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SIGGRAPH ASIA

## **ART GALLERY**

### Trajectories of Time

: Sustainable Ecologies and Non-fungible Entities





DAEGU

2022.12.7-12.9

### SIGGRAPH ASIA 2022 DAEGU ART GALLERY

2022.12. 7 - 12. 9

Values are something we as humanity have neglected to cultivate and nurture in recent history. Especially with the advent of technological development in the last century, we have come to regard technological progress itself as the prime value. Contrary to our naive belief that technological progress will bring us "happiness for all", we are facing unprecedented challenges. Climate crisis is one, the widening gap between the rich and poor is another, and the pandemic is the third... it is almost as if we are witnessing the collapse of a system, fundamentally the belief system that has supported modern-day Neoliberalism.

What are the (hidden) values of the ongoing, seemingly "value-free" materialist world?

Efficiency is the prime value -the endless production, circulation, and accumulation of goods and capital reproduce and reinforce themselves. In the absence of a shared understanding of values, money has superseded all other values. This has been the case up until the Financial Crisis, up until the Climate Crisis, and up until the polarization and political/social turmoil of now virtually every country. It is only when we are confronted with these insurmountable challenges that we realize that we do not have a collective value system with which to build and sustain our civilization. After printing so many dollars we are waking up to the fact that dollars by themselves cannot solve our problems.

But is a productivity-oriented world our only inevitable reality? Between the cogwheels of capitalist production, we do think and act according to some innate values other than mere productivity and efficiency: we criticize those who pollute the environment, frown at those who act on greed and selfishness and command those who help people in need, and value health and longevity both physical and mental. But these values are largely left to individual choices and preferences, and society as a whole does not give much heed to cultivating and enhancing values.

The role of art and culture is to represent human values in non-oppressive yet viscerally persuasive ways. We express, cultivate, and refine our values through aesthetics and other cultural means. Even amidst the seeming lack of values in today's culture, artists have not ceased to voice their concerns on matters hinging on our values – notably about climate change and ecology. At SIGGRAPH Asia 2022 Art Gallery, we attempt to go one step further to question notions of sustainability and non-fungibility.

Twenty-five outstanding works were selected to present the kaleidoscope of current media archaeology, reflecting the disintegration of the hegemonic geopolitical order that is shifting from the West. We now see a proliferation of media art all over the world, especially in Asia. It will be a wholesome experience to witness the richness and variety of young Asian media artists through SIGGRAPH Asia 2022 Daegu Art Gallery, where we rethink sustainability and unearth the values non-fungible for humanity. Join us for this feast of art, computer graphics and interaction techniques in which we propel to discover new connectivity, ecologies, and entities.

Soh Yeong Roh Director | Art Center Nabi Chair of SIGGRAPH Asia 2022 Daegu Art Gallery

SIGGRAPH ASIA 2022 DAEGU ART GALLERY

**Exhibition Statement** 

# —— Prefa

### **Preface**

The snow that falls on a winter night looks like a dance of absolute randomness. There is the sensuous pleasure of watching snowflakes piling up on one's head and all over the world, whereas there is also the joy of extracting knowledge from snowflakes, searching for the fluid dynamics of particles and the rules of crystal formation with a keen intellect. Likewise, SIGGRAPH Asia 2022 Daegu Art Gallery attempts to set the guide for seeking such joy.

SIGGRAPH Asia 2022 Daegu Art Gallery tends to present the diverse voices of contemporary media artists in the form of a media art fair rather than embodying a refined message based on the curation of the Chairs. Yet, this year's Art Gallery is in collaboration with Art Center Nabi, a top-notch media art center, not only to preserve the original values of the Art Gallery by accommodating a variety of works but also to deliver them meticulously and raise critical questions stemming from the contemporary media art scene.

Ranging from interactive installations, NFTs, Game Arts, and VRs to generative visualization performances, a total of 25 works have been selected to highlight this year's Art Gallery theme, Sustainability and Non-fungibility. Thanks to Art Center Nabi's delicate curation and on-site design, I believe SIGGRAPH Asia 2022 Daegu Art Gallery will have the best of both worlds: a traditional media art symposium and a festival that facilitates and expands the media art discourse. It is hoped that this year's Art Gallery provides rich soil for emerging artists to engage in both the academic and artistic realm of computer graphics and interactive technologies, inducing fruitful discussions and exchanges.

Jin Wan Park

Professor | Chung-Ang University

Co-Chair of SIGGRAPH Asia 2022 Daegu Art Gallery

### **Exhibition Statement**

Trajectories of Time: Sustainable Ecologies and Non-fungible Entities

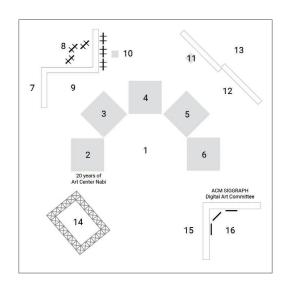
Amongst various terms to call this time of turmoil - Anthropocene, Capitalocene, Post-Pandemic - where values and virtues are once again in question, Art Gallery proposed to discuss *Sustainability* and *Non-fungibility* for this year's SIGGRAPH Asia.

- What does sustainability and non-fungibility mean in today's Worlding?
- How can we imagine new ecologies and entities that converse and emerge amidst technological advancements and environmental degradation?
- How could we human, non-human and the planetary as beings connect, converge, and expand with technologies as the creative medium and the agency?
- How do we maintain our routines and rituals mediated through technologies and how do we record, reproduce, and re-establish our subjectivities through computer graphics?

At the Art Gallery, we speculate and envision sustainable ecologies and non-fungible entities that are constantly reshaped, recreated and restored in the trajectories of time. Tokens of hopes and promises are taken to explore and experiment with digital media not only to discover terrains of co-existence but also to reflect on current media landscapes. We cordially invite you to savour the *time* at the Art Gallery, where sustainability and non-fungibility is possible because of imperfections, uncertainties, and contingencies, not in spite of.

Chandra X

Inhwa Yeom, Seogsung Jang



- 1. Chandra X, Inhwa Yeom, Seogsung Jang
- Zeroth: The self-awareness sense embodied by facing the coexistence of the physical and virtual bodies in the mirror, Ami Miura, Hiroki Uchida, Takayuki Kawamura, Keiichi Zempo
- 3. Repository, Weidi Zhang
- 4. Window, Borou Yu, Jiajian Min, Mengying Zeng
- Illusory Land, Xi Wang, Shaoyu Su, Liaowei Chen, Xiaoxiao Li, Yifan Lin, Francisco Barros, Zao Song, Jason Donnelly, Rong Deng, Xiaobo "Daniel" Ma, Lai Jiang
- 6. Origami Tessellations Induced by Growth, Tomohiro Tachi, Junichiro Horikawa, Daiki Kanaoka
- 7. Keep Smiling, Varvara Guljajeva, Mar Canet Sola
- 8. Scope of the Cloud, Jooyoung Oh
- 9. Land Enough, Ray LC, Bengi Agcal, Ziyou Yin, Yanheng Li
- 10. Wander [001], Yuqian Sun, Chenhang Cheng, Ying Xu, Yihua Li, Chang Hee Lee, Ali Asadipour
- 11. Gaia, Yunyoung Jang
- 12. Digital Being: Thinking of the Stars, Taezoo Park
- 13. *Inner-self Drawing Machine*, Qing Zhang, Fan Xie, Yifei Huang, Yun Suen Pai, George Chernyshov, Jing Huang, Xiongqi Wang, Jamie A. Ward, Kai Kunze
- multi-lingua-body, Minori Manabe, Wataru Takamine, Richard Sahala Hartanto, Reita Maeno, Kai Fukubayashi
- 15. Video Relav
  - A. The Patient 05, Axl Le, Ingvild Friis Bjerkeli
  - B. People of the Gold, Ren Yang
  - C. Nippo-Latin American Land, Marita Ibañez Sandoval
  - D. Modern Rescue 2022ss, Yuxi Mao, Fang Fang
  - E. River Concert, Siouming Wu
  - F. Lizardians, Young Joo Lee
  - G. Remembrance: Magma, Chanee Choi
  - H. Voight-Kampff 2.0, Fang Fang, Shuo Yan
  - I. The Emerging Media Art Performance of Eine Kleine Nachtmusik, Kyungho Lee, Yousang Kwon, Luce String Ensemble
  - J. Perception of War: Al Data Universe, Haein Yoon, Jungho Kim, Hyoungin Kim, Taekyung Yoo
- 16. Human-like non-human HAOS human electrical cognition liberation project Ver 1.0, Jiun Ting Lai

### 1. Chandra X

- Inhwa Yeom, Seogsung Jang



### **Artwork Description**

Chandra X is a series of artistic diagnoses on the state of Planetary, implemented as WebXR(2021) and 3D Performative Apparatus-Environment (2022). The series speculates on how the natural environment and biodiversity still functions as a large capital in the near future. Inspecting the multi-layers of remote surveillance system powered by virtual-real networks and neo-colonialist interactions, the artwork reimagines the audience's performative engagement as a counterbalance to such system.

In Chandra X, audiences are invited to perform as meta-authorities to Chandra (they/them), who are interplanetary network environment manager(s) living in a near future, authorized with a certain degree of access to bio-resources in the universe. Remotely accessing the planets in charge, Chandra performs a set of labor such as Wielding, Archiving, Supervising, Detecting ('WASD') the planetarian's production and use of resources, for which Chandra earns 'hyper-capital' from their meta-authorities. As meta-authorities to Chandra, the audience-performers are also remotely connected to the labor of Chandra(s), infinitely doubling their acts of Wielding, Archiving, Supervising, Detecting.

The technical mise-en-scene of *Chandra X* is defined as "3D Performative Apparatus-Environment". This setting comprises 1) WebXR as a 3D virtual labor-scape and, 2) mobile-based AR as an intervention tool. These apparatuses together serve as audiovisual diegeses that are inter-connected via cross-device interactions, hence interoperate. In such a setting, audiences can connect and intervene in each other's experiences in real-time, across the heterogeneous realities in heterogeneous device network environments; give and receive interaction and feedback on their performative behaviors.

Inhwa Yeom, Seogsung Jang

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In the 3D Performative Apparatus-Environment, *Chandra X* intends to constantly resituate the audience-performers amid the indeterminate states of being colonized and/or colonizing; of being autonomous and/or subordinate to a pre-designed labor and belief system; and as a contemporaneous being in AD 2022 who receives the SOS message and alerts sent by Chandra themselves.

### **Artist Biography**

**Inhwa Yeom** is a media artist and XR researcher. She is also the founder of BiOVE (biove.io), an XR-based biotech R&D startup. In BiOVE, she creates XR-based interactive systems for (non-)human species and biodiverse welfare. In specific, she designs, develops, and evaluates such systems for those with less accessibility to medical, rehabilitative, and therapeutic experiences in 3D environments; as well as to support their active aging.

**Seogsung Jang** is a researcher at KAIST Augmented Reality Research Center, working at the intersection of eXtended Reality (XR), education, and media arts. His research interest lies in cross-device 3D interactions on multimodal XR devices. He is also experienced in teaching software programming and engineering, as well as in implementing media arts as a technician.

## 2. Zeroth: The self-awareness sense embodied by facing the coexistence of the physical and virtual bodies in the mirror

- Ami Miura, Hiroki Uchida, Takayuki Kawamura, Keiichi Zempo



### **Artwork Description**

"Itadakimasu" is a gesture performed before a meal in Japan. It is meant to express gratitude for the cycle of life and the upstream supply chain. Still, it is also meant to express gratitude for the awareness of the boundary between oneself and others before eating a piece of life and using it as one's own flesh and blood. This ritual, which we all perform almost unconsciously without question, is a ritual that has become customary in recent years thanks to the invention of the radio, which allows us to share the same topics of conversation even when we are far away from each other.

Today, physical reality and the XR/metaverse, here and there, are being connected without seams. As a result, the boundaries between oneself and others, oneself, and the world, have become blurred, and the loss of the "self" recognized by each living in this society is not far away. In the present age, when anyone can easily make discrete phase transitions anywhere, we believe it is necessary to perform appropriate rituals to recognize the boundaries between self and others, rather than just connecting without difficulty blindly.

We sense and recognize all signals from the world through our five senses. It is a recursive structure in which one perceives one's existence for the first time as a contrast to the world one smells, and one can sense the world only through one's existence. In *Zeroth*, the user simultaneously confronts oneself in physical reality and oneself in XR. This experience allows the user to consider the appropriate ritual actions.

### **Artist Biography**

Majoring in Music, backpacking around the globe, and having involved in managing various companies; **Ami Miura** developed a unique knowledge base that stimulates her growth and passion in the business world. She established ima, Inc. in 2013, focusing on

Weidi Zhang

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a specialized form of "Cultural Engineering" by combining traditional industry, business, and engineering. Being both an entrepreneur and an artist, she has been implementing her arts in society. She has exhibited work such as Al-Mural in Media Ambition Tokyo 2019 and GMO free/free GMO in Media Ambition Tokyo 2020. Also, her work is featured in one of Apple Inc. commercials, "Behind the Mac - Made in Japan."

**Hiroki Uchida** is an interactive system engineer specializing in mirror-space AR. He specializes in mirror-AR interactive systems with body ownership and agency. He is enrolled in a master's program in the department of Engineering Systems at University of Tsukuba and is now a research assistant at Sony Computer Science Laboratory.

**Takayuki Kawamura** is a security engineer specializing in knowledge-based and sensor-based personal authentication systems, majoring in Al-based security/VR/MR. He is exploring new techniques of human augmentation and virtual space security in the VR/MR field. He graduated from the University of Tsukuba with a master's degree in engineering systems and now works in the Sony Group Corporation R&D department.

**Keiichi Zempo** is a multi-layered researcher and a business manager who challenges to go beyond physical restrictions with technologies. His research interests include human augmentation, sense substitution, service engineering, telepresence, and XR. He received a B.Sc. in physics, an M.B.A., and a PhD in engineering from the University of Tsukuba in 2008, 2010, and 2013, respectively. He worked with the Center for Service Engineering, National Institute of Advanced Industrial Science and Technology (AIST), from 2013 to 2014. He is currently an Assistant Professor with the University of Tsukuba and CEO of Xtrans tech, Inc.

### 3. Repository

- Weidi Zhang



### **Artwork Description**

Our digital footprints in the vast data universe are duplicatable, transferrable, and mutable. Deletion has become much harder than throwing a piece of paper into a shredder, which was first invented over a hundred years ago. Photos, videos, geographical tags, or just simple texts living on social media platforms as the virtual presence of digitized human memories strengthen the power of machine computation and analysis while underlying the control from us.

When we try to preserve or delete our own stories in the digital landscape, do we still have the authorship of them? Are they in a constant shift of meaning and representation?

Repository is a virtual reality experience created around the issue and question of data authorship and data oblivion. It builds a world of data in motion merging the structure of a server farm (A place that physically stores data) with a paper shredder (A machine that deconstructs data). Repository gradually transforms from a surreal bank that safely stores memories into a space filled with floating shreds of letters and characters through assembling and fragmenting various conversations borrowed from Twitter posts in 2019. Its non-linear narrativity, interactive experimental sound and surreal aesthetics provide a conceptualization of an alternative model of human-machine interaction, and question whether we have the right to be forgotten, at the same time as the right to be remembered.

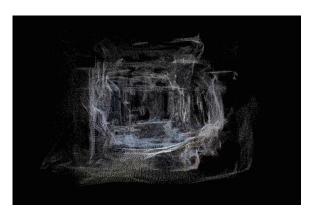
### **Artist Biography**

**Weidi Zhang** is a new media artist and researcher. Her interdisciplinary art and design research investigates a set of speculative assemblage at the intersection of immersive media design, experimental data visualization, and interactive Al art. Her works are

Window

### 4. Window

- Borou Yu, Jiajian Min, Mengying Zeng



### **Artwork Description**

Window is an interactive multimedia installation that reconstructs the quarantine environment of the artist Borou Yu from the US to China, introducing the audience to the artist's memory and dreams. While the room was the container of the physical body, the window became the metaphor for hope, spirit, and imagination to the outer world. The use of point clouds, sound, texts and the aesthetics of transparency and vanishing delineate the space, which is the representation of the mental projection. With a Kinect depth camera, projector and speakers, the project developed an interactive system where the audience would immerse into the soundscape and ocean of texts from the monologue written during the quarantine periods. Window aims to create a poetic digital experience, arouse the audience's empathetic feeling together with the artist during the pandemic, and reflect on the relationship between body and space, the individual and the universe, the physical and the spiritual.

### **Artist Biography**

Anna Borou Yu is a multimedia artist, interdisciplinary researcher, and dancer. She is the Co-founder and Principal of MYStudio in Boston, a Fellow, and Project Lead at Harvard FAS CAMLab, visiting critic at China Academy of Art School of Design & Innovation and China Central Academy of Fine Arts School of Architecture. Anna engages in a contemporary interpretation of digital heritage, body, and theater translation across media, as well as an artistic expression of cutting-edge science research. Her artworks have been featured at Hermes Creative Awards, Lumen Prize Longlist, Ars Electronica Art Gallery, ACM SIGGRAPH Asia Art Gallery, IRCAM FORUM at NYU, Chinagraph, Chengdu Biennale, Beijing Media Art Biennale, Asia Digital Art Exhibition, etc. Her research has been published by ACM SIGGRAPH Asia, IEEE AIART Workshop, etc. She has lectured and reviewed at Harvard University, Yale University, NYU, UCSD, Tsinghua University, and the Guangzhou Academy of Fine Arts, etc.

featured in international awards, such as the Best in Show Awards in SIGGRAPH

Art Gallery, Red Dot Design Award, Honorary Mention in Prix Ars Electronica, Japan Media Arts Festival, Lumen Prize (UK), and others. Her works have been exhibited at international venues such as ISEA, Times Art Museum, SwissNex Gallery, SIGGRAPH, CVPR, IEEE VISAP, Zeiss-Planetarium Jena, Planetarium 1, and others. She holds her PhD degree in Media Arts and Technology from the University of California, Santa

Barbara. Currently, she is an assistant professor at Arizona State University.

**Illusory Land** 

Jiajian Min is an architect, multimedia artist, and interdisciplinary researcher. He is the Co-Founder and Principal of MYStudio in Boston, Project Lead at Harvard FAS CAMLab, visiting critic at China Academy of Art School of Design & Innovation and China Central Academy of Fine Arts School of Architecture, and Alumni Mentor of Yale University. Jiajian engages in the contemporary interpretation of digital heritage, mixed reality spatial design, as well as an immersive and interactive experience. His artworks have been featured at Hermes Creative Awards, Lumen Prize Longlist, Ars Electronica Art Gallery, ACM Siggraph Asia Art Gallery, IRCAM FORUM at NYU, Chinagraph, Chengdu Biennale, Beijing Media Art Biennale, Asia Digital Art Exhibition, etc. His research has been published by ACM SIGGRAPH Asia, IEEE AIART Workshop, etc. He has lectured and reviewed at Harvard University, Yale University, NYU, UCSD, Tsinghua University, and the Guangzhou Academy of Fine Arts, etc.

Amo (Mengying Zeng) is a digital artist who focuses on the visual presentation of the human body and gesture, visualizing the invisibles - the bridge connects the virtual and the physical. She creates interactive projection that uses humans as canvas and projection light as paint, which builds an intimate relationship between her message and the audience. She uses this media to explore the relationship between the digital self vs. physical self, identity paradox and self-recognition and awareness. Her work involves computer vision, artificial intelligence, code, sensors, and projection.

### 5. Illusory Land

- Xi Wang, Shaoyu Su, Liaowei Chen, Xiaoxiao Li, Yifan Lin, Francisco Barros, Zao Song, Jason Donnelly, Rong Deng, Xiaobo "Daniel" Ma, Lai Jiang



### **Artwork Description**

This video is a 360-degree immersive experience, using the latest real-time game engine, allowing the audience to immerse themselves in a surreal Oriental landscape fantasy, Experience dreams and memories of the past, present, and future growing, changing, disintegrating, and reorganizing in a chaotic meta-universe.

It presents a crane flying through a storm into the *Illusory Land*, where it lands on an electronic tree that grows from another dimension and is covered with psychedelic electronic flowers. A VR Birdman wrapped in umbilical cord fiber appears on the tree. Eventually, the Birdman hatches a butterfly and flies into the void. Throughout the journey, we will see such as a floating collapse of the Oriental pavilion at the entrance of the *Illusory Land*, the upside-down landscape in the mist, and many sleepers isolated and imprisoned in bubbles floating around, and a black hole sucking the landscape in the distance. Many of the elements are constantly transformed in the physical and hologram. Not only adding the atmosphere of the suspense and chaos, but it also alludes to a lurking sense of crisis. The work conveys the conflicts between technology and humanity, memory and the present, evolution and extinction that continue to transform and reverberate in the metaverse. The style is a mixture of surrealism, fantasy, cyberpunk, Song Dynasty painting, etc.

### **Artist Biography**

Xi Wang was born in China in 1983. He graduated from the Sichuan Academy of Fine Arts in 2007 and received a master's degree in animation and digital art from the School of Cinematic Arts at the University of Southern California in 2020. He has been an independent artist for many years and has participated in many art projects. His animation works have been a part of an exhibit in the Getty Museum and other art galleries. The Real-Time Animation Short 'Metamorphosis' has received the Director's

Choice Award for the Thomas Edison Black Maria Film, runner up in First Look 2021 Industry Award, Got official selection in Telluride Film Festival Student Prints, Unreal Engine Student Showcase Spring 2021, etc.

**Shaoyu Su** is a new media artist, developer, educator, and cinematographer. His practice and research employ interdisciplinary methodologies from computer graphics, film, physics, and math, investigating concepts about deep spacetime-mining: alternative projection from ancient history to the far future in the unification of art and science. Su has been working at the Immersive Media Lab, USC School of Cinematic Arts as Director of Technology since July 2016, leading research in cinematic and generative production in immersive and virtual environments.

Liaowei Chen finished thesis for a master's degree at Savannah College of Art & Design exploring photo-realistic environment development and dynamic lighting in Unreal Engine. Experienced in artistic and technical quality control of all 3D assets created for pre-visualization production pipelines, Liaowei specializes in both hard surface and organic modeling. Liaowei is sensitive about color and lighting and has an artistic eye looking into cinematography and film language. Liaowei has contributed visualization expertise in the latest Spiderman: No Way Home and currently working on several feature films to be released this year.

Xiaoxiao Li is an indie game concept art designer.

**Yifan Lin** is a Composer and Film Music Executive Producer. He has accomplished various composition projects internationally, including composition for films, video games, projection mapping, multimedia stage play and commercial projects. He graduated from Thornton School of Music, the University of Southern California with a Master of Music in Screen Scoring in 2019.

Francisco Barros is an Executive Producer, Software Engineer and Entrepreneur in Real-time Environments, Digital Humans, XR, Virtual Production and Gaming. Having spent early education at the American School Foundation in Mexico City where Francisco pursued many courses in arts and technology Francisco enrolled at the Tecnológico de Monterrey Campus Guadalajara university to study Computer Systems Engineering.

Zao Song was born in 1983 in Chengdu, China. She graduated from the Animation School of Xihua University in 2006. Once worked in Chengdu K Space Gallery as the design director, she is now working as an art editor in Chengdu Young Writers Magazine. Participated in the publication and editing of "Landscape 2012 Chinese New Art", "Handpainted Will", "Today's Myth" and other art books, and literature periodicals "Young Writers" and "Straw Hall", Honors: Young Writers won the "Most Beautiful Journal of 2016" award; In 2021, She won the award of "Excellent Layout Design" and "Excellent Cover Design" in the "Founder Cup" Chinese Journal Art Design Week.

Jason Donnelly was born and raised in Chicago, IL and bounced around with his family before finally settling down in Lansing, MI. After high school he enlisted in the US Army for 4 years before attending the Columbus College of Art & Design while serving for the National Guard and studying film and animation. Immediately after graduating, he moved out to Los Angeles to begin a career in animation, eventually becoming an animation supervisor and then finding his passion in previsualization so he could focus on storytelling. During his career he has worked on major feature films and television such as The Avengers, Oblivion, Venom, Star Trek Discovery, The Orville and The Mandalorian, Spiderman No Way Home and Black Panther: Wakanda Forever.

**Rong Deng** is focusing on game storytelling + system. Rong was a co-founder, a game producer, and a programmer in the Chinese game industry for ten years and Rong's next goal is to dedicate all his life to creating engaging and thought-provoking games!

Xiaobo "Daniel" Ma was born in China in 1993. He graduated from the Communication University of China with a BFA degree and received a master's degree in animation and digital art from School of Cinematic Arts, the University of Southern California in 2019, awarded the Fox Fellowship Endorsement Fund. As an independent artist, his experiences with digital media and multi-media arts spread across different industries with variable projects. His motion graphics works are exhibited in the Getty Museum, Getty Villa, and USC Village GALA. His clients' work for Apple, Facebook, Netflix, and more, aired and presented at the events like WWDC, and screened on top-level digital billboards like Time Square, New York, and LA MOXY, Los Angeles.

Lai Jiang was born and raised in Ningbo, a coastal city in eastern China. She received her master's degree in Film and Television Production at the University of Southern California. During her undergraduate years, the experience of working as a college radio station producer introduced her to the fascinating world of sound editing. Over the years, her passion for telling genuine stories through the media of sound never wavered. She has participated as sound designer/editor in numerous short and feature film productions, ranging from fictions to documentaries, commercials, animations, and interactive experiences. Her works have garnered festival recognitions such as the Emerging Filmmaker Showcase at Cannes Film Festival, the News & Documentary Emmy Awards, the Student Academy Awards (Gold), etc and tour around museums and planetariums.

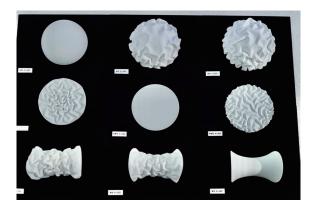
Tomohiro Tachi, Junichiro Horikawa, Daiki Kanaoka

Tomohiro Tachi, Junichiro Horikawa, Daiki Kanaoka

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### 6. Origami Tessellations Induced by Growth

- Tomohiro Tachi, Junichiro Horikawa, Daiki Kanaoka



### **Artwork Description**

In this work, we create a series of origami tessellations by simulating the growth of membranes. Nine pieces of 3D-printed forms are designed based on the principle of growth between three types of surfaces of different Gaussian curvatures—a saddle, disk, and hemisphere. These classical surfaces follow Gauss-Bonnet therorem, i.e. circles drawn on these surfaces have total turn angles larger than, equal to, and smaller than 360 degrees, respectively. The other six surfaces with origami patterns exhibit extrinsic appearances independent of their intrinsic metrics. The existence of creases allows the surfaces to transform between arbitrary forms without stretching or shrinking, demonstrating the mathematical universality of origami, which is underpinned by the Nash embedding theorem. We folded a sheet metal along the curved creases obtained by the self-organization process. The video illustrates a bio-inspired self-organization process. We compute the differential growth by identifying the equilibrium between the in-plane (stretch) and out-of-plane (bending) stiffnesses of shells together with an attractor to the target surfaces. Together, the pieces demonstrate the principle of folding that is ubiquitous in nature and art.

### **Artist Biography**

Tomohiro Tachi is a professor of Arts and Sciences at the University of Tokyo. He studied architecture and received his PhD in Engineering from the University of Tokyo. He has been designing origami since 2002 and keeps exploring three-dimensional and kinematic forms through computation, including "3D Origami Teapot", "Origami Stanford Bunny," and "Freeform Origami Corrugation." He developed origami software tools, including "Rigid Origami Simulator," "Origamizer," and "Freeform Origami," which are available on his website. His research interests include origami, structural morphology, computational design, and fabrication. He is involved in STEAM education at the University of Tokyo, College of Arts and Sciences.

Junichiro Horikawa is an Architectural Programmer/Algorithmic Designer. Born in Tokyo, Japan. Graduated Columbia University GSAPP MSAAD. He has been a long-time researcher in the generation and study of various forms using algorithms with computer graphics programming, inspired by mathematics and intelligence in nature. He is constantly hosting live tutorials for algorithmic design on YouTube. He has been awarded by The One Show and Japan Media Art Festival. He is currently teaching at Tokyo University of the Arts and Waseda University and is a project academic specialist at the University of Tokyo. He is the co-author of "Parametric Design with Grasshopper" and the author of "Algorithmic Design with Houdini."

**Daiki Kanaoka** was born in Tokyo in 1989. After studying architecture in England, he participated in the launch of FabCafe Tokyo as a fab engineer. He is involved in product design and planning that makes full use of digital fabrication. Currently, he is a project academic specialist at the Tachi Laboratory of the University of Tokyo and CTO of FabCafe Tokyo.

# Keep Smiling

Varvara Guljajeva, Mar Canet Sola

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### 7. Keep Smiling

- Varvara Guljajeva, Mar Canet Sola



### **Artwork Description**

Keep Smiling is an online interactive experience in the form of a job interview conducted by an 'Al agent'. The agent asks the participant to smile, to smile even more, and to count objects she/he can see through a nearby window while continuing to smile (the system intends to extract the maximum profit from the human participant). Throughout this interaction, the participant's face is detected via a webcam and the smile is rated against a happiness meter. As soon as the participant's smile rating drops below average, she/he is fired, and the interview is terminated. The artwork draws attention to the highly automated and monitored world in which the responsibility for making decisions has been handed to machines and algorithms, and our emotions are evaluated without our consent. By interacting with the artwork, we can experience just how unreliable an emotion detection algorithm can be despite its widespread deployment in our everyday lives. The artwork incorporates a number of elements from the Al industry, illustrating how decision-making and labour culture have been transformed by technology and the absurdity of basing key elements of this culture on the extraction of data and behavioural monitoring of subjects.

### **Artist Biography**

**Dr Varvara Guljajeva** is an Assistant Professor in Computational Media and Arts at the Hong Kong University of Science and Technology (Guangzhou). Previously, she held positions at the Estonian Academy of Arts and Elisava Design School in Barcelona. Her PhD thesis "From Interaction to Post-Participation: The Disappearing Role of the Active Participant" was selected as the highest-ranking abstract by Leonardo Labs in 2020. As an artist, she works together with Mar Canet forming an artist duo Varvara & Mar. Often the duo's work is inspired by the information age. Their works were shown at MAD, Barbican. Ars Electronica, ZKM, etc.

Mar Canet Sola is a PhD candidate and research fellow at Cudan research group in BFM Tallinn University. He has a master's degree from the Interface Cultures department at the University of Art and Design Linz and two degrees in art and design from ESDI in Barcelona and computer game development from the University Central Lancashire in the UK. As an artist, she works together with Varvara Guljajeva forming an artist duo Varvara & Mar. Often the duo's work is inspired by the information age. Their works were shown at MAD, Barbican, Ars Electronica, ZKM, etc.

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Scope of the Cloud

Jooyoung Oh

### 8. Scope of the Cloud

- Jooyoung Oh



### **Artwork Description**

Scope of the Cloud sets its stage on a floating city in 2051, CLOUD, a city of climate refugees. Each game console sets the Planner, Researcher, and Flightless bird as the main protagonist. The city's common transportation is the flying cars known as UAM (Urban Air Mobility). In this city, the bird is a pest. Birds get in the way of the UAM sky route and occur bird strikes by flying toward the propellers of UAM drones.

- (1) The planner is an absolute authority at the top of the cloud city and proposed and realized the cloud after the climate shock.
- (2) The researcher had previously studied birds at the Bird Diversity Institute, but when the research results were no longer available due to the extinction of birds, Echo points, a cloud city contribution system, decreased and were evicted to lower floors of the residence.
- (3) The flightless bird, which has already lost all its families and has lost hope of surviving on the scorching desert floor. This bird instinctively knows that it must climb up to survive by attacking humans.

The basic story of the game is open-ended, and it is entirely up to the player how one would choose the ending. If the player does not agree with the rules of the game to kill the bird or attack humans, the game leads to a different ending. deals with climate refugees. In a playful way, the game questions how mobility can affect ecosystems and human lives.

### **Artist Biography**

Jooyoung Oh is a media artist who uses interactive technologies such as games and Artificial Intelligence chatbots. She has critically developed her work under two interdisciplinary backgrounds: visual design and engineering. She majored in visual design at the College of Fine Arts of Hongik University and earned PhD Candidate in KAIST. Since 2018, her work has been selected by the ISEA Art gallery, ACC, and DA VINCI CREATIVE Biennale, and she was a nominated artist at Busan International Video Art Festival, as well as the Artience Winner at ART\*SCIENCE COLLIDE, British Council, IEEE Brain Winner at Ars Electronica, Linz (2019). In 2020, three works were selected for the SIGGRAPH ASIA Art Gallery. She has participated exhibitions at Nam June Paik Art Center, Art Center Nabi, Daejeon Museum of Art, Hyundai Motor Studio (Seoul&Beijing), and has been sponsored by NCSOFT and ZER01NE as a creator, and was invited as a jury at A.MAZE Berlin International Art Game Festival.

# Land Enough

### 9. Land Enough

- Ray LC, Bengi Agcal, Ziyou Yin, Yanheng Li



### **Artwork Description**

"What will be the meaning of developing technology if we don't even have enough living environment?" With this question in mind, Land Enough merges the present with a fictional, climate-destroyed future to encourage the speculation of future technologies, hoping it can in turn promote people to have a positive change in their current climate actions. What is non-fungible are the stories we tell ourselves in this future landscape. As an alternative to destructive NFT interventions, we developed a participatory workshop where 20 strangers from 11 nationalities were brought to a trash-covered secluded beach to enact a community of fledging survivors of a coastal community at the edge of time. A series of participatory artworks about possible future technological artifacts were made through role-playing in a climate-destroyed fictional future. We aim to exhibit the artifacts along with sketches and video, opening up a space to discuss and speculate about what is non-fungible to the human future. This exhibition and process invite the consideration of sustainable technology development and artmaking for a more human-driven future.

### **Artist Biography**

Ray LC (Parsons MFA, UCLA PhD) creates exhibitions and interventions using environmental storytelling and human-machine interactions. He takes inspiration from his own research in human-computer interaction and neuroscience in works that probe the human community's evolving relationship with technology. Notable exhibitions include BankArt, 1\_Wall, Process Space LMCC, New York Hall of Science Residency, Saari Residency, Kyoto Design Lab Residency, Kiyoshi Saito Museum, ICRA Elektra Montreal, ArtLab Lahore, Ars Electronica Linz, NeON Digital Arts Festival, New Museum, CICA Museum, NYC Short Documentary Film Festival, Burning Man, NeurIPS, Deconstrukt, Angewandte Festival, University of Graz, Elektron Tallinn, Floating Projects,

Jockey Club Creative Arts Centre, Osage Gallery, Hong Kong Arts Centre, Science Gallery Detroit.

**Bengi Agcal** (b. 1998) is an MFA candidate at UBC, Canada. As an engineer and an artist, she experiments with digital and traditional mediums such as 3D rendering, Internet computing, Generated Adversarial Networks, film, and recycled materials. Her work explores the various themes of anthropomorphic animal narratives, climate change, and gender power dynamics. She draws references from current scientific research, science fiction, and her experiences while living in Turkey and Hong Kong.

Ziyou Yin (Ines, she/her) is a Chinese UX researcher and designer with a background in Communication in Media, Arts and Design (Bachelor of Communication, BNU-HKBU UIC, China) and UX design (MA, UAL, UK). She has been exploring embodied, multi-sensory experience design, LARPing, as well as critical thinking and speculative thinking with co-design methods in UX design research. Her previous school-enterprise collaboration projects with This Ain't Rock'n'Roll Ltd (UK) and V&A Museum (UK) deepened her interests in tangible, multisensory design, and speculative co-design. Themes including sustainability, cyborg, and human senses are her main research focus in the fields of design and HCI.

Yanheng Li is a PhD student at the School of Creative Media, who came from the Beijing Institute of Technology. She studies how tangible media can help people explore their relationships with others and non-human beings, and she hopes to challenge people's preconceived perceptions. She is a video producer who enjoys collecting sounds and images from everyday life.

Yuqian Sun, Chenhang Cheng, Ying Xu, Yihua Li, Chang Hee Lee, Ali Asadipour

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### 10. Wander [001]

- Yuqian Sun, Chenhang Cheng, Ying Xu, Yihua Li, Chang Hee Lee, Ali Asadipour



### **Artwork Description**

An intelligent chatbot called *Wander* is presented in this work, using knowledge-based story generation to facilitate it on daily communication platforms, which produces interactive fiction with the most accessible natural language input: text messages.On social media platforms such as Discord and WeChat, Wander can generate interactive travelogues. Her journeys were realised through two types of command: 'Visit' and 'Action'. Each time a participant sends a location message with the 'Visit' command, Wander will go to that place in a random year between 3000 and 5000 AD and then send back travel notes, including its GPS location, futuristic photos, and an environmental description. Then, with the 'Action' command, participants can ask Wander to explore the place using any method, such as searching for life, going into the ruins, etc.

The journeys are visualised in real-time on an interactive map which is updated through participants' data. It shows the results of this hybrid UGC and AIGC system, which brings an asynchronous, crowdsourced interaction to contribute to a future earth chronicle. Based on Viktor Shklovsky's defamiliarization technique, we attempt to present how an AI agent can become a storyteller through common messages in daily life and use supportive platforms to lead participants to explore the world in decentralised ways. Until May 2022, more than 18,000 people have joined the journey with Wander.

Project Website: www.wander001.com

### **Artist Biography**

Yuqian Sun (CheeseTalk) is a Chinese AI artist and researcher who graduated from Tsinghua University and Goldsmiths. She's currently a doctoral student at the Royal College of Art and an art consultant at rct.ai. Inspired by conversations between virtual characters in video games, she produces works that steer with curiosity. Her main art

projects focused on AI chatbots, which explore the narrative and intimacy in human-AI interaction. Her works and research have been presented at galleries and conferences including 2020 Artificial Life, The media facade of Yeltsin Center, Foundation of Digital Games(FDG), ISEA, ACM Multimedia Interactive Art, BBA Gallery Berlin, Shanghai Aiiiii Art Center and New York Times Square, 2022 Lumen Prize.

Chenhang Cheng is a Full-stack developer.

Ying Xu is a postgraduate student in the Department of Industrial Design at Wuhan University of Technology. Her research focuses on Human-Centered Design, Human-Al Interaction and Collaboration. She has dedicated her studies to articulating how technology benefits humans and how intelligence expands their potential.

Yihua Li (Cory) is a Chinese artist and researcher who's currently an undergraduate student at Donghua University, department of product design. Inspired by mythology narrative and hybrid of text and symbol, he produced works that steer with curiosity. His main art projects focused on motion graphics and interactive arts, which explore the narrative and intimacy in human-machine interaction.

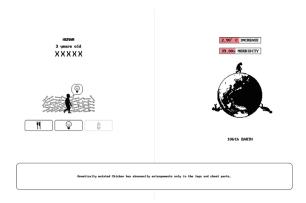
Chang Hee Lee PhD FRSA is the director of the Affective Systems and Cognition lab and Assistant Professor of Industrial Design at the College of Engineering at KAIST (Korea Advanced Institute of Science and Technology). Before joining KAIST, He was the 2nd Year Program Leader and Tutor (Assistant Professor) in Innovation Design Engineering (IDE) — a joint postgraduate program between the Royal College of Art (RCA) and Imperial College London (ICL). He is a graduate of the Central Academy of Fine Arts (CAFA) and obtained his PhD from the Royal College of Art (RCA). He was chosen for the UK Design Council's One's to Watch list, a list of the 70 most talented emerging designers in the UK. He was elected by the Overseas Korean Foundation (OKF) as one of the Korean Future Leaders.

Ali Asadipour holds a PhD in Engineering, an MSc in Computer Science from the University of Warwick, and a first-class BSc in Computer Engineering from IAUT, Iran. His innovative training interface was shortlisted by Innovate UK as one of the top three choices for the enhanced medical training and care challenge in the Virtual and Augmented Reality Innovation Contest in 2015. His contribution as a technology consultant in an EPSRC-JLR funded project led to two prestigious publications. In 2018, this project was showcased at the Science for a Successful Nation event and selected as the top choice by EPSRC. The outcomes of his recent GCRF project funded by RAEng were presented at the British Science Festival 2019. His appointment is part of RCA's institutional strategic plan 2016–2021 to enhance STEM research capacity in the College, bringing scientific subjects together with Art & Design to address global challenges.

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### **11.** Gaia

- Yunyoung Jang



### **Artwork Description**

Gaia is an eco-game that people can play on the web. The background of this game deals with climate change and pandemics experienced by the planet we live on. In this game, the players view the environmental information as they select meals, electricity, and medical treatment related to one's survival. The button appearing on the screen means routinized behavior in human survival, but there is a point to look at from a social and ethical point of view. Through the selection of a button, the player is exposed to a specific kind of environmental research information on global issues such as climate change and pandemic which consequently bring a sense of awareness that we are all connected. The human-shaped character in the game is also a biological body through which radioactivity, dust, contaminated food, and toxic substances accumulate and pass, as well as a material entity through which industrial systems, power structures, and economic interests compete. The body and entity that collapse and resurrect inside the game are placed on a complex network the of harmless gas, barren land, rotten food, a system designed to force you to choose a social system that turns like a cogwheel by clicking the button. In the process of appreciating the game, the player can imagine the future while watching the environmental research. The player's choices determine the Earth's morbidity and temperature. As a result, the number of times the Earth is born is updated, which symbolizes that human influence has the power to destroy the planet. As a result, the players are cordially invited to rethink that human choices are interconnected and dependent on the life activities of humans and non-humans, reflecting on anthropocentric position and responsibility.

### **Artist Biography**

**Yunyoung Jang** is a media artist seeking synthesis between visual arts, science, and technology. She is interested in cognitive systems and ecology. Her work is about the position and responsibility of humans in the future where various entities are organically

connected and newly produced amongst the relationships between humans and animals, humans and the environment, and humans and artificial intelligence robots. Through her art practices, she pursues interconnectivity, paying attention to interaction between the viewer and the art as well as the fusion expression method of art that incorporates Artificial Intelligence and sensing technology. She graduated from Kookmin University with a bachelor's degree in Fine arts and Entertainment Design (2012-2017). She completed her master's degree in Art & Technology from Sogang University (2018-2020). She participated in the exhibitions at NeurIPS AI Art Gallery (2021), Art Center Nabi (2020, 2021), and Forking Room (2021).

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Taezoo Park

Huang, Yun Suen Pai, George Xiongqi Wang, Jamie A. Ward, Kai Kunze

### 12. Digital Being: Thinking of the Stars

- Taezoo Park



### **Artwork Description**

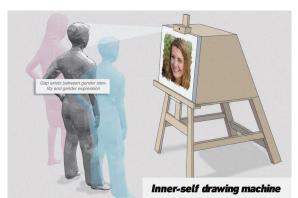
Everything in the world is going digital. I am looking for an invisible, formless creature born out of a gap of radical change. I call it, a "Digital Being". Some of them work interactively and some of them randomly work based on the characteristics and the original functions of the possessed machine. Through my artwork, I hope to invite you to a world beyond human-centered thinking. I recently discovered a new version, NFT creature that has settled on the abandoned TV over the internet. Through NFT and IPFS technology, it has a unique identity, and it will live with us forever.

### **Artist Biography**

A Korean-born, New York-based artist, **Taezoo Park** is looking for an invisible, formless creature born out of a gap of radical digital transformation. He calls it, "Digital Being." Along with him, "Digital Being" was introduced by ABC news, BBC news, Artnet, ACM SIGGRAPH Digital Arts Community, ACM SIGGRAPH Asia, World Maker Faire, CHI (Computer-Human Interaction), SPRING/BREAK Art Show, Governors Island Art Fair, Lower East Side Ecology Center, Made in NY Media Center by IFP, AFA Gallery, Sylvia Wald and Po Kim Gallery, and World Trade Center. Currently, his recent interactive installation, "Digital Being: Rebirth", is on display at the 3 World Trade Center from November 2020 to now.

### 13. Inner-self Drawing Machine

- Qing Zhang, Fan Xie, Yifei Huang, Yun Suen Pai, George Chernyshov, Jing Huang, Xiongqi Wang, Jamie A. Ward, Kai Kunze



### **Artwork Description**

Besides men and women, people can be neither man nor woman, have a fluid identity, be transgender, or agender. Not only that, in terms of sexual orientation, besides heterosexuals, there are homosexuals, bisexuals, pansexuals, and asexuals as well. However, ignorance and lacking empathetic understanding of those sexual minorities infers various socio-cultural consequences that puts them in great vain. For instance, in the case of transgender people, 28% of them postponed their health care due to discrimination, 19% of them refused medical care altogether and 28% of them experienced verbal harassment by medical professionals, according to a 2011 national transgender discrimination survey (USA). Unluckily, we are apt to generate a basic understanding of others based on their gender expressions and use such irresponsible and heuristic findings to deal with others. Thus, we decided to create an installation to at least minimize the gap for a moment when the audience can enjoy themselves by watching the drawing performance of their ideal portrait (inner-self). Regarding the Al portrait painter, we leverage StyleGAN to generate the continuous gender spectrum of each participant based on their facial features, in which they can choose their ideal gender representation that reflects their inner-self the most. Then the Al portrait painter "draws" the selected "self" on the canvas. When the drawing performance finishes, the audience can receive the drawing result as a well-printed portrait. The printed portrait also works as a souvenir of participating in our work. Through Inner-self Drawing Machine, we aim to raise an empathic understanding of the various sexual minorities for a more inclusive, preferable, and sustainable world.

### **Artist Biography**

**Qing Zhang** graduated from Tokyo University of the Arts and received his MFA degree. During the master's period, he specialized in creating public installation and media artworks while considering art as a method. He also has a B.A. in visual communication

Inner-self Drawing Machine

Qing Zhang, Fan Xie, Yifei Huang, Yun Suen Pai, George Chernyshov, Jing Huang, Xiongqi Wang, Jamie A. Ward, Kai Kunze

design from the Hubei Institute of Fine Arts. He is currently a doctoral student studying human-computer interaction, especially concentrating on programmable human vision, which is expected to enhance and reshape human visual experience.

Fan Xie is a graduate student pursuing a Master's in the Department of Information and Communication Engineering at the University of Tokyo. She graduated from Shanghai Jiao Tong University with a BA in Computer Science. Her research interests include Machine Learning and Computer Vision.

**Yifei Huang** received his B.S. degree in automation from Shanghai Jiao Tong University, Shanghai, China in 2015 and received Ph.D. degree from the University of Tokyo, Japan, in 2021. He is now a project assistant professor at the University of Tokyo. His research interests include first-person vision, visual attention, and human-computer interaction.

Yun Suen Pai is currently an assistant professor at the Embodied Media Laboratory, Keio University Graduate School of Media Design. He obtained his bachelor's degree in Computer-Aided Design and Manufacturing Engineering, as well as master's degree in Engineering Sciences at the University of Malaya, Malaysia. Then, he proceeded to obtain his PhD in Media Design at Keio University, Japan, and furthered his postdoc research at the Empathic Computing Laboratory, Auckland, New Zealand. His research interest is the effects of VR/AR/MR towards human behavior, perception, and learning using physiological signals and Artificial Intelligence.

**George Chernyshov** is attending Keio University Graduate School of Media Design, Japan.

Jing Huang studied Chinese painting at the Guangzhou Academy of Fine Arts where she received her BA & MA degrees. She discovered her love for media art in 2018 while she was an exchange student at Tokyo University of the Arts. Since then, she began leveraging her past experiences in traditional painting when creating media artworks. She is good at observing people's social behavior and is interested in exploring the causes behind those social activities. JING HUANG focuses on internal initiative and external authority in the establishment of the formation of self-identity.

After studying at UC, Berkeley's global studies department and earning his bachelor's degree in International Studies from Meiji Gakuin University, **Xiongqi Wang** entered the Keio University Graduate School of Media Design to explore his passion for Design and Technology. Currently, he works as a master's student at the KMD's Geist lab.

**Dr Jamie A Ward** lectures on Machine Learning at Goldsmiths. His research lies at the intersection of Wearable Computing, Theatre, and Social Neuroscience. He is a visiting researcher at UCL, DFKI Kaiserslautern (Germany), and Keio University (Japan). He has worked at UCL's Institute of Cognitive Neuroscience, and Lancaster University Computing Department (where he was a Marie Curie Fellow). He received his PhD from

the electronics lab, ETH Zurich, in 2006, where he developed some of the first uses of multi-modal, wearable sensors for human activity recognition. He graduated with a degree in Engineering from the University of Edinburgh in 2000 and has worked on and off at various tech companies over the years. Jamie also trained and worked as a professional actor. For more details, see http://www.jamieward.net.

Kai Kunze loves hacking and playing with technology, he also loves science. With over fifteen years of experience in the Wearable Computing research field, Kai works as a Professor at the Graduate School of Media Design, Keio University, Yokohama, Japan. Beforehand, he held an Assistant Professorship at Osaka Prefecture University. He received a Summa Cum Laude for his PhD thesis from Passau University. His work experience includes research visits/internships at the Palo Alto Research Center (PARC), MIT Media Lab, Sunlabs Europe, and the German Stock Exchange. In his spare time, he likes to go to the Chaos Communication Congress and other maker/hacker venues, and he also writes smartphone applications.

Minori Manabe, Wataru Takamine, Richard Sahala Hartanto, Reita Maeno, Kai Fukubayashi

# multi-lingua-body

### 14. multi-lingua-body

- Minori Manabe, Wataru Takamine, Richard Sahala Hartanto, Reita Maeno, Kai Fukubayashi



### **Artwork Description**

multi-lingua-body is an experience of selecting words that rhymes in many languages through stepping forward, out of an aim to blur the boundary of words as sound and meaning. Through this work, language usage in new media is explored through closely looking at how it is used in everyday oral, printing, radio broadcasting, and texting, as it expands non-fungibly. The choices of words shown in his/her native language are always rhymable in pronunciation of one of many languages, so that participants can experience words' exchange with the rhyming expression beyond the language barrier. Although the experience is mainly performed by two people, bystanders also have an unprecedented auditory experience. Several words appear in the participant's native language at the feet of the participant, and by stepping on one of the words, three more words appear, and the experience proceeds by repeating it. After one participant selects two words in turn to create a phrase like a question, the other participant can select two words like an answer, and an exchange is born. Repeating this exchange rhythmically, pronounced exchange are placed on a single musical phrase. The words that come at the same timing in the musical phrase (e.g. the first word of one participant's question and that of another person's question) always rhyme with each other as a sound. This creates a sense of rhyming between phrases, which leads to a sense of comfort in sound. When hearing or producing a sound, there are two factors: whether it has a meaning and whether its meaning is understandable. This work is an experience of creating a sound that has meaning but is not understandable, just as when listening to a foreign language. The sounds created by the experience sounds like a series of words without meaning, like an instrumental or humming, but they are different from them in that the artist created them with meaning. Those who listen to the sounds created by this work have room to consider their meaning.

### **Artist Biography**

Minori Manabe was born and is based in Tokyo. Minori mainly creates works on the relationship between language and the physical body. Studied mechanical engineering and Interdisciplinary Information Studies at The University of Tokyo, Minori is currently working for Sony Group Corporation.

Wataru Takamine is a software engineer who is interested in creating products that break down and reconfigure existing systems and structures. Studied mechanical engineering and business administration, Wataru is currently working as an android engineer in DMM.com LLC.

Richard Sahala Hartanto is a designer who is passionate in weaving delightful digital interactions between physical and digital realms. Studied mechatronics and computer science in Tokyo, Richard is currently working as a UX designer in Star, Inc.

Reita Maeno is a student who belongs to the department of Mathematical Engineering and Physics, the university of Tokyo. He is majoring in signal processing and circuit. Recently, he has been mainly studying wave field. He is also interested in music and works as composer and arranger of music.

Kai Fukubayashi was born in Shibuya-ku, Tokyo. In 2015, fascinated by the nature of Kumejima Island, Okinawa, he moved to the island and started to photograph the stars, whales, and people of the island. Since 2018, he has been active as a photographer and filmmaker. He is currently based in Tokyo and Kumejima.

SIGGRAPH ASIA 2022 DAFGU ART GALLERY

Ren Yang

# People of the Gold

### 15-A. The Patient 05

- Axl Le, Ingvild Friis Bjerkeli



### **Artwork Description**

I made ramen for you! Ingredients: Two computer mice, 3m wires, 12 shredded documents, three invoices, two employees, one business card, 10 000 ¥, 164 pins. Enjoy!

In Patient 05 from the series The Patient (2021), Axl Le combines a bowl of ramen with ironic visuals to depict an imagined scenario of two employees in a less-than-normal workplace. These visuals aim to reflect on the role of a modern work environment and how it impacts our life.

Many assumed that the increased use of modern technology in the workplace would allow mankind to sit back more, yet some people are working longer hours than ever. The main goal of *The Patient* series is to allow people to sit down and think whether our life really exists only for work, and how we can live more like a person than a machine.

### **Artist Biography**

Axl Le (Yi Le 乐毅) is a digital artist and filmmaker from Shanghai, China currently living in Oslo, Norway. Graduated with a bachelor's degree in Architecture from Shanghai University in 2013, he has been creating digital art since 2016. His work includes short films, motion works (animated works) and digital prints. Through using 3D software as his main tool of creation, Axl explores the relationship between nature and technology, society and individual, present, and future. His work and artistic style explores many categories, such as nature, society, and future-related topics. Since 2017, he has exhibited his work at the Museum of Contemporary Art Shanghai, Tank Shanghai, China Academy of Art, Liu Haisu Art Museum and Himalayan Center Shanghai, to mention some.

**Ingvild Friis Bjerkeli** manages Axl Le's studio and has been working with digital artist Axl Le since 2017.

### 15-B. People of the Gold

- Ren Yang



### **Artwork Description**

People of the Gold is a project that reflects on the identity, and history of the early Chinese immigrants in California during the period of Gold Rush. The project consists of multiple archive-looking moving images generated by a Machine Learning algorithm trained with historical documents. The constantly changing portrait photo of people and the "identity information" next to the portraits are presented.

The slow transitions of the millions of faces and information in the "photo collage" generalized the individuality, discussing how technology works to dehumanize these groups of people and to make them replaceable, exchangeable, or 'fungible.' The tension between the specificities of these human identities, their unique humanness, and the Machine Learning algorithm itself force audiences to rethink what technology can do, the violence it has, and the potential to inflict upon difference, upon otherness.

This project aims to raise emotions to the history of those people of the gold through exploring the potential of Machine Learning algorithms in the field of photographic imaging and anthropology studies. It also raises questions about relations between algorithms and identity.

### Artist Biography

Ren Yang is a documentary images and new media artist, based in Taipei and Hong Kong, primarily focusing on work that is related to social issues, family, and humanity. He graduated from the School of Creative Media, City University of Hong Kong in 2022. His artworks have been selected for SIGGRAPH Asia 2021 Computer Animation Festival, 2021 In Moment Film Festival, Electronic Literature Collection Volume 4, and many more.

SIGGRAPH ASIA 2022 DAEGU ART GALLERY

### 15-C. Nippo-Latin American Land

- Marita Ibañez Sandoval



### **Artwork Description**

As part of ongoing visual research on migration in Japan, this work aims to understand the migratory footprints of Latin American communities and their non-fungible identities within the Japanese landscape. The city of Jōsō in Ibaraki Prefecture is home to a significant migrant population; forty percent of it, is Brazilian, mainly of Japanese descent (Matsumoto&Okumura, 2019). By analyzing the transformations of media content, or in this case, visual communication in the landscape, it is possible to observe the changes in the migratory process and the work of the Brazilian communities (Urano, 2002).

Through the recreation of the city, we can also discover patterns in visual communication and witness how a community constructs its own identity. Human behaviour is linked to relationships that people establish with certain environments and specifically to a socio-environmental identity construction (Valera&Guàrdia, 2002). Through photographic visits to Jōsō in search of the migratory footprint and its effects on the urban-rural landscape, a methodology was developed consisting of photo-walks, photo-archiving, collage, and photomontage. Flusserian ideas of migrants as mirrors and windows (Flusser, 1987) as a way of (re)observing the city through their eyes and experiences become essential in constructing these images and virtual and analogical collaborative practices.

The exploration of re(visiting) and re(photographing) Jōsō city in Ibaraki, Japan, generated a collection of photographs from the city, in which signs from government and private businesses give a glimpse of the migrant communities that have made Joso their homes. This work remediates images from physical to digital environments and uses an intermediate point between the printed photograph's two-dimensionality and the visited landscape's three-dimensionality (Itozaki2006). In doing so, it explores

digital practices and analogical photomontage's materiality, capable of sparking history, stories, and memory (Napolitano, 2015) and creating new landscapes for understanding identity.

### **Artist Biography**

Marita Ibañez Sandoval is a visual artist and researcher. Born and raised in Lima, Peru and based in Ibaraki, Japan. She is a Monbukagakusho Scholar of the Japanese Government. Ibañez has worked as a lecturer in art and design for over a decade. Currently pursuing doctoral studies in Photo media at the Doctoral Program in Art at the University of Tsukuba. Her work has been presented in different cities in Latin America, Spain, France, the USA, Korea, and Japan. She is researching landscape, migration, and Latin American communities in Japan and is a Time Lab/McLeod Lab research group member

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Marita Ibañez Sandoval

### 15-D. Modern Rescue 2022ss

- Yuxi Mao, Fang Fang



### **Artwork Description**

It is the development of science and technology and the construction of global informatization that have brought various challenges. This work is a virtual catwalk animation based on modern urban diseases, consisting of three themes: information leakage, social behavior alienation, and environmental degradation. The work extracts key imagery from the social context, such as LED screens, wires, mobile phones, and optical cables in the context of information leakage; mask, stage, mirror and emoji in the context of social alienation; gas masks, deserts, chimneys, tunnels in the background of environmental degradation. Three shows and costumes were designed according to the keywords. Taking the catwalk as the form of presentation, we use 360-degree panoramic real background shooting, modeling, special effects synthesis and other implementation methods to call people's attention to these three types of problems, and to protect their own safety in the online world. This work aims to inspire people to focus on sustainable development goals by realizing the environmental damage and protecting the environment.

### **Artist Biography**

**Yuxi Mao** is a graduate student in Design with a major in Digital Animation and New Media Communication. Mao's works use 3D animation and visual effects as the main expression method, and philosophical reflection on social issues as the main expression content. Through the animation works, Mao hopes to provoke the audience to think about some social issues. Mao's representative works include "ORDER-DIS-ORDER", "Migration" and "Modern Rescue 2022SS".

Fang Fang, a former undergraduate student at the School of New Media Art and Design in Beihang University, is now a MSc candidate at the Shanghai International Design and Innovation College of Tongji University. Fang Fang majors in digital media art and technology.

### 15-E. River Concert

- Siouming Wu



### **Artwork Description**

The relationship between human beings and rivers can often be traced back to the beginning of human settlements, but have we heard her voice carefully?

I started sound recording on the banks of rivers with a local group in 2020, using hydrophones to go deep into the water to record underwater sounds. We recorded and collected sound samples in different river basins, including upstream and downstream, and found that the sounds of different basins have their own characteristics.

We developed a set of technology for speech recognition, including the emotion recognition function built into our project and analyzed audio samples of underwater recordings. This technology was originally used for human language translation and communication, but when we applied it to natural sounds, it took on a whole new meaning. We begin to regard nature as an equal being, just like a "human", trying to understand each other and have a dialogue with her.

The technical system refers to the characteristics of emotion recognition and the theory of harmony. I used the data of audio analysis to perform operations and compiled the content of the database into an artificial intelligence music system, which as an output created a non-fixed music structure that was automatically composed. We can hear the underwater sound as a dynamic piece of music and let the river play the music itself. Through frequency-modulation we obtained audio contents close to the spectrum of the human voice and put the sound into the speech recognition system. This way, the system can recognize many unexpected words and sentences, so that the listeners can have a chance to know what the river is about to say.

River Concert

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Siouming Wu

Young Joo Lee

# Lizardians

### **Artist Biography**

Siouming Wu is a Kaohsiung-based sound artist, musician, and artistic director of Popping City Art Studio. His multi-disciplinary works in sound, digital video, installation, and electronic music have been widely presented across Taiwan. Ming's site-specific projects explore phenomenology and human perception along with social issues facing urban spaces in his hometown: economic injustice, youth protest and unsustainable environmental practices. His installations and performances have won him numerous awards from prestigious organizations including the National Art Exhibition ROC, Taiwan Emerging Art Awards, and Austronesian International Arts. He was one of the artists who won "Made in Taiwan" New Artists Award. He has been invited to participate in "Ars Electronica - Garden Formosa", "Athens Digital Arts Festival", "Athens Biennale", "MADATAC Videoart & New Media Audio-visual Art Festival", "IN-SONORA Sound and Interactive Art Festival" in Spain, "Sonorities Festival of Contemporary Music" in the UK, and "Land Art Biennial" in Mongolia.

### 15-F. Lizardians

- Young Joo Lee



### **Artwork Description**

Lizardians is a three-channel 3D animation that depicts a world, in which a technology that applies the axolotl salamander's genetic powers of regeneration to the human body has been commercialized for mass consumption. Human body parts are produced and sold as health and beauty products by a biotech corporation, RENEW. The first channel shows the reality of a worker whose job is to regenerate her body parts in isolation, the middle channel stands for the corporation itself, and the third channel shows the reality of a worker who takes care of defective limb products. Lizardians is a story that questions the value of labor, authorship, and creativity in a world that is controlled by a capitalistic system.

### Artist Biography

Young Joo Lee is a multidisciplinary artist from South Korea, currently living in Cambridge and Los Angeles, USA. In her recent moving image works, Lee's personal narratives as an immigrant, South Korean, and a woman interweave with the current and historical narratives to investigate the issues of alienation, discrimination, and mental illness in late capitalist society. Lee's works have been exhibited at the National Museum of Modern and Contemporary Art- Seoul, the Drawing Center, the Curitiba Biennial, GLAS animation festival, among others. She is currently a Visiting Lecturer at Harvard University and a Harvard Film Study Center fellow. Lee earned an MFA in Sculpture at Yale University (Fulbright scholarship), an MFA in Film at Staedelschule-Frankfurt (DAAD scholarship), and a BFA in Painting at Hongik University.

Chanee Cho

Fang Fang, Shuo Yan

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### 15-G. Remembrance: Magma

- Chanee Choi



### **Artwork Description**

Remembrance: Magma is an immersive virtual reality animation addressing the poetics of a mind as it is dying of dementia. Remembrance: Magma incorporates modern tech, cutting-edge research on the aging brain, East Asian crafting aesthetics, and Korean shamanic traditions as it examines the nature of the brain as a sensor that desires data even as it slowly fails. Culturally intersectional, Remembrance: Magma explores the poetic and painful processes of memory degeneration.

### **Artist Biography**

Chanee Choi is a transdisciplinary artist. She has developed a ritualistic craft-based art practice that transcends the conservative and isolationist roots of traditional East Asian craftwork by focusing on a celebration of feminist theory and modern tech. Within this hybrid genre, she produces both embodied and virtual immersive experiences exploring the effect of immigration on issues of identity, and the synesthetic processes of corporeal-cognitive space. She is from South Korea and now lives, teaches in Syracuse, New York. She earned her BFA in Craft Design from Dongduk Women's University in 2013 and MFA in Fiber and Material Studies from the Art Institute of Chicago in 2016. Choi earned her PhD in Art and Technology at DXARTS at the University of Washington. Her work has been published in UW News, UW College of Arts & Sciences, GeekWire, International Examiner, Seattle Times, KUOW National Public Radio, KING-TV, ISEA2022 Barcelona, and WIRED magazine.

### 15-H. Voight-Kampff 2.0

- Fang Fang, Shuo Yan



### **Artwork Description**

Voight-Kampff 2.0 is a reflection on the sustainable development of Artificial Intelligence technology in the future. Once a machine becomes conscious, would AI stay as a tool or obtain a soul? Would there be a boundary between humans and machines?

A Voight-Kampff test process involving two individuals is simulated in this work, where the emotional fluctuations generated by empathy provide the basis for judging whether the suspect is human or machine. There is a saying in Buddhist philosophy that "what can think is the heart", which means that only equipped with empathy could one be considered with having personality and soul. Unlike breathing or heartbeat, EEG data is the most primitive and cannot be subjectively controlled, which also metaphors the process of "thinking". Therefore, the work chooses EEG data to test whether empathy produces emotional fluctuations.

Voight-Kampff 2.0 aims to create emotionally charged experiences through biological data. With the changing images visualization of brain waves, the human facial image is artistically processed in a retro pixel style. Specifically, when a question is delivered by the judge, the emotional change of suspect is stimulated and reflected in EEG data, which is visualized clearly in graphics and facial images on screen of both sides. The Match degree between emotion reflection and correct answer will help the judge determine whether the suspect is human or Al.

Real human brainwave art images have obvious area changes and sound feedback due to the question, but machines don't. The work not only allows audiences to empathize with the work, but also founds a connection among audiences' emotion.

The work provides references for the creation project of EEG biological cooperation.

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Fang Fang, Shuo Yan

Furthermore, significance of maintaining self-awareness in relationship of humanmachine is also emphasized, which helps derive the sustainable development between human and Al.

### **Artist Biography**

Fang Fang, a former undergraduate student at the School of New Media Art and Design in Beihang University, is now a MSc candidate at the Shanghai International Design and Innovation College of Tongji University. Fang Fang majors in digital media art and technology.

**Shuo Yan** received her PhD in Beijing Institute of Technology. She used to work as a research assistant in MIT Media Lab. Currently, she is an Associate Professor in the School of New Media Arts & Design, Beihang University, Beijing, China. Her grants, awards, and publications include over 17 scientific papers, two patents, a national excellent doctoral dissertation award supported by China Simulation Federation, a national award for distinguished doctorates in China. Her work seeks to push the boundaries of design and technology to create innovative solutions with the power to augment human capabilities in XR environment.

## 15-I. The Emerging Media Art Performance of Eine Kleine Nachtmusik

- Kyungho Lee, Yousang Kwon, Luce String Ensemble



### **Artwork Description**

Recently, even classical musicians suggest that more fascination and accessibility are needed to make orchestral concert music inspiring and exciting. Classical musicians are, therefore, now more passionate than ever about expanding their boundaries. From this perspective, we created an emerging media art performance with a classical music quartet that collects, analyzes, and reflects not only musicians' audio signals but also audience-generated noise in addition to the venue's ambient sound texture. The overarching goal was to deconstruct the traditional classical music experience that required the audience to be in formal wear and have background knowledge of the music itself. By applying such rich, lively audio signals—considered noise in the past—as new material for creating real-time interactive visualization, we encourage the audience to fully express their excitement and delight during the performance. In doing so, their expressions become part of the performance, and the visual outcomes become unique, memorable pieces of art. We successfully premiered our emerging media classical music performance to celebrate the 100th day after the museum's opening on May 5, 2022, by presenting three different pieces, including Eine Kleine Nachtmusik. According to our survey results, the audience fully enjoyed the new experience as an emerging form of classical music performance.

### Artist Biography

**Kyungho Lee** is an assistant professor at UNIST Design, where he directs the Expressive Computing (EXPC) lab. His research group and his colleagues explore the potential of applying computational intelligence in design by creating AI/ML-driven services, products, and emerging media art performances to explore the excitement and frustration between computers and users from human-centered machine learning perspectives. Kyungho received his PhD in Informatics with Art and Cultural Informatics concentration at the University of Illinois at Urbana-Champaign (UIUC) with the support

of the Fulbright Scholarship. Before joining UNIST, Kyungho was a Fiddler Innovation Research Fellow at the National Center for Supercomputing Applications (NCSA) to explore the potential of artificial intelligence for creating emerging media arts, music, or other creative applications using supercomputing resources (XSEDE).

**Yousang Kwon** is a senior student at UNIST majoring in Electrical & Computer Engineering, working at the Expressive Computing (EXPC) lab, where he explores computer music performance systems and virtual instruments. He is interested in the use of advanced sensors and AI/ML to design an interactive system that can provide real-time accompaniment to a live musician playing a non-improvisatory piece of music. He has been playing the cello in various environments, for an ensemble, orchestra, and real-time interactive performances.

Luce Art Company presents various genres of music with the center of the 'Luce string Ensemble (LSE)' which consists of graduates from Ulsan University's college of Music. Founded in 2014, The Luce String Ensemble (LSE) is an organization dedicated to the Luce Art Company of Korea. LSE creates high-quality contemporary classic music, and conveys inspiration with classic music to audiences around the community. The Luce String Ensemble holds one regular concert, more than 10 special concerts and visiting concerts every year. The Luce String Ensemble's mission is to offer the best music to people in Korea and will continue to grow with the Ulsan citizens by reinforcing community-based activities.

### 15-J. Perception of War: Al Data Universe

- Haein Yoon, Jungho Kim, Hyoungin Kim, Taekyung Yoo



### **Artwork Description**

Perception of War is a data art that provides the modality of the collective perception of the Ukraine war. Through this work, we intend to examine the contemporary perception system replaced with digital data. Today, social media is yet another form of society reorganized into virtual reality and an overwhelming sea of data. Human perception can be easily replaced by a message sent on social media and be relayed in real-time. We focused on that and analyzed the perception embedded in 60,000 huge messages (images, texts, etc.) about the Ukraine war using the AI technology. Each perception manifests itself through its own visual function, such as color, pattern, and texture, depending on its characteristics. This data representation produces an aesthetically alluring and somewhat bizarre image. It provides a critical perspective on the Ukraine war behind the data and the context of capital, power, and politics. In addition, it provides an opportunity for critical thinking and reflection on the new collective vision and the image of the world created by human perception in the data-formatted space.

### Artist Biography

**Haein Yoon** is a PhD student in Art & Technology at Chung-Ang University in South Korea. She develops artworks based on social and cultural data research. She uses Al techniques and artistic strategies to uncover fascinating points and invisible truths inherent in data.

**Jungho Kim** is a PhD student in Art & Technology at Chung-Ang University in South Korea. His research areas are digital human, visual effect, immersive media and 3D reconstruction in Deep Learning. He created an inter active media work, 'GO' based on the match data of AlphaGo and LeeSeDol and exhibited it at SIGGRAPH Asia Art Gallery 2020.

Haein Yoon, Jungho Kim, Hyoungin Kim, Taekyung Yoo

Perception of War: Al Data Universe

Human-like non-human – HAOS human electrical cognition liberation project Ver

Jiun Ting Lai

**Hyoungin Kim** is a M.S. student in Art & Technology at Chung-Ang University in South Korea. He works as an EDM composer named iYN, and his research area is sound visualization with game elements.

**Taekyung Yoo** is an Associate Professor in the College of Art & Technology at Chung-Ang University in South Korea. He has spearheaded the visual effects for motion-picture venues, immersive media, and digital human. He created his own VR web-cartoon format, which is called VR TOON, directing 'Help Me' which was screened at the 2018 Neuchâtel International Fantastic Film Festival. The second VR TOON, 'The Tide' received an official invitation to the "New Frontier" category at the 35th Sundance Film Festival. He participated in the films 'Along with the Gods' (2017, Director of Digital Human Lab), 'The Pirates' (2014, Creature & Asset Supervisor), 'Mr. GO' (2013, Creature & Modeling Supervisor).

## 16. Human-like non-human – HAOS human electrical cognition liberation project Ver 1.0

- Jiun Ting Lai



### **Artwork Description**

"Does a human have to be human?" The project Human-like non-human – HAOS human cognition liberation combines the fields of human-machine interaction, electrical engineering, industrial and material design, visual performance arts, and neuroscience, to attempt using electrical perception sensing in the oral region as an addition to the Eight Consciousness defined by Buddhist disciplines (sight, hearing, smell, touch, taste, etc.), expanding beyond the biological identity of a human. By combining the sensing of the tongue, this implant shows a close connection between Al and humans. It views the refinement of human electrotactile cognition as a form of art, sculpting the way the audience perceives the brain with the art of electrical perception sensing.

### Artist Biography

**Jiun-Ting Lai** was born in 1994 in Taipei. He focuses on the field of Human-Computer Interaction in which he is now working on the creation of something futuristic Human Enhancement — the Orient Cyborg. He is endeavoring to assess the possibility of cooperation between the human brain and artificial intelligence. He won the First Prize in the 13th Taiwan Influential Rookie Award and the 2018 VISION GET WILD AWARD and participates in 2020 Ars Electronica X. Art Domains and 2021 SIGGRAPH Art Gallery. After participating in artist-in-residence programs hosted by Taiwan Industrial Technology Research Institute, he started to put emphasis on the exploration of electrosculpture creation.

### **Credit**

#### **Art Gallery Chair**

Soh Yeong Roh | Director, Art Center Nabi

#### Art Gallery Co-Chair

Jin Wan Park | Professor, Chung-Ang University

### Art Gallery Committee / Reviewers

Myunghee Kim | Art Center Nabi Suhun Lee | Art Center Nabi Sehui Woo | Art Center Nabi Nayea Oh | Chung-Ang University

### **Art Gallery Reviewers**

Masayuki Akamatsu | IAMAS Yong Soon Choi | Sogang University Jean Ho Chu | Sogang University

Haemin Song | Chung-Ang University

Ricardo Dal Farra | Concordia University

Udi Edelman | The Israeli Center for Digital Art, Holon

Moon Ryul Jung | Sogang University Hye kyung Kim | Kyung Hee University

Hye Ran Kim | Sejong University

Taejin Kim | Kookmin University / Korean Society of Media and Art

Young Ho Kim | Chung-Ang University

Joel Kwong | Cultural Management at the Chinese University of Hong Kong

Iris Long | Central Academy of Fine Arts

Su Hyun Nam | University at Buffalo, The State University of New York

Marcus Neustetter | The Trinity Session

Young Jae Oh | Seoul National University of Science and Technology

Hyeri Rhee | Sejong University / Korean Society of Media and Art

### **Art Gallery Exhibition**

2022. 12. 7 - 12. 9

EXCO (10 EXCO-ro, Buk-gu, Daegu, Korea)

**Director** Soh Yeong Roh **Chief Curator** Myunghee Kim

Curator Suhun Lee

Coordinators Sehui Woo, Haemin Song, Nayea Oh

Photograph & Video Jingyu Kim, Sehui Woo

Tech Support Junho Choi

Exhibition Space Design Suhun Lee, Junho Choi

Booklet Design Jinyoung Yang Booklet Editing Suhun Lee, Sehui Woo Booklet Printing KC Communications

### SIGGRAPH ASIA 2022 DAEGU Art Gallery Exhibition

2022.12.7 - 12.9 (10:00 - 18:00)

Exhibition Hall 2, Level 1, West Wing, EXCO (10 EXCO-ro, Buk-gu, Daegu, Korea)



