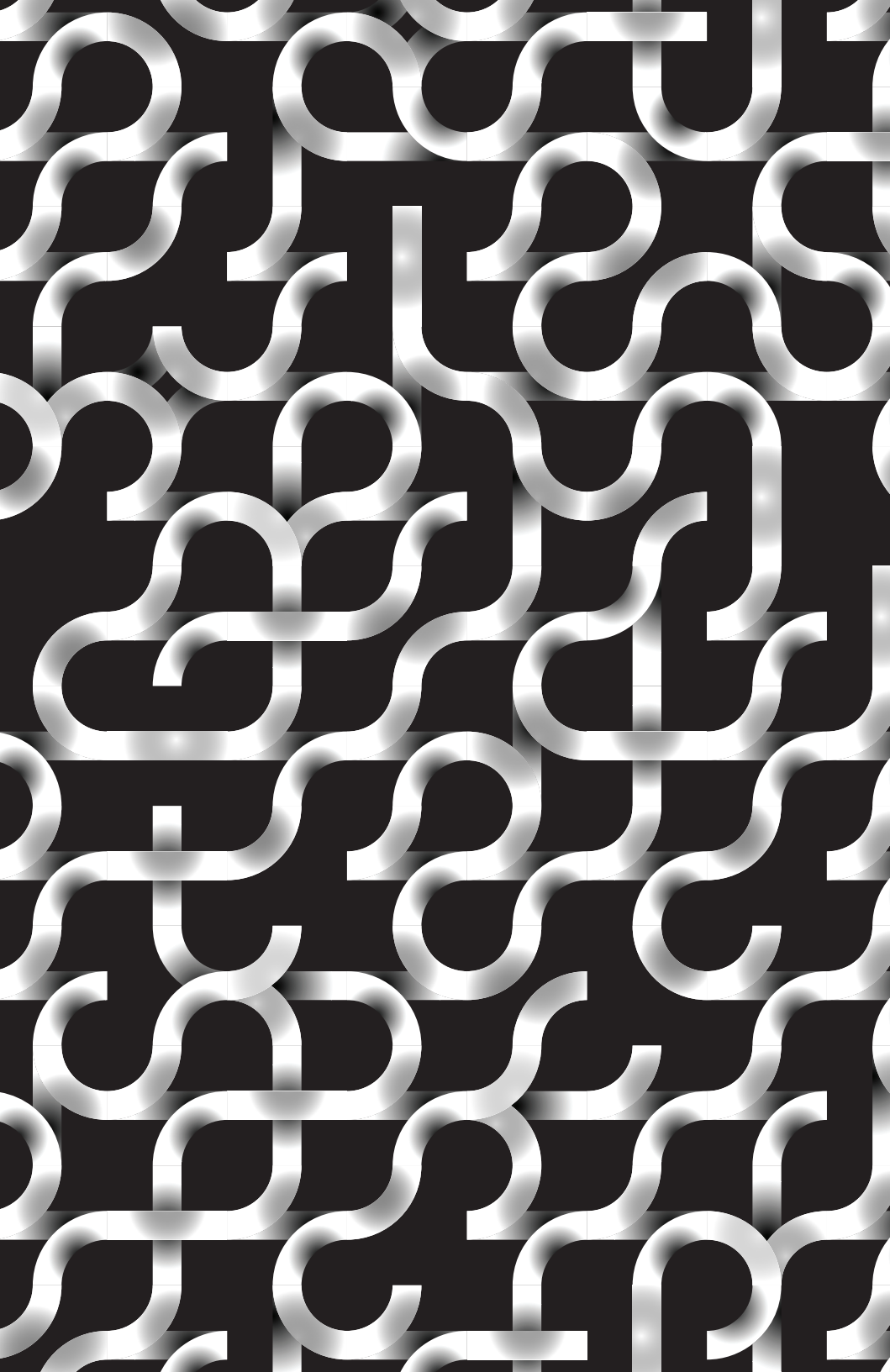
IEEE VISAP 2025

collective care

November 6–15, 2025
Atrium, University of Applied Arts Vienna



Contents

Care is easy to recognize on a personal level, especially when it takes the form of small, attentive gestures woven into daily life. We see it in how someone nurses a sick friend, tends a garden, or stitches a quilt by hand. Each act, marked by presence, patience, and the quiet commitment to care through touch, time, and attention. It takes shape through quiet, deliberate acts that often go unnoticed, yet carry lasting weight and meaning. But what does care look like when it scales up—across complex systems where the risks are higher, the people more dispersed, and the consequences harder to see?

Collective Care [1]

Care is easy to recognize on a personal level, especially when it appears in the small, attentive gestures woven into daily life. We see it when someone nurses a sick friend, tends a garden, or stitches a quilt by hand. Each act is marked by presence, patience, and a quiet commitment expressed through attention. It takes form through deliberate actions that often go unnoticed yet carry enduring meaning. But what does care look like when it scales up across complex systems where the risks are greater, the people more dispersed, and the consequences harder to trace?

This year at VISAP, we ask what it means to approach visualization not only as an academic and professional practice, but as an act of collective care. How can we design visualizations not only represent but protect, nurture, and respect the environments and communities woven into datasets? What practices emerge when we visualize data with empathy, thoughtfulness, and intention? In a time when data shapes public perception, national policy, and personal identity, centering care in our visual methods is not merely desirable but essential.

In the world of data visualization, "care" is not a term we use often. We tend to speak of clarity, insight, and impact. We use words that suggest objectivity and utility. Yet as datasets expand to encompass

[1] *This is an extended edition of a text appeared on June in the magazine Nightingale, available at https://nightingaledvs.com/visualizing-as-a-form-of-collective-care/*

our communities and algorithms increasingly shape our societies, visualization itself becomes a cultural and ethical act. It determines how we see one another and the systems surrounding us. In this light, the role of the designer reaches beyond aesthetics or communication, demanding a deeper engagement with social consequence and ethical responsibility. Acknowledging this role means accepting that visual choices can influence narratives, reinforce or challenge bias, and shape collective understanding in enduring ways.

In contemporary digital culture, data no longer stands as a static artifact but as a living archive that holds memory, identity, and collective history. Biometric scans, environmental sensors, and geotagged images, nearly every facet of human life is now captured and transformed into data.

Giorgia Lupi reminds us that working with data can reveal more than patterns; it can expose the human connections that shape them. Her approach asks us to see data not as detached or abstract, but as something deeply rooted in the stories, emotions, and lived experiences of individuals and communities.
Within this context, data visualization is not merely a cosmetic tool but a critical process of reinterpretation, contextualization, and communication. It becomes a way to narrate our datafied collective histories and to shape how communities become legible. Professionals working with data act as communicators and storytellers. Through visual, sonic, spatial, or even olfactory forms, they translate abstraction into experience, something we can sense, question, and connect with. In doing so, they turn datasets into living archives and visualizations into spaces for reflection, empathy, and care.

Maria Puig de la Bellacasa describes this orientation as “matters of care”, a call to move beyond surface concern into the dense, affective work of maintenance, repair, and relationality.
It invites us to care for our practices as we care for one another, not efficiently, but attentively

and critically. Within this framework, care is not sentimental; it is relational, collective, and ethical. It asks us to take responsibility for the data we engage with and to honor the lives, communities, and ecosystems it represents. To visualize with care is to visualize with empathy, to expose environmental harm, surface silenced narratives, reveal shared experiences, and confront the structural biases that persist unseen.

Building on this understanding of visualization as a relational and embodied practice, we imagine a future where data visualization serves as a process of restoration, connection, and long-term social resilience. This vision invites us to treat data as a space for healing, resistance, and belonging. It calls for visual practices that sustain the well-being of both environments and the communities most affected by them. These same values must also shape how we collaborate with emerging technologies, especially as we co-create meaning with algorithmic systems and AI, shaping how data is interpreted, narratives are generated, and decisions are informed by machine learning tools. Such collaborations raise urgent questions about authorship, agency, and ethics: Whose data is used? Whose voices are amplified or silenced? A care-centered approach to AI foregrounds transparency, accountability, and relational design, prioritizing systems that are socially responsible and culturally attuned.

The selected papers presented at VISAP '25 embody Collective Care through distinct yet interwoven approaches to visualization. *Psychomare* translates psychoanalytic theory into an immersive experience, turning nightmares into symbolic data that invite emotional reflection and empathy. In *Tides of Memory*, digital mourning becomes a spatial monument, preserving collective grief drawn from ephemeral traces on social media. The *Knowledge Cosmos* reimagines scientific literature as a navigable universe, fostering curiosity and cross-disciplinary discovery as acts of epistemic care. *Simulacra Naturae* entwines biological computation with generative ecosystems, decentering human

agency and emphasizing care for nonhuman intelligences. *You Only Have Seven Seconds* reframes participatory data as an intimate archive, transforming whispered recollections into shared memory through AI-driven imagery. Finally, *Living Library of Trees* maps the *Arnold Arboretum* as a living archive of environmental and curatorial labor, positioning visualization as both analytical method and ecological ethics. Together, these works illuminate care as a methodological, emotional, and ecological principle, reshaping how visualization connects people, data, and the worlds they inhabit.

The selected pictorials at VISAP '25 expand the idea of Collective Care through sensory, material, and participatory design. Winds Through Time turns paleoclimate data into a tactile landscape, merging physicalization and visualization to make the ancient dynamics of wind and ice perceptible through touch and play. *Rejecting Colonial Practices in Data Storytelling* challenges dominant epistemologies in data journalism, advancing decolonial visualization practices grounded in local vernaculars and collective authorship. *Kaleidoscope of Thoughts* translates cognitive turbulence into an immersive audiovisual environment, weaving multilingual voices and mirrored projections into a shared meditation on emotion, resilience, and empathy. *AI-Generated Images for Representing Individuals* explores how portraiture in data communication exposes the ethical tensions between empathy and representation, prompting reflection on the affective power of visual design. *Balaton Borders* reimagines ecological data as ceramic tableware, transforming environmental monitoring into the ritual of shared meals where care becomes an embodied practice. Finally, *The Fire We Share* reconfigures wildfire data as a living archive, layering ecological, political, and emotional narratives into plant-inspired data forms that evoke repair and remembrance.
The selected artworks extend Collective Care into lived, participatory spaces where data becomes touch, ritual, and relation. *Tides of*

Memory materializes online mourning as walkable monuments that weave personal authorship with collective remembrance. *Damaged Leaf Herbarium and Dataset* reframes pest-scarred foliage as a cared-for dataset, turning acts of preservation, scanning, and algorithmic labeling into gestures of shared custodianship. *Knowledge Cosmos* stages discovery as embodied navigation, inviting participants to traverse a universe of seventeen million papers. *Simulacra Naturae* entwines brain organoid signals with agent ecologies, composing a hybrid environment that shifts attention from human control to multispecies attunement. *The Secret Life of Collective Plastic Microfibre Traces* transforms microfibre evidence into collective sensing and mapping, linking garments to planetary residue. *Empathic Growth* connects human GSR data with plant biosignals to prototype cross-species empathy. *A Walled City* turns personal images into a dense, evolving architecture of memory and relation, while *You Only Have Seven Seconds* gathers whispered recollections into a cinematic archive of shared remembrance. *Polyurethane, cellulose… urea-formaldehyde* performs a chemopoetics of fabrication residue, sonifying SEM micrographs to reveal invisible exposures. *Distance Unknown* weaves currency into a physical visualization of migration costs, linking policy discourse with individual testimony. *FeltSight* reorients perception from vision to touch through haptic, mixed-reality sensing, while *Weaving Water,* Interleaving Silence uses water to explore the ethics and limits of affect recognition. Finally, *Balaton Borders Tableware* brings ecological data to the table, where disruptions in use become cues for reflection and care.

This year's selection approaches Collective Care as an evolving act of holding memory, tending to the more-than-human world, and creating spaces for empathy through sensory and affective experience. They question how we represent others, cultivate relational practices, and sustain accountability within complex systems. Across these varied approaches, care becomes a shared lens, one that sustains connection between data, beings, and the

worlds they represent.

This catalog reissues the curatorial statement of VISAP '25 as it accompanies the exhibition during the IEEE VIS Conference in Vienna. In revisiting the text, we recognize how Collective Care continues to resonate, not only through the selected papers, pictorials, and artworks, but also through the shared effort that sustains them. From the labor of students and organizers to the generosity of institutions, this exhibition embodies care as collaboration, attention, and presence. Our gratitude extends to the IEEE VIS conference and organizing committee, to the University of Applied Arts Vienna for hosting, to the Moholy-Nagy University of Art and Design for their support, and to the many contributors whose dedication made VISAP '25 possible.
As we gather in Vienna, this year's theme, Collective Care, reminds us that data visualization is not only a tool for analysis but a gesture of attention, empathy, and shared responsibility. We invite you to engage with this exhibition as an act of care: attentive, relational, and deeply human.

General Chairs
Damla Çay, Moholy-Nagy University of Art and Design
Dario Rodighiero, University of Groningen
Weidi Zhang, Arizona State University

Exhibition Chairs
Martina R. Fröschl, University of Applied Arts Vienna
Peter Mindek, Nanographics GmbH

Design Chair
Beatrice Gobbo, Politecnico di Milano

References

Çay, Damla, Dario Rodighiero, and Weidi Zhang. 2025. “Visualizing as a Form of Collective Care.” Nightingale, June 4. https://nightingaledvs.com/visualizing-as-a-form-of-collective-care/.

de la Bellacasa, M. P. (2010). Matters of care in technoscience: Assembling neglected things. Social Studies of Science, 41(1), 85-106. https://doi.org/10.1177/0306312710380301

Lupi, G. (2015). The New Aesthetic of Data Narrative. In: Bihanic, D. (eds) New Challenges for Data Design. Springer, London. https://doi.org/10.1007/978-1-4471-6596-5_3

Programme

VISAP Paper Session

Thursday, November 6, 2025, 09:30 - 10:45
Austria Center Vienna

Psychomare: A Psychoanalytic and XR-Based Artistic Exploration into Nightmare Visualization
Jiayang Huang, Joshua Nijiati Alimujiang, Kang Zhang, David Yip

You Only Have Seven Seconds: From Intimate Whispers to Shared Worlds in Participatory Data-Driven Cinematic Art
Weidi Zhang, Lijiaozi Cheng, Paul Taro Schmidt, Jieliang Luo

Tides of Memory: Digital Echoes of Netizen Remembrance
Lingyu Peng, Xiao Hu, Chang Ge, Pengda Lu, Liying Long, Qingchuan Li, Xin Li, Jiangyue Wu

Simulacra Naturae: Generative Ecosystem Driven by Agent-Based Simulations and Brain Organoid Collective Intelligence
Nefeli Manoudaki, Mert Toka, Iason Paterakis, Diarmid Flatley

The Living Library of Trees: Mapping Knowledge Ecology in the Arnold Arboretum
Johan Malmstedt, Giacomo Nanni, Dario Rodighiero

The Knowledge Cosmos: An Immersive Platform for Interdisciplinary Research Discovery
Alec McGail, Rifaa Tajani, Nikita Sridhar, Jiabao Li

VISAP Pictorial Session

Thursday, November 6, 2025, 11:15 - 12:30
Austria Center Vienna

Winds Through Time: Interactive Data Visualization and Physicalization for Paleoclimate Communication
David Hunter, Pablo Botin, Emily Snode-Brenneman, Amy Stevermer, Becca Hatheway, Dillon Amaya, Eddie Goldstein, Wayne A Seltzer, Mark D Gross, Kris Karnauskas, Daniel Leithinger, Ellen Yi-Luen Do

The Fire We Share: From Scars to Seeds. Reimagining Fire Data as Interactive Memory
Chen Wang, Mengtan Lin

Balaton Borders: Data Ceramics for Ecological Reflection
Hajnal Gyeviki, Mihály Minkó, Mary Karyda, Damla Çay

Kaleidoscope of Thoughts: Experimental Visualization of Cognitive Turbulence
Megha Sachdeva, Cambelle Gregory

AI-Generated Images for Representing Individuals: Navigating the Thin Line Between Care and Bias
Julia C. Ahrend, Björn Döge, Tom M Duscher, Dario Rodighiero

Rejecting Colonial Practices in Data Storytelling
Pei Ying Loh, Nabilah Said, Griselda Gabriele, Munirah Mansoor, Zafirah Zein, Amanda Teo

VISAP Opening and Keynote

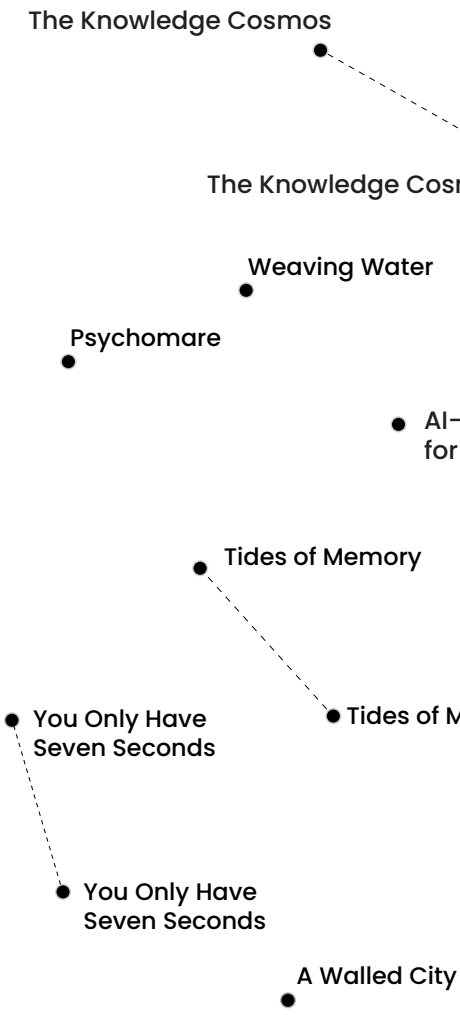
Thursday, November 6, 2025, 18:00 - 21:00
Atrium – University of Applied Arts Vienna

Welcome Remarks
Keynote - **Kim Albrecht**

VISAP Map — A Visual Index of Collective Works

The VISAP Map turns the catalogue into a visual landscape of ideas. Each project—paper, pictorial, or artwork—is represented as a point placed according to its textual proximity to others. The process began with a dataset of abstracts, analyzed in Python using natural-language embeddings to reveal affinities between works. Dimensional reduction with UMAP produced a two-dimensional map, where distance suggests resonance rather than hierarchy. Shown here as an image, the map offers a collective portrait of VISAP 2025—an atlas of relationships between projects that speak, echo, and respond to one another.

Some artworks are accompanied by a pictorial or a paper, which explains why they appear twice and are connected by a dashed line.




Distance Unknown
Romance Series
FeltSight
Living Library of Trees
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The Secret Life of ...
Balaton Borders
Rejecting Colonial Practices
in Data Storytelling
Polyurethane,
cellulose...
urea-formaldehyde
Generated Images
Representing Individuals
Balaton Borders
Tableware
The Fire
We Share
Winds Through Time
Memory
The Damaged Leaf
Herbarium and Dataset
Simulacra Naturae
Empathic Growth
Kaleidoscope
of Thoughts
Simulacra Naturae

Exhibition

A Walled City

Weidi Zhang and Rodger Luo

A Walled City is an interactive AI installation that transforms personal and collective visual memories into a decentralized, evolving virtual city. Grounded in the spatial logic, zoning, and aesthetics of the historical Kowloon Walled City (Hongkong), a self-built hyper-dense enclave that grew in a legal and political void from the 1950s to 1993, the work builds a multi-agent AI system to turn participant-uploaded images into architectural chambers, forming a living structure where data, memory, and historical urban logic converge. The project is not nostalgic; rather, it reflects on density, proximity, and how private fragments can be reassembled into shared space. Each contribution remains visible as itself, yet becomes part of a larger organism that accumulates, shifts, and evolves over time. In A Walled City, memory becomes architecture, identity is spatialized, and communities emerge through a rhizomatic network. The work connects AI systems with historical urban memory, turning contributions into forms and forms into relations, while raising the question of what is protected by “walls” and what is kept apart in the worldbuilding of future settlement.

Balaton Borders Tableware

Hajnal Gyeviki

Balaton Borders tableware physicalizes ecological data from Lake Balaton, Hungary's largest freshwater lake, transforming it into a tactile and sensory experience. Each porcelain piece, mug, jug, deep plate, flat plate, and small plate, embeds site-specific environmental data in its form and material. The collection represents processes such as reedbed loss, shoreline modification, soil erosion, sedimentation, and urban expansion, revealing how human activity alters the lake's fragile ecosystem. The pieces are intentionally uneasy to use: a jug too heavy to pour, a perforated mug that leaks, or a plate that tilts. These moments of disruption reflect the environmental imbalances they represent, prompting reflection through touch, movement, and shared experience. The work reimagines dining as a space for ecological storytelling, where data becomes tangible, edible, and social. Through commensality, Balaton Borders guides people to feel the stories behind the data, opening space for reflection and care toward the more-than-human world.

Distance Unknown: Risks and Opportunities of Migration in the Americas

Sarah Williams, Ashley Louie, Alberto Meouchi and Niko McGlashan

Distance Unknown presents a tapestry woven from paper currency as a physical data visualization of the financial sacrifices Central American migrants make to journey to the United States. Based on data collected with the United Nations World Food Programme and the Migration Policy Institute, the project documents that in a single year (2020–2021), migrants from El Salvador, Guatemala, and Honduras collectively spent $2.2 billion to migrate—resources that benefited both the U.S. and sending countries, while migrants themselves assumed all of the risk. The work was co-produced with Casa Tochan, a Mexico City–based nonprofit, and crafted with the participation of thirteen Latin American migrants. The project demonstrates how art can help foster dialogue on urgent social issues by translating complex data into tangible and aesthetic form. The research underpinning Distance Unknown has shaped international policy conversations: findings were presented to U.S. Congress through an interactive data visualization, cited in a letter signed by thirty-three U.S. senators, and contributed to the Biden Administration's Call to Action for Northern Central America. Within the exhibition, the tapestry is paired with an interactive tool that allows visitors to explore the story of one migrant by scanning a piece of currency on a touch-sensitive reader. This link between individual testimony and collective data underscores the project's goal: to make the human costs of migration visible, to restore agency and dignity to those most affected, and to use art as a catalyst for civic debate and policy change.

Empathic Growth

Ziwei Wu, Danlu Fei, Meng Yang and Jiaqi Shi

Empathic Growth is an interspecies interactive installation exploring plant perception through Jakob von Uexküll's "Umwelt" concept. It visualizes human Galvanic Skin Response (GSR) data and plant biosignals in a shared environment, creating cross-species empathy. Inspired by Ursula K. Le Guin's Changing Planes: one plane features humans with plant DNA; another shares dreams telepathically. Using supervised learning, the work transforms human-plant signals into sentient hybrid forms—agent-based artificial life live in virtual space, exploring collective consciousness.

Polyurethane, cellulose, polyoses, lignin, polylactic acid, calcium, titanium, magnesium, zinc, aluminum, titanium dioxide, magnesium silicate, zinc oxide, propane, butane, ketone, polymethyl methacrylate (PMMA), carbonates, chromates, vanadates, silicates, aluminum sulfosilicates, sodium, sulfates, sulfides, selenides, sulfoselenides, iron, carbon, chromium, nickel, manganese, silicon, molybdenum, tungsten, vanadium, boron, epoxy phenol novolac, cycloaliphatic diamine, isophorone diamine, hemicellulose, urea–formaldehyde.

Clarissa Ribeiro, Felipe Borges, Dimitri Lomonaco, Silvia Laurentiz, Luisa Paraguai, Helena Acuaviva, Sergio Venancio and Blake Carrington

The audiovisual project explores toxic entanglements in digital fabrication through a situated data-aesthetic of care. Drawing from feminist technoscience and post-anthropocentric design, it investigates synthetic residues as part of an invisible ecology of exposure, one that extends from the laboratory bench to planetary metabolism. Six micro-residue samples were collected at a university FabLab in São Paulo, Brazil, and scanned with a Vega LMU Scanning Electron Microscope (SEM). The materials included RenShape, PLA coated with automotive spray paint, PMMA, carbon fiber bound with epoxy resin, and MDF. The resulting electron textures were paired with sonified image data and multilingual vocal recitations of their chemical components, generating an affective archive of matter and sound. The title of the work acts as a performed material archive—a litany of

estimated substances present in the samples. Recited rhythmically by the authors and interwoven with the sonified micrographs, the list becomes a chemical incantation, an audible atmosphere, a choral mapping of invisible exposure. Its durational naming—stretching breath across syllables of synthetic and organic compounds—renders explicit what is often hidden in Safety Data Sheets or relegated to the footnotes of fabrication manuals. This gesture introduces chemopoetics as both a methodological stance and a speculative aesthetic for engaging with residues of contemporary fabrication. Drawing on the etymological tension between chemo- (chemical processes, often molecular and invisible) and poiesis (from the Greek ποίησις, "to make, to bring forth"), and resisting the positivist clarity of conventional data representation, chemopoetics proposes an affective, polyphonic aesthetic—where noise, repetition, and broken intelligibility are mobilized to hear what remains just outside normative perception.

FeltSight

Danlin Huan, Botao Amber Hu, Dong Zhang, Yifei Liu Takatoshi Yoshida and Rem Rungu Lin

FeltSight is a mixed reality sensory-substitution experience that reimagines human perception through an alternative tactile umwelt, inspired by the star-nosed mole's unique tactile navigation. Users engage in meditative wandering guided by extended-range sensing with haptic feedback and subtle visual cues. The system features a pair of wearable haptic gloves with high-precision vibrotactile actuators on each finger, driven by audio-responsive patterns. These actuators re-sensitize the sense of touch and simulate material textures, enabling users to "feel" environmental surfaces as if their fingertips can tele-touch surrounding objects at a distance. The mixed reality headset provides a deliberately subtle "reduced reality," showing nearby objects as dynamic point clouds that serve as a "short-term perceptual memory," visualizing touched textures on surrounding surfaces. By shifting focus from visual to tactile perception, FeltSight challenges occularcentric sensory hierarchies and elevates touch as a way to perceive the world. This approach invites users to experience the umgebung---the world that exists but typically goes unperceived---through substituted perception, exemplifying tentacular thinking for more-than-human awareness.

Romance Series: Unrequited United

Sophia Brueckner

Unrequited United explores Amazon Kindle Popular Highlights in romance novels. A passage in a Kindle e-book becomes a Popular Highlight after a certain number of people independently highlight the same passage. Popular Highlights show up as underlined text along with the number of people who highlighted that passage. I expected that romance readers might highlight the smutty parts, but, surprisingly, they are predominantly highlighting passages about grief, loneliness, and trauma. These often heartbreaking passages are not the sort of thing that people would broadcast on social media. They aren't something people are bookmarking to return to later or posting on Goodreads. The anonymity of Popular Highlights allows people to show vulnerability and empathy with feelings they might be reluctant to reveal on other social media platforms. Since 2010, I have collected thousands of Kindle Popular Highlights from romance novels into a database. Over one hundred thousand individual acts of highlighting were used to determine the content for these artworks telling the story of the intense loneliness, grief, vulnerability, and discontent felt by the readers. This work reveals a glimpse of a positive, anonymous social network emerging unintentionally through this minor Kindle feature. With this ongoing project I draw attention to this existing example of collective social support in order to change society's vision for the future of social technologies. Unrequited United invites others to show solidarity with the anonymous highlighters by wearing Kindle Popular Highlights laser engraved onto silicone wristbands.

Simulacra Naturae Generative Forms from Agent–Based Ecosystems with Organoid Collective Intelligence

Nefeli Manoudaki, Mert Toka, Iason Paterakis and Diarmid Flatley

Simulacra Naturae is a collaborative media installation exploring the entanglement of digital morphogenesis and the interplay between biological and artificial intelligences. Brain organoids drive simulations of agent-based ecosystems such as flocks, slime molds, and termites. Their spontaneous neural activity modulates the behavior of these agents, influencing real-time generative visuals, spatial sound, sculptural forms, and living plants within the installation.

By merging neural data, algorithmic growth, and material fabrication, Simulacra Naturae creates a hybrid ecosystem where cognition and agency emerge through co-evolving interactions between code, matter, and living systems. This mediated environment invites reflection on synthetic ecologies, distributed intelligence, and the blurred boundaries between simulation and sensation.

The Damaged Leaf Herbarium and Dataset

Jennifer Lyn Karson

The Damaged Leaf Herbarium and Dataset is comprised of over 10,000 Vermont leaves scarred by Lymantria dispar caterpillars during the devastating outbreaks of 2021 and 2022 in Colchester, Vermont. The outbreak left the artist's neighborhood trees defoliated in early spring, and for two seasons Karson collected their fallen leaves on walks ritualized by the pandemic. Sculpted by the caterpillars' eating patterns into enchanting forms—both creations and ruins, horrible and beautiful—the leaves symbolize disruptive consumption and fantastical flora, fauna, and funga interspecies entanglements with humans and technology. With a team of students over the past four years, Karson engaged in a collective care for the leaves that involved cleaning, pressing, preserving, and photography. Their work includes training algorithms to be caretakers of the leaves. By avoiding the dominant narrative that typically vilifies L. dispar as an invasive species in North America, this work reveals the fable of a phantom silk moth. The story begins when an entrepreneurial 19th-century entomologist, motivated by the wealth of the silk industry, attempted to innovate a new breed of silkworm—his experiment failed spectacularly.

The Knowledge Cosmos: An Immersive Platform for Interdisciplinary Research Discovery

Alec McGail, Rifaa Tajan, Nikita Sridhar and Jiabao Li

As the volume of scientific literature continues to expand exponentially, traditional research tools struggle to keep pace—often reinforcing disciplinary silos and limiting opportunities for discovery. The Knowledge Cosmos re-imagines research exploration through an interactive, 3D visualization platform that treats science not as a static repository, but as a navigable universe. By spatializing 17 million academic papers based on semantic similarity, the platform enables users to explore the structure of knowledge intuitively, uncover interdisciplinary connections, and identify underexplored intellectual gaps.

Drawing on the principles of play, immersion, and serendipity, The Knowledge Cosmos democratizes the bird's eye view of research and encourages curiosity-driven inquiry across a wide range of users including students, educators, independent thinkers, and lifelong learners.

Tides of Memory Digital Echoes of Netizen Remembrance

Lingyu Peng, Chang Ge, Liying Long, Xin Li, Xiao Hu and Pengda Lu

The installation transforms online mourning into immersive monuments by drawing on Sina Weibo posts written after the deaths of seven Chinese authors since 2016 and translating fragmented emotions into three-dimensional commemorative forms through the integration of data collection, natural language processing, and 3D modeling. It presents monuments composed of two layers that create a dialogue between individual creativity and collective memory, with the lower half symbolizing an author's lifetime creative legacy and the upper half reflecting public remembrance through netizens' mourning words, hashtags, and emotional expressions. It situates these monuments along a "Path of Remembrance," a solemn digital corridor that evokes the atmosphere of walking through a memorial, and it further encourages interaction by allowing viewers to explore high-frequency keywords, revisit original posts, and contribute personal tributes that expand the archive of grief. It transforms fleeting and fragmented online words into a shared cultural memory, materializes ephemeral emotions into tangible structures, bridges personal sorrow with collective resonance, and highlights the enduring bond between readers and writers by showing how netizens' voices now commemorate those who once shaped language. The installation reimagines mourning rituals for the digital age and creates a poetic and participatory space where memory, text, and community converge.

The Secret Life of... Collective Plastic Microfibre Traces

Alexandra Fruhstorfer, Seçil Uğur Yavuz, Maria Menendez Blanco and Rocco Lorenzo Modugno

Data are crucial for showcasing the effects of environmental crises and visualising potential future developments to drive change; however, data visualisations like infographics, pie charts, and histograms can be difficult for people to relate to and inspire change. The Secret Life of... is an interactive installation that transforms environmental data into acts of embodied engagement, reflective inquiry, and collective care. The installation helps visualise the invisible environmental impact of plastic microfibre emissions through methods that prioritise relational understanding, empathy, and participatory meaning-making. These methods allow us to relate data to everyday actions and objects in accessible and meaningful ways. The installation was first shown at the Fashion for Future event at Free University of Bozen-Bolzano (Italy) in April 2024, and then at Circular Week Tyrol in Innsbruck (Austria) in September 2024.

Participants are guided through these activities to observe and identify different fibre types, collect them from the surface of their garments, and visualize them collectively. Through these experiences, additional context is provided on the design process, scientific grounding, and aesthetic choices. This creates space for questions, dialogic encounters, and shared reflections on how data can be experienced as an act of both collective and individual care.

Weaving Water, Interleaving Silence

Joel Ong and Kuan-Ju Wu

The project is an artistic research project exploring the expressiveness of water and its potential as a visualization tool for emotions that lie beneath the surface. Through strategies in data visualization, computer vision and mechatronic elements, this installation explores the translational and transdisciplinary poetics in our connection to water and its metaphors of flow, depth, and revelation. Conceptually, the artwork aligns strongly with the exhibition's inspired notions of 'collective care' on various levels. At its most immediate, Weaving Water, Interleaving Silence valorizes stories of resilience of climate disaster survivors and survivors in marginalized groups/communities, especially in cases where systemic infrastructures enact an ongoing process of silencing and devaluing of the experiences of individuals in the advent of large, global crises. At a deeper and perhaps self-critical level, the artwork contemplates the validity of computationally recognizing that the reduction embedded within the processes of data collection has already been critiqued as distancing, isolating and dehumanizing. Our proposal with this artwork is to consider elemental media as a form of affective and transcendent materiality. Water is deeply symbolic and meditative, and its ability to flow, shape shift and interleave recursively is a powerful metaphor for the project's ideas of an embedded and hidden emotional complexity. By putting data structures and elemental media in synergy, how might the experience of Weaving Water, Interleaving Silence simultaneously provide affect and inform about quantifiable parameters of our emotions?

You Only Have Seven Seconds

Weidi Zhang and Rodger Luo

You Only Have Seven Seconds is a cinematic artistic visualization derived from an interactive AI art installation (ReCollection) that explores how machine intelligence can reassemble collective human memory through language input. Motivated by the artist's personal response to her grandmother's cognitive decline and informed by current research in Critical Dementia Studies that advocates for reimagining—rather than repairing—memory, the project collects and curates whispered, seven-second recollections and machine-generated image data from installation participants. These selected datasets are transformed into a generative visualization presented as a cinematic art using custom-designed AI systems and experimental visualization strategies.

Gallery

Balaton Borders Tableware

Hajnal Gyeviki

Full tableware set for Badacsonytomaj, encoding data on reedbed loss, shoreline change, erosion, sedimentation, and urbanization.

Distance Unknown: Risks and Opportunities of Migration in the Americas

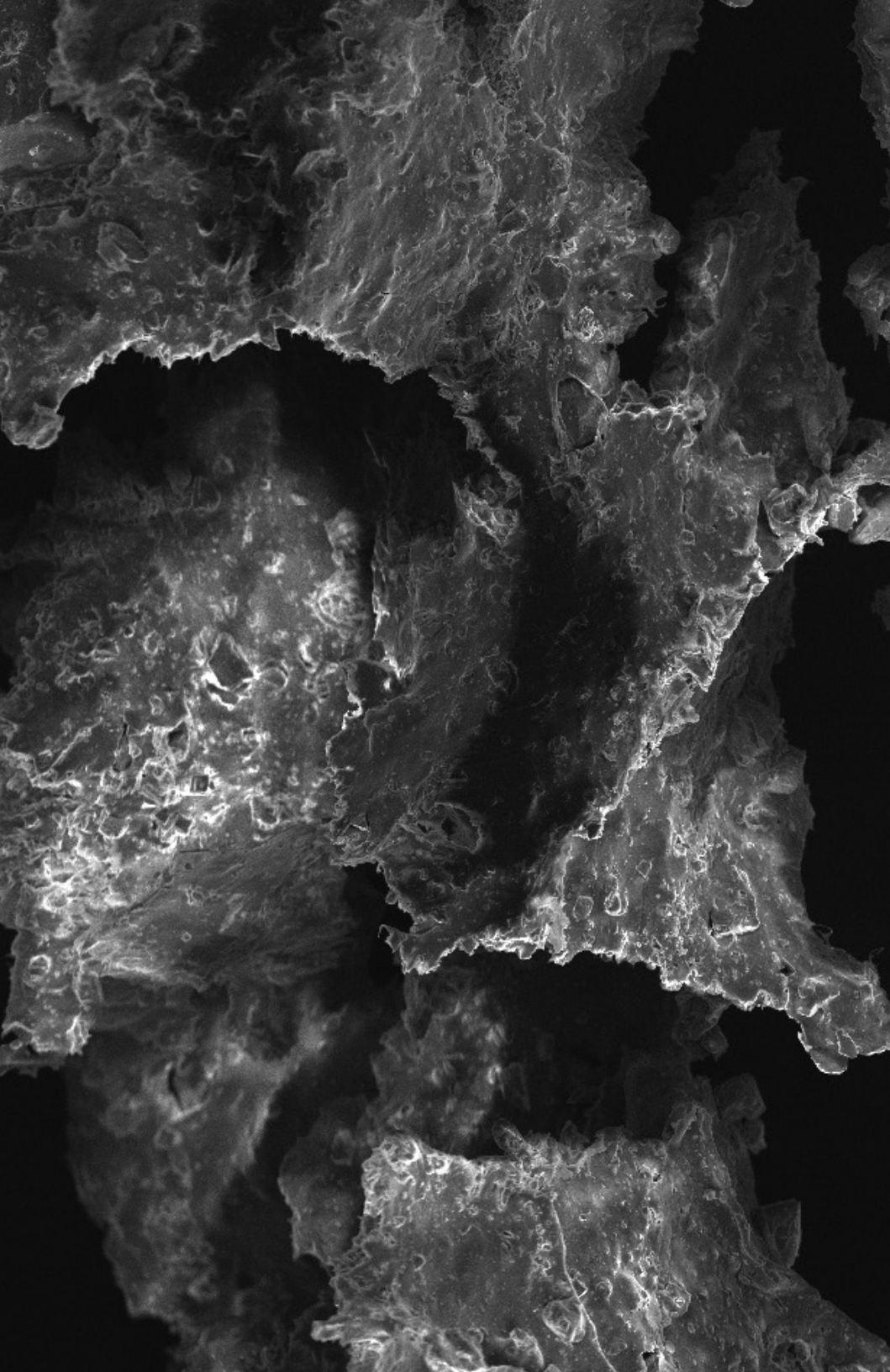
Sarah Williams, Ashley Louie and Alberto Meouchi and Niko McGlashan

The motivational tapestry, a physical data visualization of migrant money, represents the root causes of migration and cost burden of their journey.

Empatic Growth

Ziwei Wu, Danlu Fei, Meng Yang, Jiaqi Shi

Empathic Growth exhibition view



Polyurethane, cellulose, polyoses, lignin, polylactic acid, calcium, titanium, magnesium, zinc, aluminum, titanium dioxide, magnesium silicate, zinc oxide, propane, butane, ketone, polymethyl methacrylate (PMMA), carbonates, chromates, vanadates, silicates, aluminum sulfosilicates, sodium, sulfates, sulfides, selenides, sulfoselenides, iron, carbon, chromium, nickel, manganese, silicon, molybdenum, tungsten, vanadium, boron, epoxy phenol novolac, cycloaliphatic diamine, isophorone diamine, hemicellulose, urea-formaldehyde.

Clarissa Ribeiro, Felipe Borges, Dimitri Lomonaco, Silvia Laurentiz, Luisa Paraguai, Helena Acuaviva and Sergio Venancio

Carbon FIber sample scanning using TESCAN Vega LMU SEM 1000x

FeltSight

Danlin Huan, Botao Amber Hu, Dong Zhang, Yifei Liu, Takatoshi Yoshida and Rem Rungu Lin

"FeltSight" sensitizes the environment like a star-nosed mole.

Romance Series:
Unrequited United

Sophia Brueckner

Simulacra Naturae Generative Forms from Agent-Based Ecosystems with Organoid Collective Intelligence

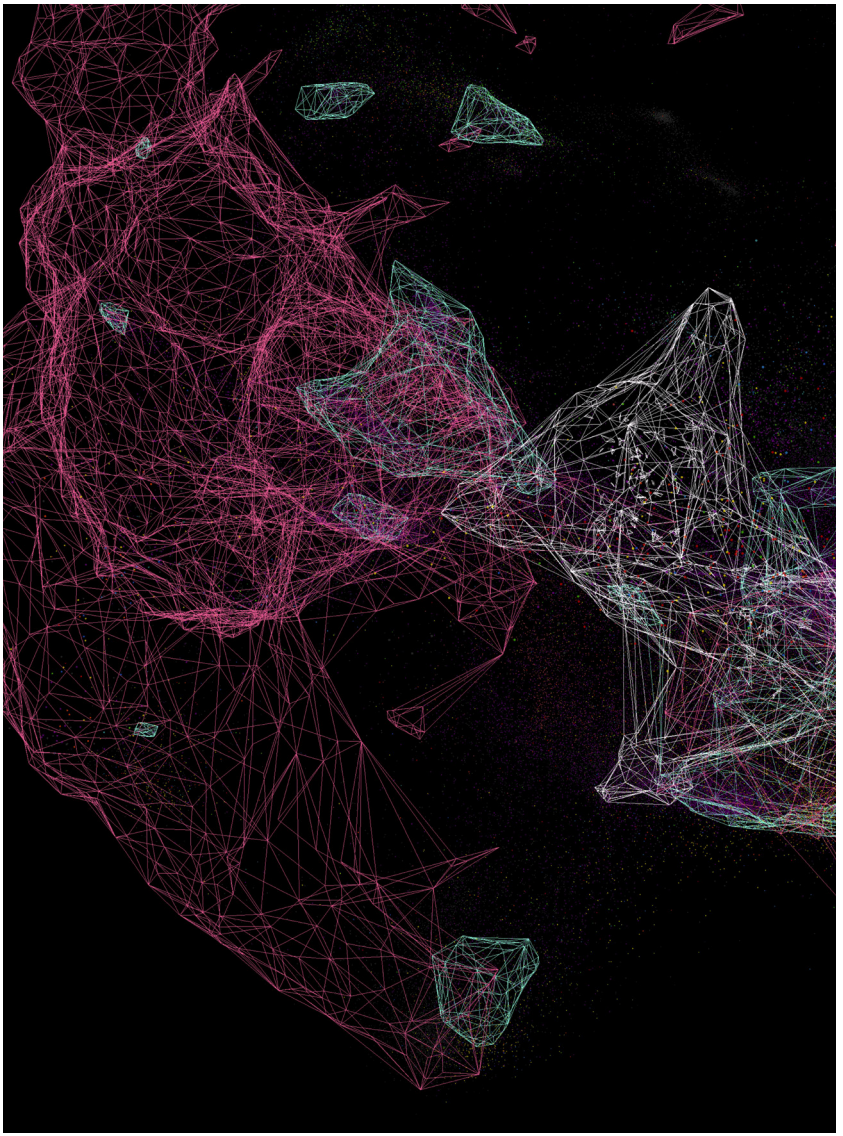
Nefeli Manoudaki, Mert Toka, Iason Paterakis and Diarmid Flatley

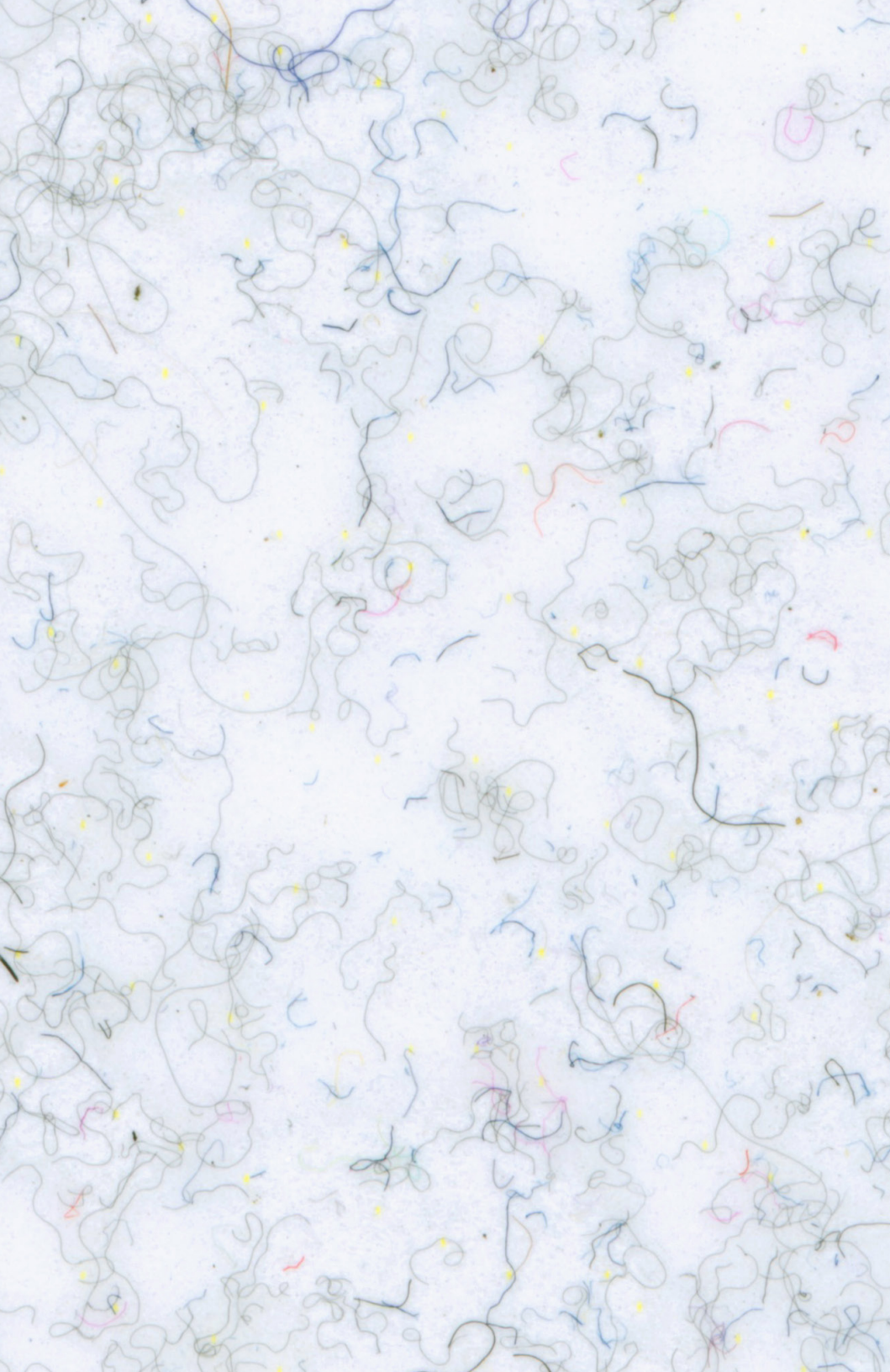
Simulacra Naturae: immersive installation with projected ecosystem, living plants, clay prints, fiber optics, solenoids, and hydroponics.

The Knowledge Cosmos: An Immersive Platform for Interdisciplinary Research Discovery

Alec McGail, Rifaa Tajan, Nikita Sridhar and Jiabao Li

Biology papers of The Knowledge Cosmos colored by subdiscipline.





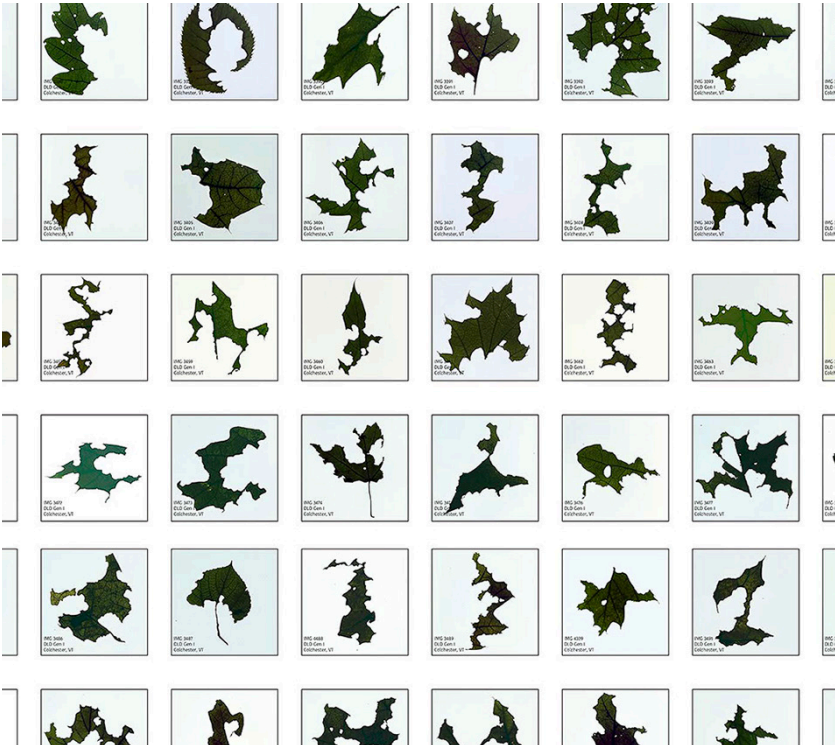
The Secret Life of... Collective Plastic Microfibre Traces

Alexandra Fruhstorfer, Seçil Uğur Yavuz, Maria Menendez Blanco and Rocco Lorenzo Modugno

Enlargement of a microfibre sample.

The Damaged Leaf Herbarium and Dataset

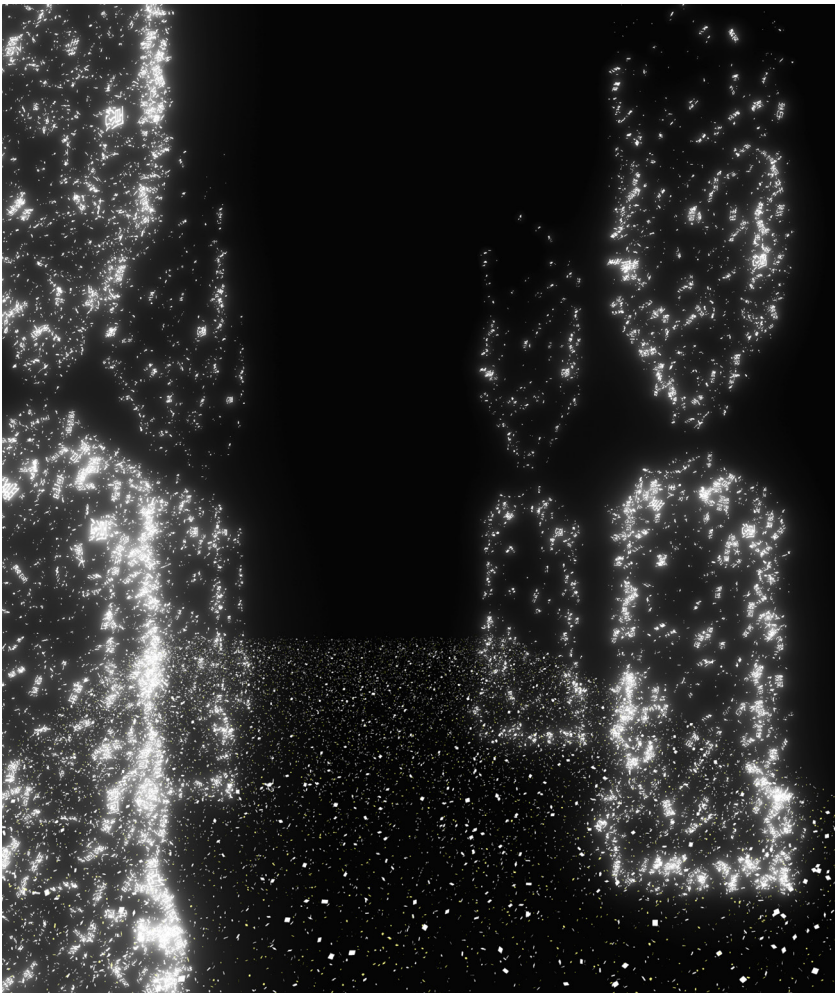
Jennifer L. Karson



Tides of Memory Digital Echoes of Netizen Remembrance

Lingyu Peng, Chang Ge, Liying Long, Xin Li, Xiao Hu and Pengda Lu

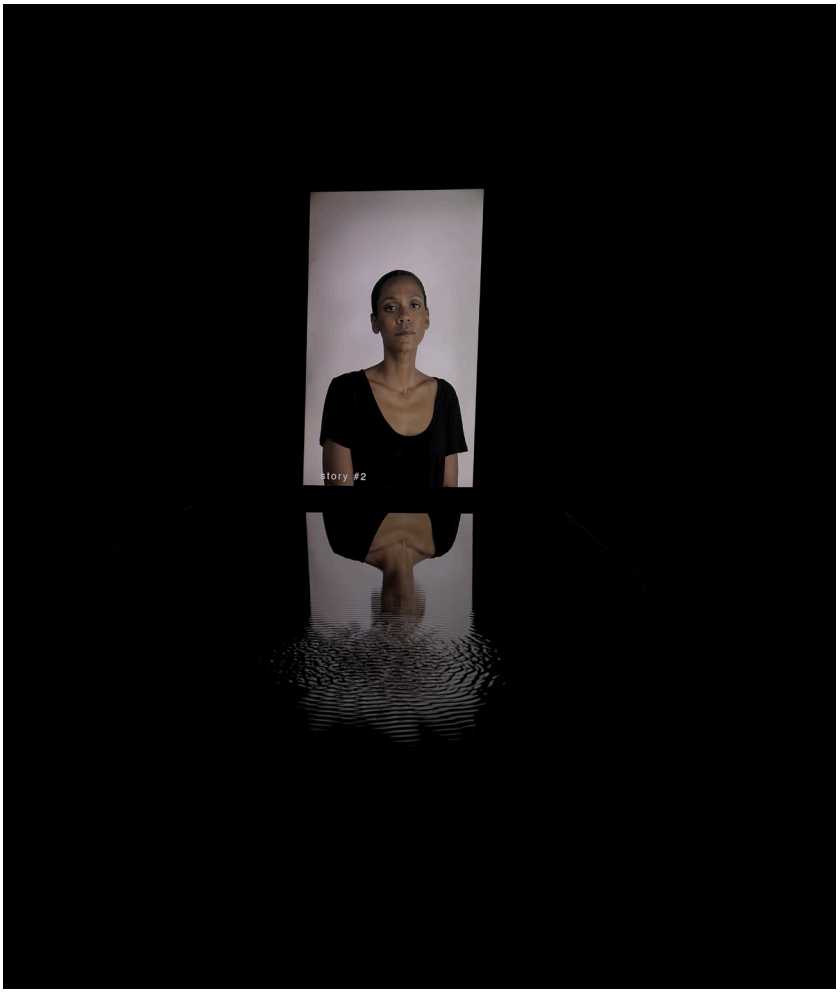
Enlargement of a microfibre sample.



Weaving Water, Interleaving Silence

Joel Ong and Kuan-Ju Wu

Related project *In silence*
Ong 2025 Documentation

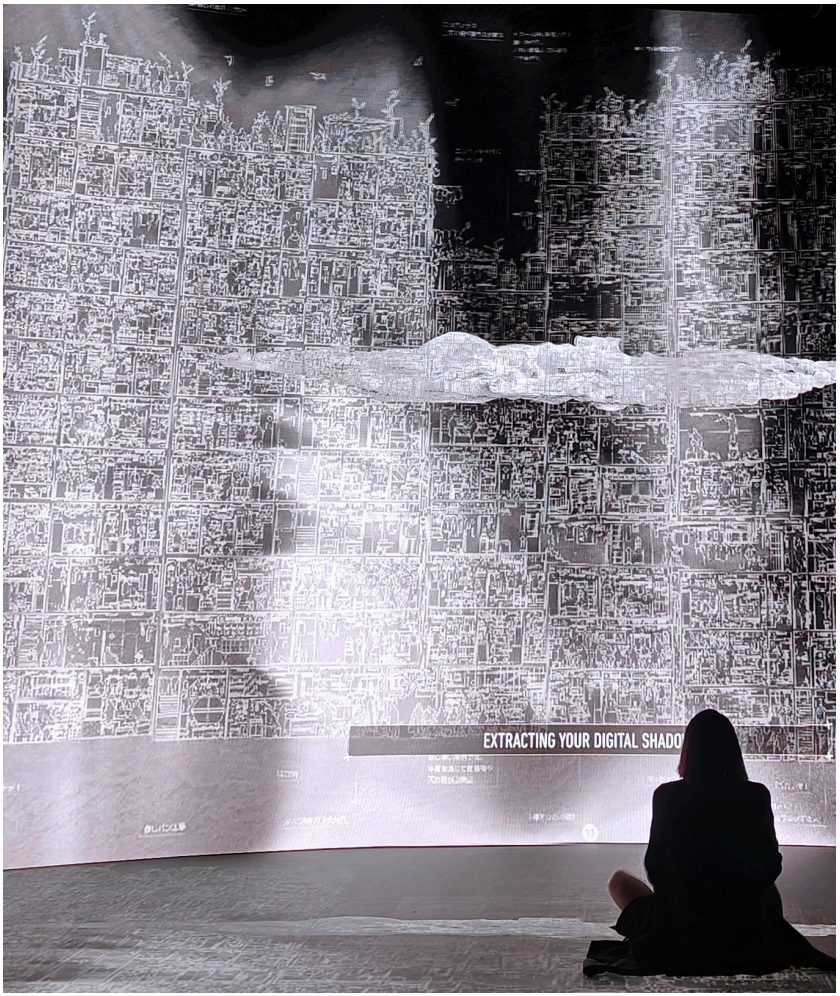


You Only Have Seven Seconds

Weidi Zhang and Rodger Luo

A Walled City

Weidi Zhang and Rodger Luo



Papers

Thursday, November 6, 2025, 09:30 - 10:45
Austria Center Vienna

Living Library of Trees: Mapping Knowledge Ecology in Arnold Arboretum

Johan Malmstedt, Giacomo Nanni and Dario Rodighiero

As biodiversity loss and climate change accelerate, botanical gardens serve as vital infrastructures for research, education, and conservation. This project focuses on the Arnold Arboretum of Harvard University, a 281-acre living museum founded in 1872 in Boston. Drawing on more than a century of curatorial data, the research combines historical analysis with computational methods to visualize the biographies of plants and people. The resulting platform reveals patterns of care and scientific observations, along with the collective dimensions embedded in botanical data. Using techniques from artificial intelligence, geospatial mapping, and information design, the project frames the arboretum as a system of shared agency--an active archive of more-than-human affinities that records the layered memory of curatorial labor, the situated nature of knowledge production, and the potential of design to bridge archival record and future care.

Psychomare: A Psychoanalytic and XR–Based Artistic Exploration into Nightmare Visualization

Jiayang Huang, Joshua Nijiati Alimujiang, Kang Zhang and David Yip

Psychomare is an artistic research project that explores the visualization of nightmares through a psychoanalytic and XR-based performance methodology. By treating dreams as symbolic data and nightmares as distortions of subjective recognition, the project translates psychological fear into tangible visual forms. Utilizing AI-driven imagery, embodied dance performance, and virtual production technologies, Psychomare creates an immersive dream-scape where the dancer confronts surreal nightmare entities derived from personal and collective dream memories. Drawing on Lacanian theory, the work proposes that nightmares emerge from a mis-recognition of the self—a mirrored distortion of unconscious desires and fears projected onto dream imagery. This symbolic mis-recognition becomes the conceptual core of the project, guiding its aesthetic and choreographic strategies. Feedback from the dancer, audience, and a psychoanalyst reveals strong emotional resonance and aesthetic depth, suggesting that the visualization of nightmares can foster self-reflection, emotional confrontation, and collective empathy. This project offers a new model for integrating immersive art, psychoanalytic theory, and technological mediation as a path of collective care.

Simulacra Naturae: Generative Ecosystem driven by Agent–Based Simulations and Brain Organoid Collective Intelligence

Nefeli Manoudaki, Mert Toka, Iason Paterakis and Diarmid Flatley

Simulacra Naturae is a data-driven media installation that explores collective care through the entanglement of biological computation, material ecologies, and generative systems. The work translates pre-recorded neural activity from brain organoids, lab-grown three-dimensional clusters of neurons, into a multi-sensory environment composed of generative visuals, spatial audio, living plants, and fabricated clay artifacts. These biosignals, streamed through a real-time system, modulate emergent agent behaviors inspired by natural systems such as termite colonies and slime molds. Rather than using biosignals as direct control inputs, Simulacra Naturae treats organoid activity as a co-creative force, allowing neural rhythms to guide the growth, form, and atmosphere of a generative ecosystem. The installation features computationally fabricated clay prints embedded with solenoids, adding physical sound resonances to the generative surround composition. The spatial environment, filled with live tropical plants and a floor-level projection layer featuring real-time generative AI visuals, invites participants into a sensory field shaped by nonhuman cognition. By grounding abstract data in living materials and embodied experience, Simulacra Naturae reimagines visualization as a practice of care, one that decentralizes human agency and opens new spaces for ethics, empathy, and ecological attunement within hybrid computational systems.

The Knowledge Cosmos: An Immersive Platform for Interdisciplinary Research Discovery

Alec McGail, Rifaa Tajan, Nikita Sridhar and Jiabao Li

Psychomare is an artistic research project that explores the visualization of nightmares through a psychoanalytic and XR-based performance methodology. By treating dreams as symbolic data and nightmares as distortions of subjective recognition, the project translates psychological fear into tangible visual forms. Utilizing AI-driven imagery, embodied dance performance, and virtual production technologies, Psychomare creates an immersive dream-scape where the dancer confronts surreal nightmare entities derived from personal and collective dream memories. Drawing on Lacanian theory, the work proposes that nightmares emerge from a mis-recognition of the self—a mirrored distortion of unconscious desires and fears projected onto dream imagery. This symbolic mis-recognition becomes the conceptual core of the project, guiding its aesthetic and choreographic strategies. Feedback from the dancer, audience, and a psychoanalyst reveals strong emotional resonance and aesthetic depth, suggesting that the visualization of nightmares can foster self-reflection, emotional confrontation, and collective empathy. This project offers a new model for integrating immersive art, psychoanalytic theory, and technological mediation as a path of collective care.

Tides of Memory: Digital Echoes of Netizen Remembrance

Lingyu Peng, Chang Ge, Liying Long, Xin Li, Xiao Hu and Pengda Lu

This research explores how collective mourning unfolds on digital platforms and how ephemeral online expressions can be preserved through visualization. Drawing on Sina Weibo posts following the deaths of seven Chinese authors since 2016, it collected tens of thousands of mourning messages and applied web scraping, natural language processing, and 3D modeling to transform unstructured textual data into interactive spatial monuments. The analysis used word frequency measures, TF-IDF feature extraction, and topic modeling to identify thematic clusters and emotional vocabularies within commemorative discourse, while statistical standardization and nonlinear transformation were introduced to balance disparities in data volume and enable meaningful comparisons across authors. A central feature of the visualization lies in the structure of the monuments: the lower segment symbolizes the author's lifetime creative legacy, and the upper segment reflects collective remembrance through the intensity of public mourning expressed in netizens' posts and hashtags. This dual-layer design creates a dialogue between personal creation and communal commemoration, turning fragmented and short-lived online expressions into a tangible and immersive memorial. By materializing collective grief as spatialized memory, this research offers new methods for studying digital mourning practices and provides a model for preserving cultural remembrance in the networked age.

You Only Have Seven Seconds: From Intimate Whispers to Shared Worlds in Participatory Data–Driven Cinematic Art

Weidi Zhang and Rodger Luo

You Only Have Seven Seconds is a cinematic artistic visualization derived from an interactive AI art installation (ReCollection) that explores how machine intelligence can reassemble collective human memory through language input. Motivated by the artist's personal response to her grandmother's cognitive decline and informed by current research in Critical Dementia Studies that advocates for reimagining—rather than repairing—memory, the project collects and curates whispered, seven-second recollections and machine-generated image data from installation participants. These selected datasets are transformed into a generative visualization presented as a cinematic art using custom-designed AI systems and experimental visualization strategies. This paper introduces the conceptual foundations and technical development of this project, with emphasis on data collection, experimental visualization, narrative construction, sound design, and intelligent system integration. Through the design of artificial memory, You Only Have Seven Seconds constructs a dynamic archive of shared, ephemeral recollections for storytelling.

Pictorials

Thursday, November 6, 2025, 11:15 - 12:30
Austria Center Vienna

AI–Generated Images for representing Individuals — Navigating the Thin Line Between Care and Bias

Julia C. Ahrend, Björn Döge, Tom M. Duscher and Dario Rodighiero

This research discusses the figurative tensions that arise when using portraits to represent individuals behind a dataset. In the broader effort to communicate European data related to depression, the Kiel Science Communication Network (KielSCN) team attempted to engage a wider audience by combining interactive data graphics with AI-generated images of people. This article examines the project's decisions and results, reflecting on the reaction from the audience when information design incorporates figurative representations of individuals within the data.

Balaton Borders: Data Ceramics for Ecological Reflection

Hajnal Gyeviki, Mihály Minkó, Mary Karyda and Damla Çay

Balaton Borders transforms ecological data from Hungary's largest freshwater lake into ceramic tableware. Each mug, jug, plate, and bowl encodes site-specific information about reedbed loss, shoreline modification, soil erosion, sedimentation, and urban expansion. Through their shapes, volumes, and material interventions, the pieces embody the disruptions affecting Lake Balaton's fragile ecosystem. The project extends beyond objects into performative dining events, where participants share meals served on data ceramics. These gatherings highlight how commensality—the act of eating together—can foster awareness and conversation. At the table, ecological data is not only read or seen but felt, tasted through everyday rituals. Balaton Borders invites audiences to slow down and consider the entanglement of human activity and environmental fragility. It asks what happens when we bring the dysfunctions of our ecosystems to the table and share them as part of a collective experience.

Kaleidoscope of Thoughts: Experimental Visualization of Cognitive Turbulence

Megha Sachdeva and Cambelle Gregory

Kaleidoscope of Thoughts is a 360° immersive media installation that visualizes the complexity of human cognition and emotion through participatory storytelling. Built from over forty voice notes and reflections in fifteen languages, including American Sign Language. The work translates raw thoughts into a layered audiovisual journey. Voices overlap, refract, and evolve across a 55-speaker spatial sound system, enveloping visitors in a sonic tapestry of worry, gratitude, aspiration, and hope. The visual environment, designed in TouchDesigner, unfolds as a seven-minute sequence of pre-rendered generative forms and symbolic textures. Cyanotype imprints evoke memory and personal history, while noise patterns and distorted text externalize mental turbulence. Algorithmic tunnels inspired by the Fibonacci sequence trace nonlinear pathways of thought, punctuated by animated clusters representing shifting emotions. The "thought bubbles" illustrate clarity and optimism, and the installation culminates in a dynamically animated Lorenz attractor, the Butterfly Effect, symbolizing how even the smallest shift in perspective can spark transformation.

Rejecting Colonial Practices in Data Storytelling

Pei Ying Loh, Nabilah Said, Griselda Gabriele, Munirah Mansoor, Zafirah Zein and Amanda Teo

Given the difficulties and inherent problems of data, how do we approach data representations in a decolonial way? This annotated portfolio by Kontinentalist illustrates our evolving practice and attempt at forging a path grounded in a community manifesto that looks to challenge the need for accuracy and certainty, centring design in Indigenous vernacular and knowledge, and challenging reductivism.

The Fire We Share

Chen Wang and Mengtan Lin

The *Fire We Share* proposes a care-centered, consequence-aware visualization framework for engaging with wildfire data not as static metrics, but as living archives of ecological and social entanglement.
By combining plant-inspired data forms, event-based mapping, and narrative layering, the project foregrounds fire as a shared temporal condition—one that cuts across natural cycles and human systems.
Rather than simplifying wildfire data into digestible visuals, The Fire We Share reimagines it as a textured, wounded archive—embodied, relational, and radically ethical.

Winds Through Time: Interactive Data Visualization and Physicalization for Paleoclimate Communication

David Hunter, Pablo Botin, Emily Snode-Brenneman, Amy Stevermer, Becca Hatheway, Dillon Amaya, Eddie Goldstein, Wayne A Seltzer, Mark D Gross, Kris Karnauskas, Daniel Leithinger and Ellen Yi-Luen Do

We describe a multidisciplinary collaboration to iteratively design an interactive exhibit for a public science center on paleoclimate, the study of past climates. We created a data physicalisation of mountains and ice sheets that can be tangibly manipulated by visitors to interact with a wind simulation visualisation that demonstrates how the climate of North America differed dramatically between now and the peak of the last ice age. We detail the system for interaction and visualisation plus design choices to appeal to an audience that ranges from children to scientists and responds to site requirements.

Committee

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Damla Çay
Moholy-Nagy Universtiy
of Art and Design

Dario Rodighiero
University of Groningen

Weidi Zhang
Arizona State University

Design chairs

Beatrice Gobbo
Politecnico di Milano
Design Department

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Arts Vienna

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Minus AI

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Education Krems

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