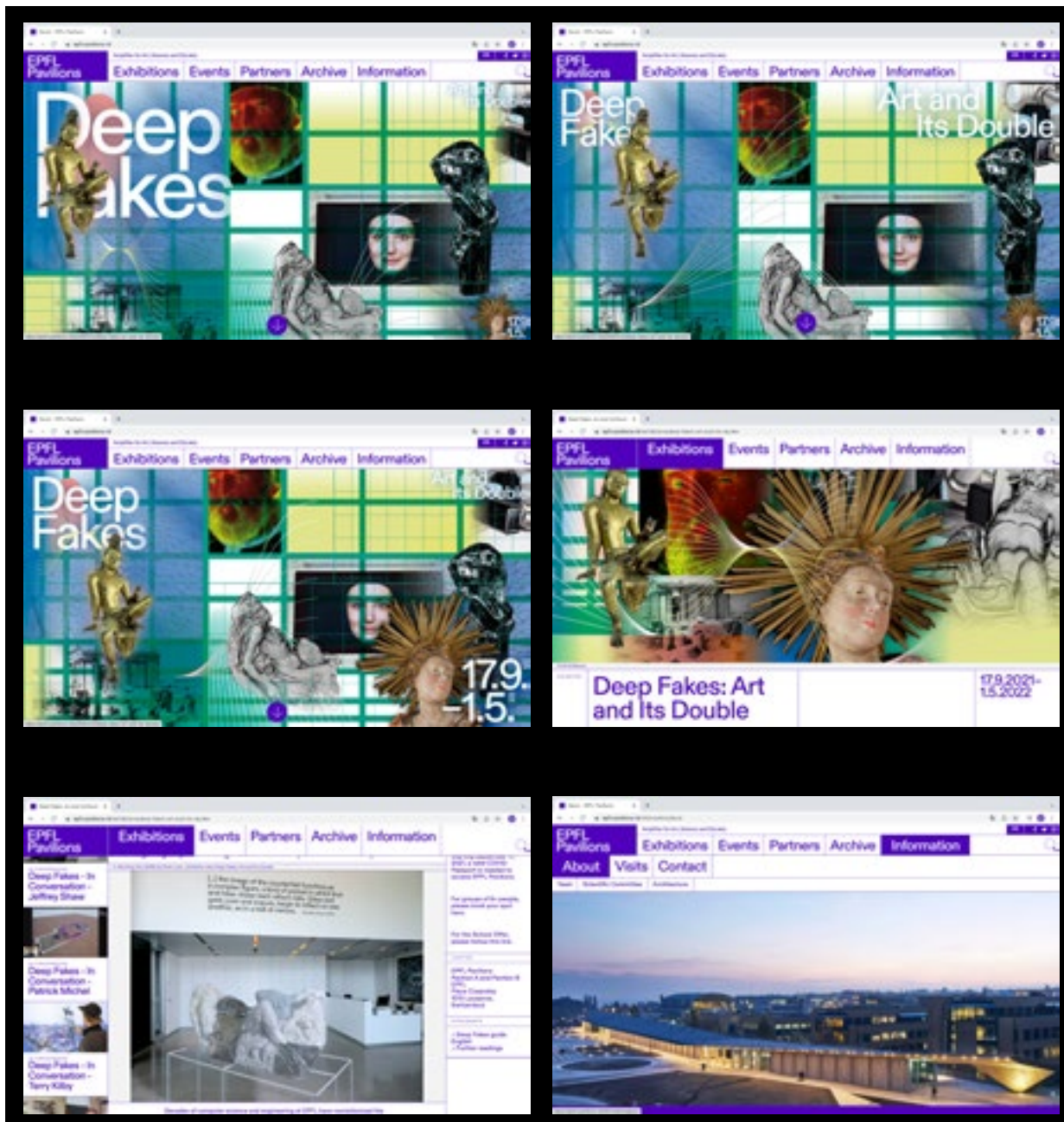
Initiated by the Direction of the College of Humanities (CDH) of EPFL, and amplified by EPFL Pavilions, the EPFL-CDH Artist-in-Residence (AiR) program aims to foster encounters and trans-disciplinary collaborations between artists and the EPFL scientific community. The program offers three to four months residencies to emerging and established international artists and creative practitioners to carry out projects at the intersection of art, humanities, science and advanced technologies.

For its first international open call, “Enter the Hyper-Scientific”, launched in October 2021, the EPFL CDH AiR program received 216 applications. The jury's selection will be announced in February 2022.

► go.epfl.ch/AiR_Call2022



7 Outreach and communication

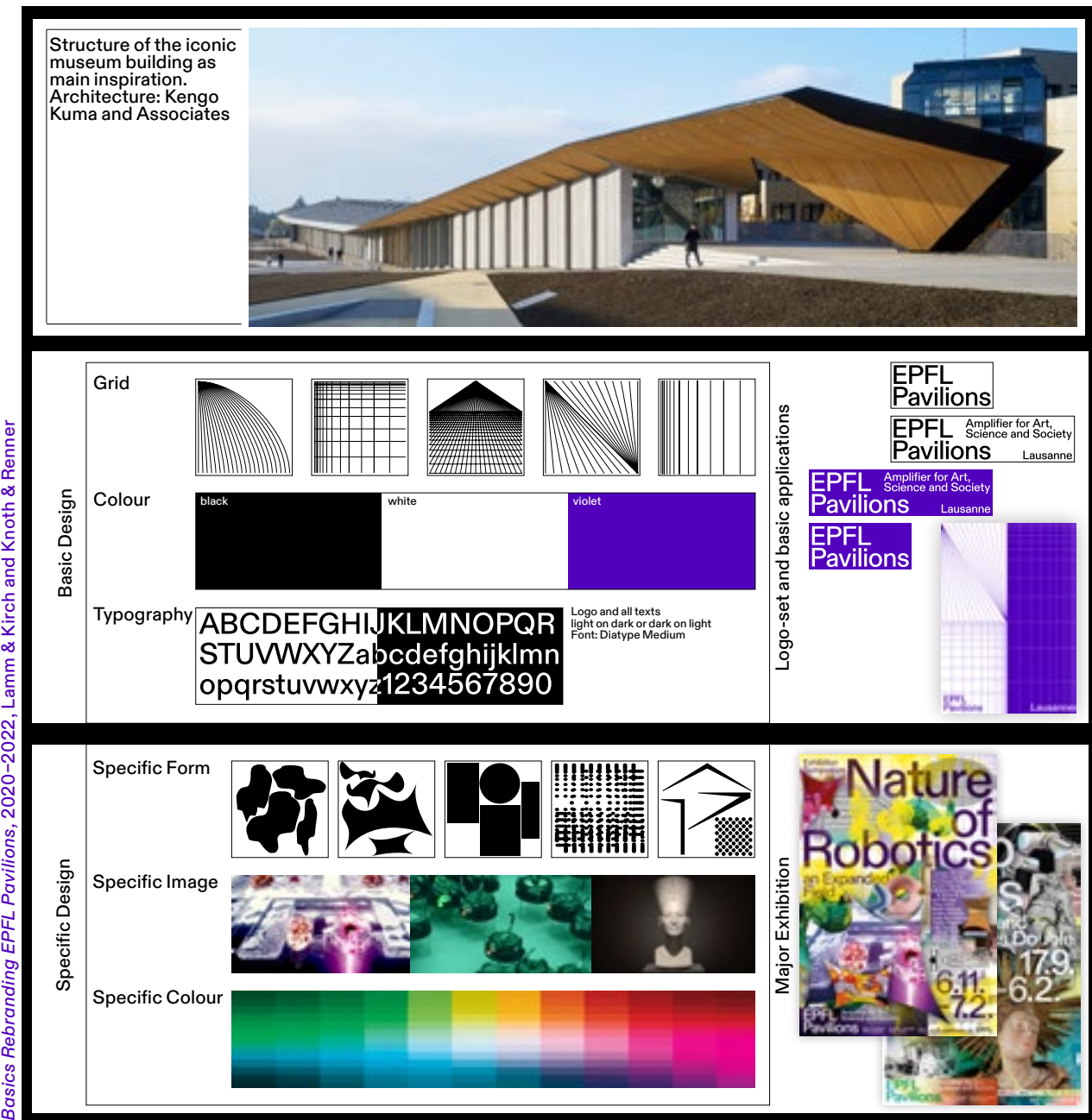


Website EPFL Pavilions, 2020, Spreads, Design & Programming: Knoth & Renner, based on the Corporate Design of Knoth & Renner and Lamm & Kirch

7.1 Rebranding

After a few months working on refining the visual identity, EPFL Pavilions was officially launched under its new name at the beginning of 2021. Keystone of the brand, the new website offers opportunities for amplifying the exhibitions thanks to an archive section hosting videos, 3D virtual tours, exhibition photography and additional scientific content.

It also allows EPFL Pavilions to host native digital contents such as the virtual environment of Spatial affairs and live broadcasted events. Thanks to its new name and outstanding visual assets, EPFL Pavilions can also strengthen its presence on social media (Instagram, LinkedIn and Facebook) and state its positioning blending art, science, technology, innovation and its impact on society.



Basics Rebranding EPFL Pavilions, 2020–2022, Lamm & Kirch and Knoth & Renner

Keynote presentations

- Keynote and discussant: 'Deep Fakes: Art and Its Double', Photo London, *Fecit– The Dynamic Relationship Between Making, Preserving, And Sharing*, 29 September.
- Keynote: 'Digital Museology: building interfaces to cultural knowledge', Réel et des musées suisses 26 – 27 August 2021. ICOM Suisse.
- Invited speaker: 'Experimental Museology The Role of Culture and Museums in the Digital Transformation of MENA Region', RAKAMEYA 2021: 'Our Future is Digital' – Conference for digital transformation in the MENA Region, online, Digital Arabia Network, 16 June 2021.
- Invited speaker: 'Interactive et immersive, la technologie au service de l'art et de la culture : comment renouveler et augmenter l'expérience du spectacle pour le public?' 18 July 2021, Verbier Festival, Verbier, Switzerland.
- Invited speaker: 'Computational museology – “whole of environment” encoding', Digital Lab #2 – Academy of the Digital Fund, German Federal Cultural Foundation, 15 June 2021, Leipzig, Germany.
- Keynote: 'Computational Museology' Digital visual media and metadata, Digital Humanities Research Workshop DHCH@ISR, online, 9 June 2021, Istituto Svizzero, Rome.
▶ go.epfl.ch/KN_IstitutoSvizzero
- Invited speaker: Immersive Technologies in Cultural Heritage Research and Practice: Opportunities and Challenges, Scottish Graduate School for Arts & Humanities, 20 April 2021
▶ go.epfl.ch/KN_SGSAH
- Keynote: 'Users and Stakeholders: Innovative Applications and Services in the field of Cultural Heritage', European Space Agency workshop: Space for Cultural Heritage, 24 February 2021.
▶ go.epfl.ch/KN_ESA
- Keynote: Workshop on Computer Vision Research in Indian Unit of Pattern Recognition and Artificial Intelligence, Jadavpur University, Kolkata, West Bengal, India, 15 January 2021.
▶ go.epfl.ch/KN_Jadavpur
- Invited panel member: 'Technology Across Borders of Our World Heritage, Transformational Impacts of Information Technology', 9 January 2021, online.
▶ go.epfl.ch/KN_OWH

- Invited speaker: 'Museums in the Age of Experience', 2021 ICOM ICEE Annual Conference, Reimagining Exhibition Exchange, 28 – 30 September 2021
- Keynote: 'Future Cinema System', Next-Generation Art Technologies Forum Hong Kong Baptist University, 31 August 2021
- Keynote: 'Computational Museology: Experimental Interfaces to Cultural Big Data', DARIAH Annual Event 2021, 7 – 9 September 2021.
- Invited speaker: 'Deep Fakes: Art and Its Double', VitroCentre, Original or Copy: Virtual Reproductions, 21 August 2021
- Keynote: 'Computational museology: “whole of environment” encoding', 'RISE IMET 2021' International Conference on Interactive Media, Smart Systems and Emerging Technologies, 'Emerging technologies and the digital transformation of museums and heritage sites, 2 – 4 June 2021, 2021, Nicosia, Cyprus. View keynote recording (1 hour):
▶ go.epfl.ch/KN_RISEIMET
- Keynote: 'Inhabited Information Spaces: landscapes for the senses', Hybrid Museum Experience Symposium, online 6 – 7 May 2021. View keynote recording (1 hour):
▶ go.epfl.ch/KN_HYMEX

Awards and acknowledgements

In 2021, EPFL Pavilions was admitted to the list of institutions included in Passeport des Musées Suisses. Since 1996, the Swiss Museum Passport Foundation, based in Zurich, aims to promote cultural diversity by transmitting and disseminating education and knowledge in society.

At the end of 2021 Sarah Kenderdine was elected a corresponding member of the British Academy. She was also distinguished as a Digital Shaper for Switzerland and featured on the cover of Women in Business magazine.

8 Collaborations



Clouds of Palmyra, 2021, Iconem, Deep Fakes: Art and Its Double, Photo: Iconem

8.1 Réseau Romand Science et Cité

EPFL is a member of the Réseau Romand Science et Cité (RRSC), an independent association, active since 2002 in the field of scientific and technical culture.

This year, EPFL Pavilions was invited to jury the RRSC *Prix de l'encouragement à projet*. The Jury was composed of Anne-Gaëlle Lardeau (EPFL Pavilions), Mauricio Estrada Muñoz (Musée d'ethnographie de Genève) and Sarah Sermondadaz (Heidi News). It awarded three projects:

- **FESTIVAL OF LIVING ARTS:** a project proposed by the Botanical Gardens of Neuchâtel in collaboration with Club 44, the Théâtre du Pommier, the University of Neuchâtel (Institute of Psychology and Education)
- **VAL D'HÉRENS 1940 – 2040 / WHAT ARE THE CLIMATIC CHALLENGES?** Heritage plants, witnesses of climate change: A project of the UNIL Culture and Scientific Mediation Service, the UNIL Interdisciplinary Mountain Research Center, the Flore-Alpe Botanical Garden and the Alpine Centre for Phytogeography (CAP)
- **mlAm: A GOURMET ARTIFICIAL INTELLIGENCE:** a project proposed by Musée de la main UNIL-CHUV in collaboration with the Hochschule of Lucerne and the Idiap Institute in Martigny.

8.2 Pro Helvetia Swiss Arts Council

Since January 2021, Giulia Bini, Curator EPFL Pavilions has been a member of the Committee of Experts of Pro Helvetia, Swiss Arts Council and a member of the jury: “Innovation & Society”. Additionally, she took part in the following juries and roundtable discussions:

- CONNECTS – Arts at CERN – 5 May 2021
- PolArts – Matchmaking Events – 20 November 2021
- Be.fantastic Dialog: Women Leadership & TechArt – 9 December 2021

8.3 Docent projects

In order to enhance collaboration with EPFL students associations and increase our reach on campus, docents were invited to work on 4 different topics:

- Collaboration with student associations
- Events typology to reach students
- Communication means towards the students’ community
- Marketing means

Outcomes include the creation of the PACA group (see 8.4) and the launch of new offers such as: students lunch visits and the Digging Deeper series.

8.4 PACA group

Pôle Art Culture Associations was created in November 2021 following requests from student associations. It brings together actors from the artistic and cultural field at EPFL. EPFL Pavilions acts as the coordinator.

PACA aims at exchanging information and encouraging collaborations between the actors of art and culture at EPFL. Members include 10 student associations: Aerus, AGEPoly, ArtePoly, Architango, Musicale, Balelec, Ingénieur.e.s du Monde, Plume, PIP, Unipoly but also Archizoom, CDH culture and the AiR Programme.



Henry VIII Trifold (III), LuxLab, UNSW, Deep Fakes: Art and Its Double,
Photo: Catherine Leutenegger

9 Team

9.1 Scientific committee

Chair Sarah Kenderdine – EPFL Pavilions Director, Full Professor – EPFL, Laboratory for Experimental Museology (eM+)

Members

- Marilyne Andersen – Full Professor – EPFL, Laboratory of Integrated Performance in Design (LIPID)
- Jean-Philippe Ansermet – Full Professor – EPFL, Laboratory of the Physics of Nanostructured Materials
- Jérôme Baudry – Tenure Track Assistant Professor – EPFL, Laboratory for the History of Science and Technology
- Mirko Bischofberger – Head of Communications, EPFL
- Tatyana Franck – Director of Musée de l’Elysée
- Robert Giezendanner-Thoben – Director of Industry Affairs – EPFL, Vice-Presidency for Innovation
- Simon Heinein – Associate Professor – EPFL, Patek Philippe Chair in Micromechanical and Horological Design
- Jeffrey Huang – Full Professor – EPFL, Media and Design Laboratory
- Béla Kapossy – CDH Director – EPFL, College of Digital Humanities
- Valentin Prost – EPFL Masters Student, Committee Member of AGEPoly-Musical
- Francesco Panese – Associate Professor – UNIL, STS Laboratory
- Neil Chennoufi – EPFL MT Master Student, Committee Member ArtePoly
- Martin Rohrmeier – Associate Professor – EPFL, Digital and Cognitive Musicology Laboratory
- Sabine Süssstrunk – Full Professor – EPFL, Image and Visual Representation Laboratory

9.2 Staff

The COVID-19 pandemic led to several core changes within the EPFL Pavilions team:

- Patrick Chouard, Lead Technician and Aurélie Nicoulaz, Administrative Assistant, left EPFL Pavilions to pursue personal projects and start a new career in different fields.
- Giulia Bini, reduced her contract with EPFL Pavilions from 100% to 50% to move to EPFL CDH to develop the Artist in Residence program (50%), which is closely related also to EPFL Pavilions’ programs. From September she decreased from 50% to 30% with EPFL Pavilions, following an appointment as guest lecturer at HEAD Geneva.
- Samy Mannane ended his temporary mission which was focused on the development of *Deep Fakes: Art and Its Double*.
- Camilla Mongini finished her one-year traineeship. She was then hired 60% to replace Le Thy Nguyen during her maternity leave.

Last but not least, EPFL Pavilions welcomed two baby girls to the world in 2021: Kim Loan Nguyen and Joe Novac.

New Hires

- Monica Antohi started as Communication Specialist for a one year contract in order to finalise the brand development of EPFL Pavilions.
- Adam Bagnowski was hired to replace Patrick Chouard as a lead technician on a one year contract.
- Lily Hibberd was hired as a freelancer (temporary) to support the production of *Deep Fakes: Art and Its Double*.
- Ryan Jones acted as a freelancer (temporary) to maintain installations during the *Nature of Robotics* show ad interim. His contract was then extended to contribute to the *Deep Fakes* exhibition installation and maintenance in addition to Adam Bagnowski.
- Laurent Novac joined the team for a one year mission to work on the development of interactive displays for the *Cosmos Archaeology* exhibition.
- Mathieu Clavel was appointed on a 3-month mission to design the music of the display *Double truth* which is part of *Deep Fakes*.



Sarah Kenderdine	Director	20%
Anne-Gaëlle Lardeau-Johnston	Manager	80%
Giulia Bini	Curator and producer	100% and then 50% to 30%
Lily Hibberd	Producer and assistant curator freelancer	60%
Stéphanie Romon	Administrative assistant	20%
Aurélie Nicoulaz	Administrative assistant	30%
Sophie Bauer	Administrative specialist	30%
Monica Antohi	Communication specialist	80%
Le Thy Nguyen	Mediation and event specialist	80%
Patrick Chouard	Lead technician	80%
Adam Bagnowski	Lead technician	100%
Mathieu Clavel	Composer (3 months contract)	20%
Laurent Novac	Multimedia designer	50%
Samy Mannane	Computer graphics designer	80%
Camilla Mongini	Trainee and mediation (replacement Le Thy Nguyen)	100% and then 60%
Ryan Jones	Technician freelancer	50%

9.3 Docents

EPFL Pavilions contracted 23 docents in 2021 to support its activities. Docents were in charge of hospitality, welcoming the public six days a week at the front desk, during the exhibition period and for special events. They can also provide technical support.

In alphabetical order:

- Jessica Aubouy – Masters in Environmental Sciences and Engineering (ENAC)
- Tobias Bachmann – Masters in Mechanical Engineering (STI)
- Deborah Bouvresse – Bachelors in Environmental Sciences and Engineering (ENAC)
- Dorine Chakhtoura – Masters in Mechanical Engineering (STI)
- Jeanne Charlot – Bachelors in Material Sciences (STI)
- Neil Chennoufi – Masters in Robotics (STI)
- Merlin Després – Masters in Life Sciences Engineering (SV)
- Noé Durandard – Masters in Digital Humanities (CDH)
- Nicolas Feppon – Masters in Microtechnics (STI)
- Olivia Julia – Masters in Electrical and Electronical Engineering (STI)
- Gabriel Kathari – Masters in Environmental Sciences and Engineering (ENAC)
- Benjamin Louis – Masters in Life Sciences Engineering (SV)
- Elisa Michelet – Masters in Digital Humanities (CDH)
- Ksenia Mironova – Bachelors in Media Engineering (HEIG-VD)
- Claire Payoux – Bachelors in Life Sciences Engineering (SV)
- Gauthier Petitfrere – Masters in Mechanical Engineering (STI)
- Eva Raffin – Masters in Architecture (ENAC)
- Laurine Song – Bachelors in Life Sciences Engineering (SV)
- Sara Steiner – Masters in Architecture (ENAC)
- Jean-Pierre Svantner – Masters in Mechanical Engineering (STI)
- Alexia Tsanga – Master in Management of Technology and Entrepreneurship (CDM)
- Melissa Vallette – Bachelors in Materials Sciences (STI)
- Kang Hwu Yie – Bachelors in Chemistry and Chemical Engineering (SB)

10 Facts and Figures



Muse, the voice of the visitor, eM+

10.1 Statistics

Nature of Robotics 1.1. – 16.5.2021

Due to the COVID-19 global health crisis, the exhibition Nature of Robotics was open for a few days before closing and then reopening with a strict limitation of 5 visitors per hour.

Outside adults	445
Senior adults (AVS)	37
Campus adults	101
Icom/IPC	1
Children (ages 0–6)	33
School children (ages 6–16)	89
EPFL students	67
Outside students	27
TOTAL	800

Deep Fakes 16.9. – 31.12.2021

Deep Fakes: Art and Its Double show opened in September as some restrictions were still enforced (limited access on campus, no events, no school visits, mandatory COVID certificates and masks). These numbers only reflect the attendance figures for 2021, with statistics to follow in the 2022 annual report.

Outside adults	2035
Senior adults (AVS)	35
Campus adults	535
Icom/IPC	0
Children (ages 0–6)	101
School children (ages 6–16)	387
EPFL students	683
Outside students	316
VIP-EPFL	149
TOTAL	4341

Technorama@EPFL

12.6. – 4.7.2021

This exhibition in Pavilions A was targeted to a very different audience. Attendance figures are based on the online booking system and not on the front desk cashier which explains the less precise demographics.

General public	2200
Schools	1000
TOTAL	3200

Guided Tours

Due to the COVID-19 pandemic, guided tours were banned for most of the year, however bookings for on-demand tours remained high during the few periods of normal operations.

	Nature of Robotics	Deep Fakes	TOTAL 2021
EPFL (staff) lunch visits	0	2	2
EPFL (students) lunch visits	0	3	3
Saturdays guided tours	0	4	4
VIP Visits	9	9	18
On demand guided tours	30	57	87

10.2 Finances

10.2.1 External funding on 2021 projects

Nature of Robotics: An Expanded Field – The exhibition received 20,000 CHF from Pro Helvetia in order to support the Swiss artists represented in the exhibition.

The exhibition *Deep Fakes: Art and Its Double* was postponed to 2021, which also allowed for more time for fundraising. The fundraising campaign was thus extended and an additional 350,000 CHF was raised in collaboration with UNIL.

Pro Helvetia (on <i>Nature of Robotics</i>)	20 000.00 CHF
Loterie romande	125 000.00 CHF
Office fédéral de la culture	100 000.00 CHF
Apport Association Paul Collart	90 000.00 CHF
Société académique vaudoise	15 000.00 CHF
Fondation Leenaards	10 000.00 CHF
Fondation UBS	10 000.00 CHF
SICPA	5 000.00 CHF
TOTAL Private funds For 2021 Projects	375 000.00 CHF

10.2.2

Strategic partnerships

In order to complement the ongoing fundraising strategy for exhibitions, a search for long-term partners was launched in collaboration with the EPFL Philanthropy department.

With the support of strategic partners, EPFL Pavilions aimed to reinforce its positioning as a world-class art-science exhibition venue that showcases experimental approaches to exhibition making, through efforts to:

- Establish new standards in art-science curatorship within the global context
- Design cutting-edge exhibit showcases through advanced technologies and interactive interfaces
- Encourage open dialogue between art and science while reflecting on contemporary issues.

Strategic Partnerships are envisaged to support EPFL Pavilions for four years each, with the base donation of 200,000 CHF per partner, per year. The objective of this plan is to engage with three Strategic partners, to raise the additional support of 600,000 CHF per year.

Benefits for our Strategic partners include:

- Recognition of the Strategic Partners as supporters of Arts, Sciences and Society
- Feature Strategic Partners in a prominent place on our Partner webpage, and promotional materials e.g., articles, videos, and company showcases
- Identified as a Strategic Partner on all marketing materials and media communications, including in Pavilion A and Pavilion B
- Privileged access to EPFL Pavilions exhibitions, and VIP invitations to opening events, as well as private and guided vernissage tours hosted by the renown Prof. Sarah Kenderdine
- Yearly exclusive corporate event(s) hosted in Pavilion A and / or Pavilion B

10.2.3

Budget 2021

Expenses on 2021	
Donations	644 761.00 CHF
Operations	758 933.00 CHF
Third Party Funds	247 279.00 CHF
TOTAL	1650 973.00 CHF



Sarah Kenderdine and UBS Culture Foundation representatives, June 2021, Photo Alain Herzog

11 Press



Deep Fakes: Art and Its Double

Lee Monument Comes Down in Virginia, Goes on Display in Switzerland, 13.09.2021

► go.epfl.ch/DF_Press_Yahoo13.9

Les “copies” culturelles au coeur d'une exposition à l'EPFL, 16.09.2021

► go.epfl.ch/DF_Press_lfm16.9

Wenn Kunst und Technologie authentische Kopien entstehen lassen, 17.09.2021

► go.epfl.ch/DF_Press_Sciena17.9

Quand l'art et la technologie créent des copies authentiques, 17.09.2021

► go.epfl.ch/DF_Press_MyScience17.9

Quand art et technologie s'entremêlent, les copies sont réelles, 17.09.2021

► go.epfl.ch/DF_Press_ThePressFree17.9

Notre mousquetaire ressort ses moustaches à l'EPFL!, 17.9.2021

► qblog.qoqa.ch/fr/posts/4711

L'IA d'une start-up suisse conclut que le tableau « Samson et Dalila » de Rubens est un faux, 29.09.2021

► go.epfl.ch/DF_Press_ICTjournal29.9

The 16th International Conference on Critical Information Infrastructures Security – Events

► critis2021.org/social-events/

Deep Fakes: Art and Its Double – Exhibition at EPFL Pavilions, 17.09.2021

► go.epfl.ch/DF_Press_EPFLAlumni17.9

When Art And Technology Intermingle, The Copies Are Real, 21.09.2021

► go.epfl.ch/DF_Press_Wevolver21.9

Photographie, simulacre et deepfakes, 5.11.2021

► go.epfl.ch/DF_Press_Dietschy5.11

L'Agenda – Deep Fakes / Émotions réelles, Issue 93

► go.epfl.ch/DF_Press_LAgenda

Le numérique modifie certains paradigmes de l'art, 1.12.2021

► go.epfl.ch/DF_Press_Heidi1.12

Digital Replica of a Lost Treasure

► go.epfl.ch/DF_Press_ArtTech

Visites guidées en langue arabe de l'exposition Deep Fakes : Art and Its Double. Contemplate the nature of robotics at EPFL Pavilions, 26.03.21

► go.epfl.ch/DF_Press_Eprouvette26.3

Nature of Robotics – An Expanded Field

YouTube – Nature of Robotics – An Expanded Field, 26.03.21
▶ go.epfl.ch/NoR_Press_ActuEPFL26.3

NCCR-Robotics-Nature of Robotics: An Expanded Field, 22.03.21
▶ go.epfl.ch/NoR_Press_NCCR22.3

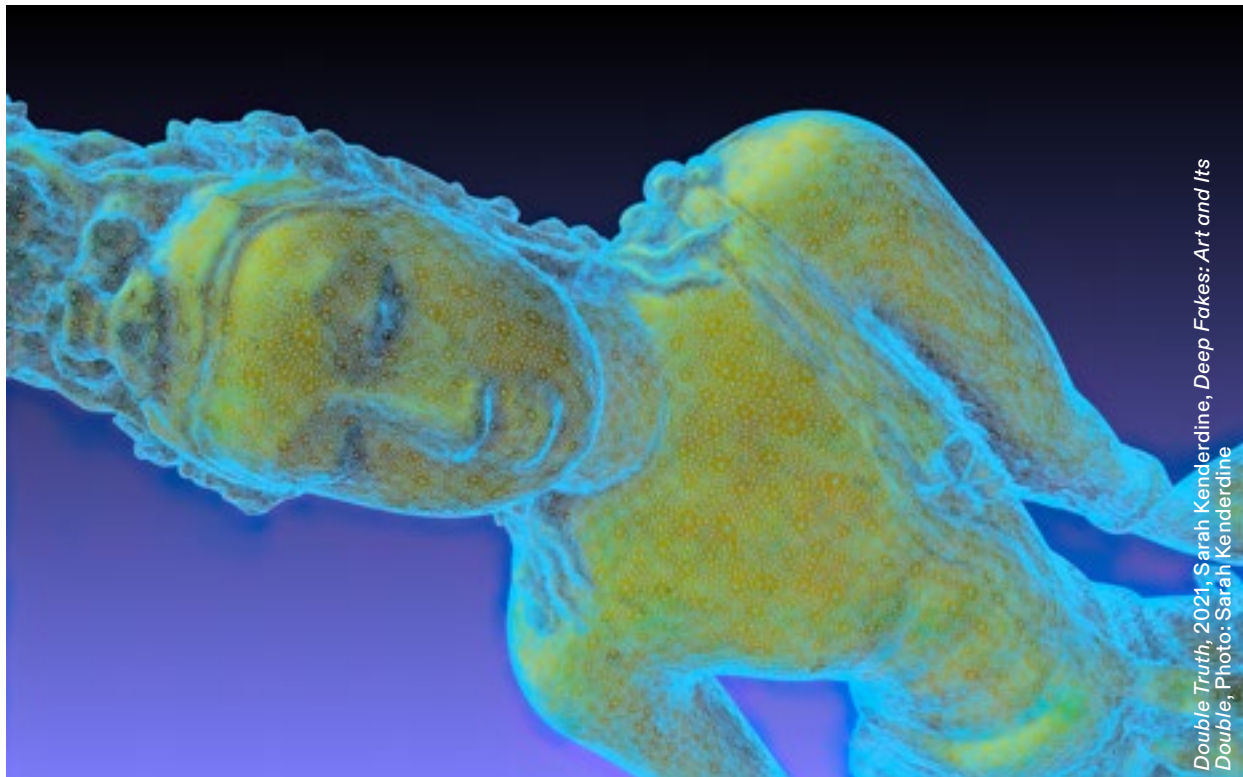
ProHelvetia, Annual report, 2020
▶ prohelvetia.ch/en/annual-report/

ROTECO 2021 – Visite virtuelle guidée de l'exposition
Nature of Robotics: an Expanded Field aux Pavillons de l'EPFL
▶ go.epfl.ch/NoR_Press_Roteco

Nature of Robotics: An Expanded Field – CURA magazine feature
▶ go.epfl.ch/NoR_Press_Cura11.12

Le monde est robot, Samuel Schellenberg, Le Courrier 18.3.2021
▶ go.epfl.ch/NoR_Press_Courrier18.3

Snail's Pace, Adam Jasper, Spike Magazine, Issue 68 Summer 21 (review)
▶ go.epfl.ch/NoR_Press_Spike68



Double Truth, 2021, Sarah Kenderdine, Deep Fakes: Art and Its Double, Photo: Sarah Kenderdine



Henry VIII Trifold (III), LuxLab, UNSW, Deep Fakes: Art and Its Double, Photo: LuxLab, UNSW

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Backcover:

- Exhibition poster (graphic design: Lamm & Kirch), *Deep Fakes: Art and Its Double*, Photo: Sarah Kenderdine

Spread "2021 Programm and Activities":

- *The Golden Calf*, 1994/ 2020, Jeffrey Shaw, *Deep Fakes: Art and Its Double*, Photo: Catherine Leutenegger
- *Otto*, 2015, Jürg Lehnli, *Nature of Robotics: An Expanded Field*, Photo: Alain Herzog
- *Double Truth*, 2021, Sarah Kenderdine, *Deep Fakes: Art and Its Double*, Photo: Sarah Kenderdine
- *Pattern of Activation*, 2017, Katia Novitskova, *Nature of Robotics: An Expanded Field*, Photo: Alain Herzog
- *Defying Gravity*, Nicolas Fournier, Justine Willa, Asclepios, Space@yourService

Spread "Behind the Scenes":

- *Double Truth*, 2021, Sarah Kenderdine, *Deep Fakes: Art and Its Double*, Photo: Sarah Kenderdine
- *CultArm3D*, 2021, CultLab3D, *Deep Fakes: Art and Its Double*, Photo: Catherine Leutenegger
- *Helin*, 2019, Christian Mio Lo Clair, *Deep Fakes: Art and Its Double*, Photo: Alain Herzog
- *Technorama@EPFL*, Photo: Technorama
- *SKA Simulator*, 2022, eM+, *Cosmos Archaeology: Explorations in Time and Space*
- *Clouds of the Ancient World*, 2021, Iconem, *Deep Fakes: Art and Its Double*, Photo: Catherine Leutenegger

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