DESIGNING FOR RELATIONAL COMPLEXITY:
THE ROLE OF INTERDISCIPLINARY STRATEGIES IN ART

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ABSTRACT

This paper explores the role of interdisciplinary strategies in contemporary art practice at the intersection of cognitive science, art and virtual reality in the VR artwork *Nature is an event that never stops*. The artwork comprises six distinct virtual worlds and employs interactive colour-matching tasks in each world to investigate the interplay between sensation, expectation, and experience in colour perception. Drawing on theories of perception as a dynamic synthesis of sensory inputs and prior knowledge, the paper examines how the immersive environments of the VR experience influence participants' colour choices. By linking colour to cultural transmission, lighting contexts, canonical colours, and personal identity, the artwork challenges conventional notions of colour as fixed and universal. The paper situates these findings within broader discussions on relational aesthetics, offering a model for interdisciplinary collaboration that engages sensory experience to foster introspection and shared responsibility, while emphasising perception as a deeply relational process shaped by cultural and material contexts.

INTRODUCTION:
VIRTUAL REALITY, ART AND RELATIONAL AESTHETICS

In an era of environmental and social precarity, wrapped in a societal blanket of increased digitalisation, the question of how aesthetics more broadly, and artworks specifically, might contribute to rethinking values and fostering ethical ways of being, has gained significance. *Nature is an event that never stops*, an immersive VR (virtual reality) artwork by artist Sophie Erlund, made in dialogue with cognitive scientist Cordula Vesper, and the core group of the interdisciplinary research project called *Experimenting, Experiencing, Reflecting* (EER), positions itself as a form of "relational seeing" and offers a direct response to these challenges. We shall return to the framework of *Experimenting, Experiencing, Reflecting* and the lens through which research is conducted in this interdisciplinary group later.

Situated at the intersection of art, cognitive science, and experiential inquiry, *Nature is an event that never stops* invites the viewer to engage with their perceptual and decision-making processes in ways that illuminate the relational nature of existence. Through interactive colour-matching tasks and encounters with meticulously constructed virtual worlds, the piece provokes introspection about the entangled relationships between humans, nonhumans, and environments, while storing the colour selections for each visitor's interaction in the back-end of the artwork.

The editors of this volume of the journal challenge us to explore and examine "the role(s) of aesthetics in a changing world, with a pressing need for re-thinking values, value systems, and the relationship we have to the future of the planet we inhabit." In such a context, aesthetics becomes more than a mode of sensory engagement; it transforms into a framework for challenging established paradigms, relationships, and projected futures.

Experimental collaborative projects such as *Nature is an event that never stops* offer novel ways to question how aesthetic practice can destabilise entrenched systems of knowledge by emphasising care, wellbeing, and interdependence. The artwork's immersive virtual environments, sensory and embodied experiences replace disembodied calculation as the terrain of inquiry. The work invites us to reconsider our relationship to the planet, its futures, and the systems that shape them—not through detached observation but through active participation. Here aesthetics becomes an ethical practice,

foregrounding relationality: the interconnectedness of beings and environments. Here care is not a sentimental notion but a call to action–an aesthetic engagement that compels us to reassess how we live and interact with one another and the nonhuman world.

A PRELUDE TO INTERDISCIPLINARITY

What role does interdisciplinarity play here? What is at stake for the artist and for the scientist in this matter? Cognitive science, for all its roots in computational models of thought, increasingly acknowledges the role of the body and context in shaping human action. This opens a critical avenue for exploring not just what people do or think in a given situation, but also what they feel–how subjective, emotional, and visceral experiences interweave with cognition to shape their engagement with the world. Similarly, contemporary art often seeks to evade traditional disciplinary silos of formalism, moving into participatory and process-based practices. The EER project has been a fertile ground for such methodologies to develop and explore the crossroad of varying disciplines. *Experimenting, Experiencing, Reflecting* (EER) defines itself as an exploration of experience, perspective-taking, uncertainty, and cultural learning that draws on scientific, somatic, and artistic approaches. EER is led by artist Olafur Eliasson and scientist Andreas Roepstorff (Aarhus University), and it is funded by the Carlsberg Foundation. EER has shaped a framework emphasising that knowledge production is always co-constituted–through *experimenting*, creating formats to study *experience* through and ultimately *reflecting* on what is found.

One could say the collaboration around the artwork *Nature is an event that never stops* becomes a stab at how aesthetic and scientific logics might intermingle, each contaminating the purity of the other. The VR medium transforms content into a sensory experience, inviting viewers to move through spaces, make choices, and leave traces of their presence. These traces are neither purely empirical data nor abstract symbols but dynamic representations of collective action.

COLOUR PERCEPTION MADE EXPLICIT

Colour perception takes centre stage in *Nature is an event that never stops*. Participants match colours in a virtual space, an act that reveals the interplay of top-down cognitive processes (memory, culture) with bottom-up sensory input from a VR display. It is nevertheless not merely a perceptual experiment, it is also an engagement with human connection and shared experience. Each choice,
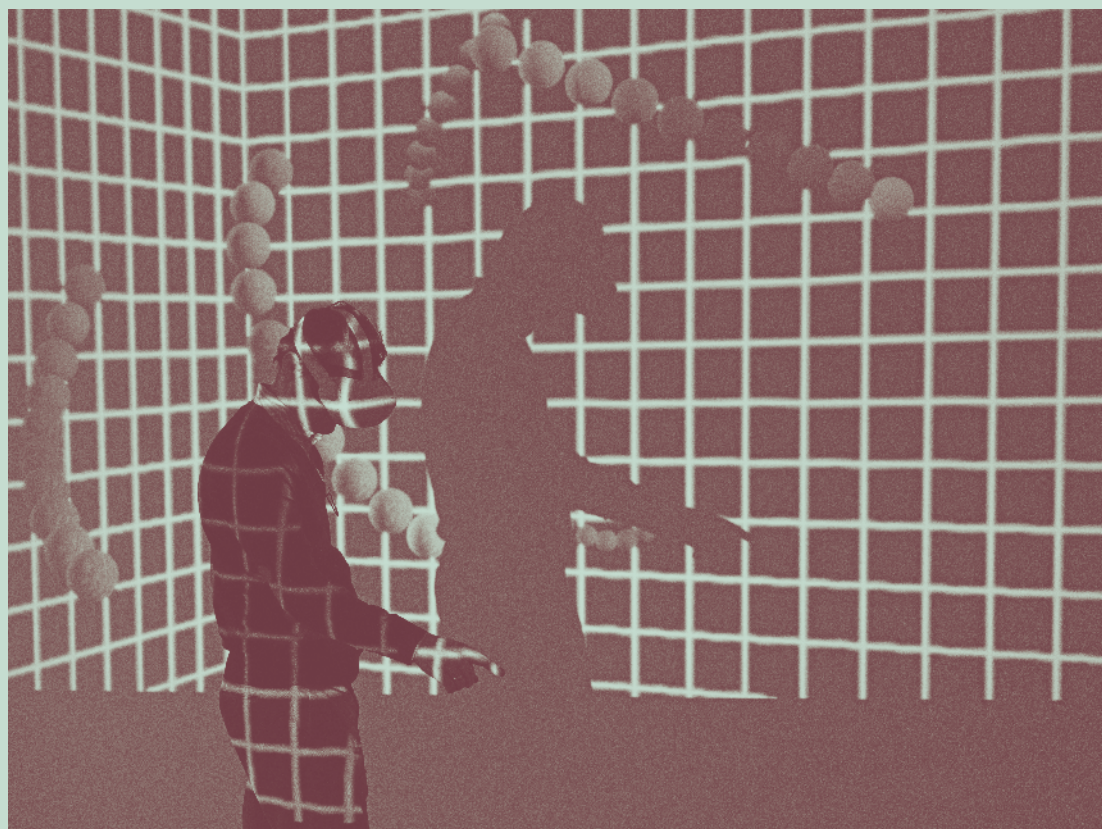
recorded and visualised, contributes to a shared repository—echoing Karen Barad's argument that beings emerge through their entanglements, not as isolated entities.[1]

The coloured orbs, accumulating within the virtual environment from the participant's colour matches and later projected into the physical gallery space, are the project's keystone metaphor.

They visualise what Barad might term the "intra-actions" between participants—moments where individual choices contribute to a collective narrative. The aesthetic here is not a retreat from reason but a proposition: to understand relational being as an ethical and sensory phenomenon.

The colour-matching interactions within *Nature is an event that never stops* draw on cognitive theories of perception laid out by Cordula Vesper at the inception of the project, including the privileged distinction between top-down and bottom-up knowledge. Top-down processing involves interpreting sensory data through the lens of memory, culture, and pre-existing associations. For instance, participants are prompted, by the narrator voice in the VR goggle, to match colours based on abstract references, such as the blue of an imagined sky or the hue of a "perfect orange." These tasks foreground the influence of cultural conditioning and personal bias, as the perceived colours are shaped by participants' individual experiences.

Top-down processing deeply underlies the fundaments of colour vision. Early processing of colour occurs along the visual pathway, including specialized cortical regions of the occipital lobe. Information related to colours such as their underlying concepts, linguistic referents, emotional associations, and specialized evolutionarily-adapted functions, are emergent from higher-order connections, many of which remain poorly understood.[2] Furthermore, to achieve the colour constancy, many complex contextual and other top-down processes contribute. The perception of colour constancy is susceptible to many potentially conflicting cues in VR, especially the relative reflectiveness of objects, their shading and the background context in which they appear.[3] Accordingly, there is no universally agreed comprehensive theory of colour theory that takes into account all of the relevant factors in their entirety.[4] This artwork provides additional scrutiny of the convoluted web of top-down cues that influence colour perception, from lighting and shading to varied cultural associations, as mentioned elsewhere.

Conversely, bottom-up knowledge relies on sensory input, emphasising the physical qualities of a novel experience. In the VR environment of the artwork, the viewer encounters tasks where matching a visible colour to another within the same space or even within one object, like a floating orb, highlights immediate optical responses over interpretive responses. Specific instantiations of HSV (Hue, Saturation Value) colour data stored as digital representations are displayed in the state-of-the-art Meta Oculus 2 VR goggles, where they are then processed and interpreted by subjects as low-level percepts and inputs to more complex cognitive processes. In interpreting the experiences of participants, we have modelled these low-level processes according to the best-practice guidelines of colour comparison and perceptual colour space.

The Commission Internationale de l'Eclairage (CIE) has created the most widely used metrics for colour perception. CIE L*A*B* space, defined in 1976,[5] separates colour into three perceptually distinct components: L* for perceptual lightness, a* for green-redness, and b* for yellow-blueness. Given that brightness perception tends to linearly separate from other colour dimensions, colour selection has been visualized according to these two dimensions in several of the colour matching tasks. Additionally, where colours were selected serially in a transmission chain where each participant was influenced by the choices of the preceding participants, colour was also ordered according to a sophisticated colour difference model, called CIEDE 2000 (CIE Delta E*).[6] Colour difference is weighed according to how different colours appear to participants, and this data is used to demonstrate how low-level percepts of colour and colour difference impact the transmission of colour information across society.

Furthermore, the tension and integration between top-down and bottom-up perception allowed through the many cues and design of a tailored, shared experience for each participant motivates a more potent social artistic experience, sharpening social and biological awareness of how both cultural and biological factors shape the act of seeing.

VR AS A RELATIONAL SPACE: THE SIX WORLDS

Virtual reality (VR) offers a unique medium for exploring relationality by immersing participants in environments that challenge conventional perceptions of place, body, and self. In *Nature is an event that never stops*, Sophie Erlund uses VR to create six interconnected

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Fig. 2
Installation view *Nature is an event that never stops*, 2023, PSM Berlin.
Photo: Marjorie Brunet-Plaza © 2023 Sophie Erlund.

worlds that evoke a profound sense of relationality between human and nonhuman perspectives.

Through the use of Lidar scanning technology and the open-source 3D software Blender, she designs these scenes to emphasise shifts in scale and perspective, fostering an experiential understanding of interconnectedness that disrupts anthropocentric ways of seeing and being, in a Unity VR build for the Meta Oculus 2 VR goggle with the help of programmers Daniel Massey and Marie Dubus.

The six scenes of the artwork form a sequential narrative that guides participants through increasingly complex and interconnected environments. Each world is a composite of scanned objects and spaces, blending human familiarity with nonhuman perspectives. By using Lidar technology to capture urban and natural landscapes, as well as objects from her studio, Erlund constructs layered environments that merge the real and the virtual. The use of Blender allows for these elements to be animated and nested, creating dynamic spaces where participants actively engage with their surroundings.

By shifting scales and perspectives, *Nature is an event that never stops* fosters an ethical reckoning with anthropocentrism. The VR medium enables participants to experience environments from vantage points that challenge human dominance, encouraging a humbler, more reciprocal engagement with the world. And an androgynous narrator voice guides the viewer through the environments and prompts for interaction.

During the artwork being on view in Berlin in 2023, cognitive neuroscientist and EER core member Kat Heimann conducted twelve in-depth interviews with visitors using the micro-phenomenological method, a qualitative interview and analysis method to attend to, articulate and compare subjective experience.

This approach allowed participants to reconstruct their moment-to-moment conscious experiences, providing rich, first-person insights into how they engaged with the VR artwork.

This method encourages participants to articulate subtle shifts in perception, embodiment, and meaning-making after they navigated the virtual worlds. By systematically guiding them through their recollections, Heimann was able to capture detailed descriptions of how

colours, textures, and spatial dynamics were felt and interpreted within the immersive environment.

Such qualitative reflections are invaluable to the scientific analysis of the artwork because they reveal how perception is shaped not only by sensory input but also by expectations, prior experiences, and cultural associations. In the case of colour perception, for instance, these interviews help illuminate how the immersive context influenced participants' colour-matching decisions—demonstrating that colour is not a fixed property but a dynamic interplay of stimulus, cognition, and environment. These insights contribute to a broader understanding of how VR can serve as a research tool for studying perception, highlighting the complexities of embodiment and cognition in digital spaces while also offering a bridge between artistic exploration and scientific inquiry. Insights and quotes from these interviews, reflecting visitors' experiences, will be referenced in this paper.

WORLD 1—THE ENTRY

The opening scene introduces participants to a hybrid space that combines the guiding structure of a VR grid with flattened representations of streets and urban landscapes. This environment provides an initial grounding in human optical scales, yet the disjointed, flattened visuals disorient participants, prompting them to question their assumptions about depth, perspective, and spatial coherence.

The ethical implications of this scene lie in its invitation to reflect on the constructed nature of human-centric spatial organisation and its limitations in perceiving nonhuman scales.

After a few moments in this world, a floating orb materialises, and the narrator prompts the viewer to grab onto the orb and spin it to see how the colour on the surface of the orb changes with the movement. The viewer is asked to match the colour on the right side of the orb to the left side colour, to make it be one even colour. Spinning changes the hue colour value. The colour match is then stored as a colour code in the back-end, and used as the starting right-hand colour for the next participant.

In the above figure the colours were selected by each participant, in series, trying to match the colour choices of the previous participant, starting with a purplish "seed" colour. Differences in colour

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Fig. 3 + 4
Video still from inside Meta Oculus 2 goggle. *Nature is an event that never stops*, 2023,
World one (The Entry) © 2023 Sophie Erlund.

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Fig. 5
Colour distance CIEDE2000 line graph, Samuel E. Tepper (2024).
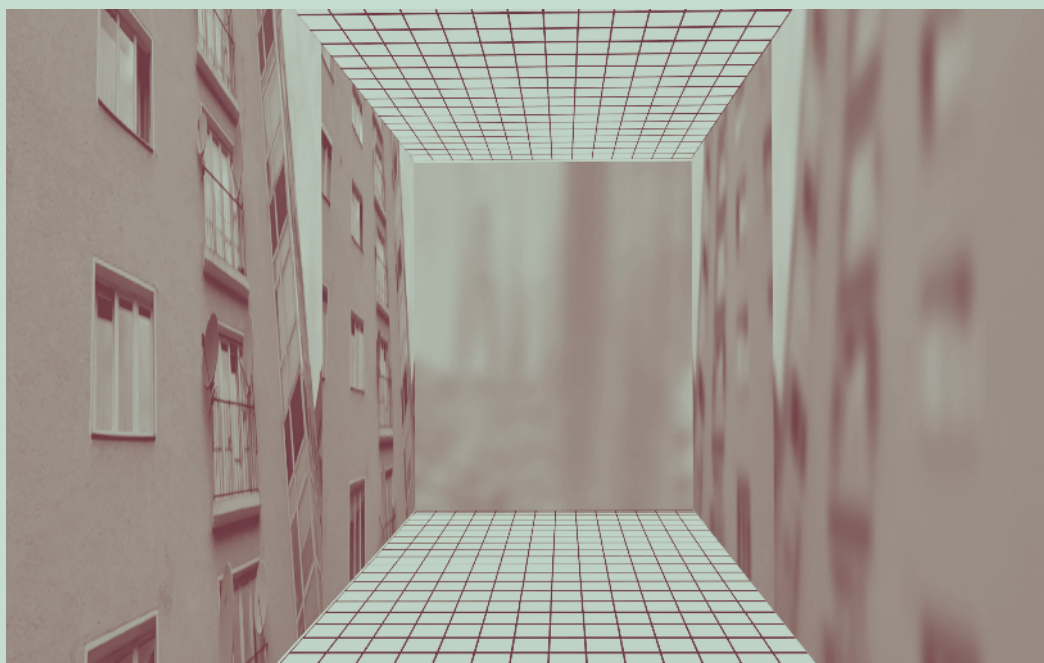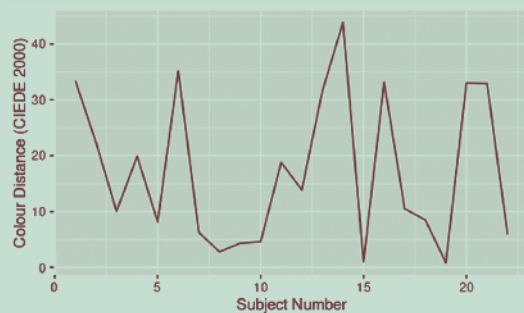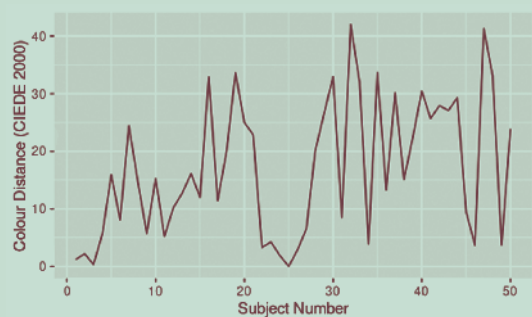
Fig. 6 + 7
Video still from inside Meta Oculus 2 goggle. *Nature is an event that never stops*, 2023,
World two (The Grass Forest) © 2023 Sophie Erlund.

perception, lighting, VR, and interpretations of the art result in a large variety of selections. The differences in colour were then mapped into the CIEDE 2000 colour difference perceptual measure, where they are graphed according to how different each colour might perceptually appear to an average person. High values in these colour difference line graphs thus correspond to large shifts in perceived colour and colour category, relating to greater deviation in colour vision acuity.

WORLDS 2—THE GRASS FOREST
The second scene shifts to a dramatically altered perspective, placing participants beneath towering blades of grass.

Here, the world is rendered from the vantage point of a very tiny insect perhaps, challenging anthropocentric notions of spatial dominance. Participants navigate this world through embodied interactions, asked to look up at the sky and decide on a "perfect blue sky," aiming for evidence of very individual and personal relationships to what constitutes such a blue sky.

The scale shift to the surrounding environment makes the viewer very small and potentially vulnerable in the greater context of "WORLD," and the scene echoes Donna Haraway's[7] call for "staying with the trouble" by decentring the human perspective and encouraging participants to engage with the environment on its own terms.

WORLD 3—THE EARTH'S CRUST
The third scene plunges participants into a dense, subterranean network of mycelial strands. This micro-world is visually intricate, with the mycelia pulsating and responding to participants' movements.

The tactile sensations reported by some visitors, such as the perception of texture, highlight the immersive quality of VR as a medium.

The quote on the next page is from one of Kat Heimann's interview with a visitor who had just experienced the VR artwork.[8] The participant describes sensations of physical touch, such as "rubbery-ness" and "smoothness," while also feeling malleable and responsive. Ethically, this scene invites participants to consider the vital yet often overlooked role of fungi in ecological systems, aligning with relational ontologies that emphasise interdependence.[9]
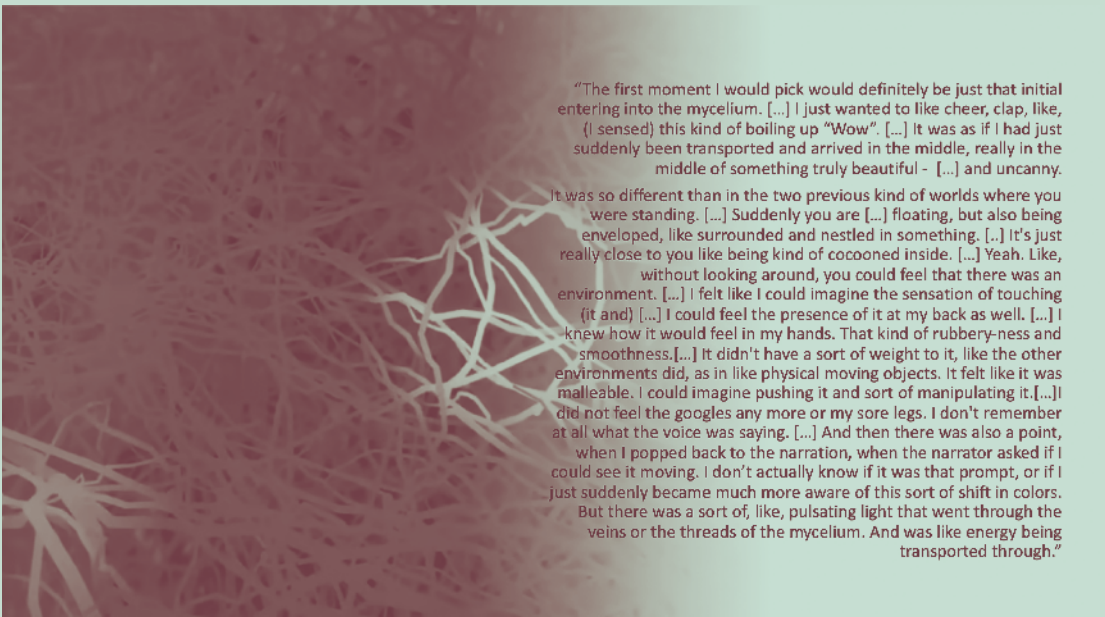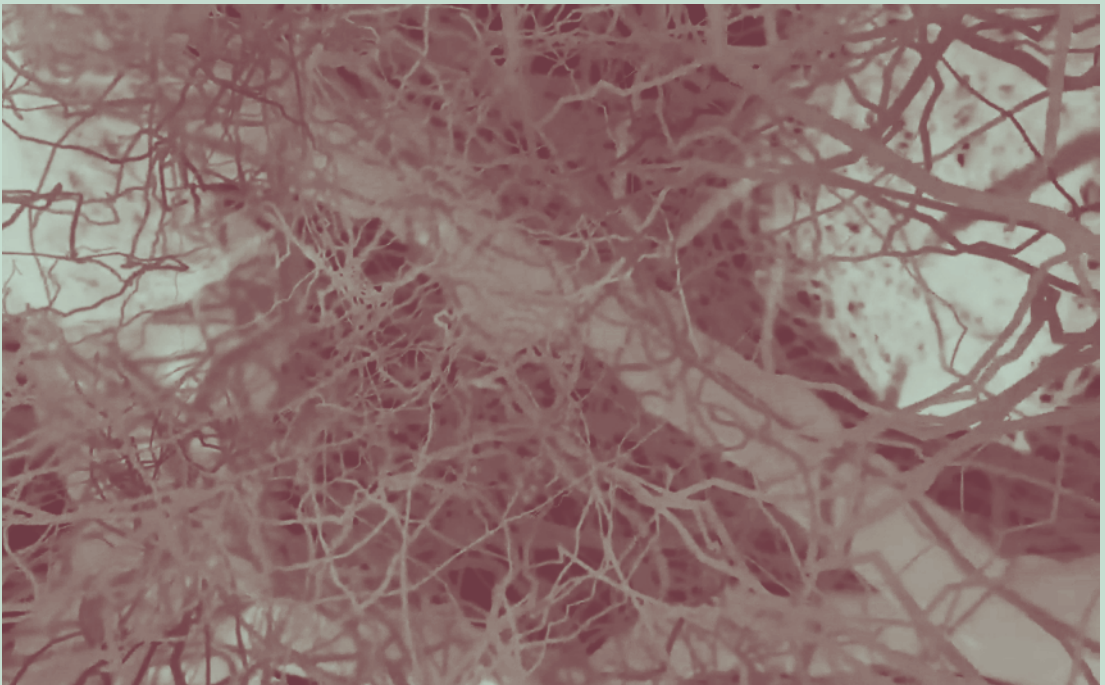
"The first moment I would pick would definitely be just that initial entering into the mycelium. [...] I just wanted to like cheer, clap, like, (I sensed) this kind of boiling up "Wow". [...] It was as if I had just suddenly been transported and arrived in the middle, really in the middle of something truly beautiful - [...] and uncanny.

It was so different than in the two previous kind of worlds where you were standing. [...] Suddenly you are [...] floating, but also being enveloped, like surrounded and nestled in something. [..] It's just really close to you like being kind of cocooned inside. [...] Yeah. Like, without looking around, you could feel that there was an environment. [...] I felt like I could imagine the sensation of touching (it and) [...] I could feel the presence of it at my back as well. [...] I knew how it would feel in my hands. That kind of rubbery-ness and smoothness.[...] It didn't have a sort of weight to it, like the other environments did, as in like physical moving objects. It felt like it was malleable. I could imagine pushing it and sort of manipulating it.[...]I did not feel the googles any more or my sore legs. I don't remember at all what the voice was saying. [...] And then there was also a point, when I popped back to the narration, when the narrator asked if I could see it moving. I don't actually know if it was that prompt, or if I just suddenly became much more aware of this sort of shift in colors. But there was a sort of, like, pulsating light that went through the veins or the threads of the mycelium. And was like energy being transported through."

Fig. 8
Video still from inside Meta Oculus 2 goggle. *Nature is an event that never stops*, 2023,
World three (Earth's Crust) © 2023 Sophie Erlund.

Fig. 9
Quote from interviewee.

The narrator invites the viewer to choose one of several colour blemishes in the fungal network to "heal" and adjust its colour by tugging on the web at the blemished spot, bringing its colour profile back to matching the rest of the rhizome. The adjusted colour is registered and stored as a colour code in the back-end.

This task thus differs from traditional colour matching in that there is an additional choice offered to participants: where to match colour from. By allowing participants this choice, to explore and choose different objects and locations to match colour from, the artwork invokes a selection task at a higher level. This aims to demonstrate another important element of colour comparison—the selection of objects to compare and manipulate the colour.

WOLRD 4—THE UNIVERSE

The fourth scene transports participants to low Earth orbit, surrounded by space junk, satellites and ancient meteorites. This vast and disorienting environment juxtaposes the awe of cosmic scale with the sobering reality of human impact on the nonhuman world. The floating debris serves as a stark reminder of humanity's entanglement with its technological byproducts, reinforcing the ethical imperative to reconsider human-nonhuman relationships in an era of environmental degradation.

The viewer encounters two floating objects in orbit—a glove and a petrol canister, both iconic examples of documented space debris. The task is to match the glove's colour to that of the petrol canister.

However, the challenge lies in their differing illumination: the petrol canister, serving as the seed (original) colour, is backlit by the sun, while the glove is directly illuminated, creating contrasting light and dark backgrounds and thereby posing context-driven challenges to the colour matching task.

This challenge extends similar well-established findings in controlled laboratory settings6 which used different colour contexts to demonstrate the crucial role of colour context in colour perception.

Here, colour selection was graphed in CIE LAB space (1976), where participants selected between highly visible, "saturated" colours. The graph shows that they appeared to have some difficulty comparing and aligning these choices given the differences in lighting and other context cues. K-means clustering was used to identify 3
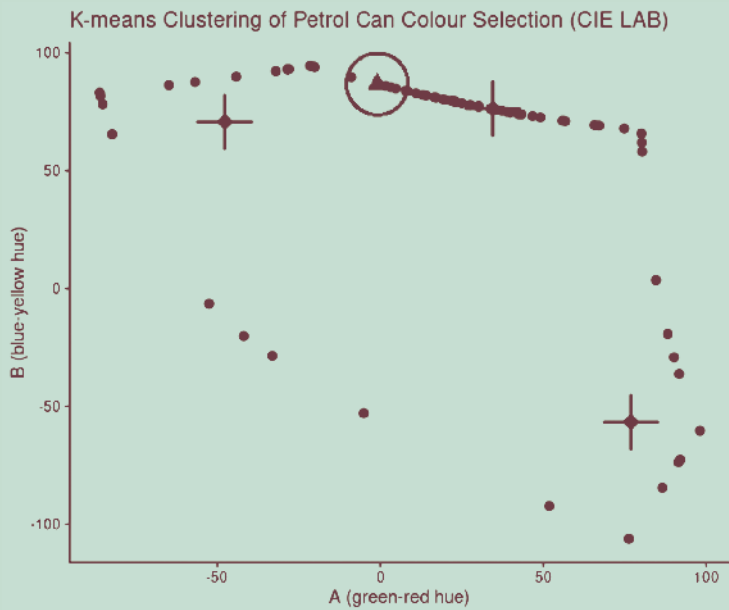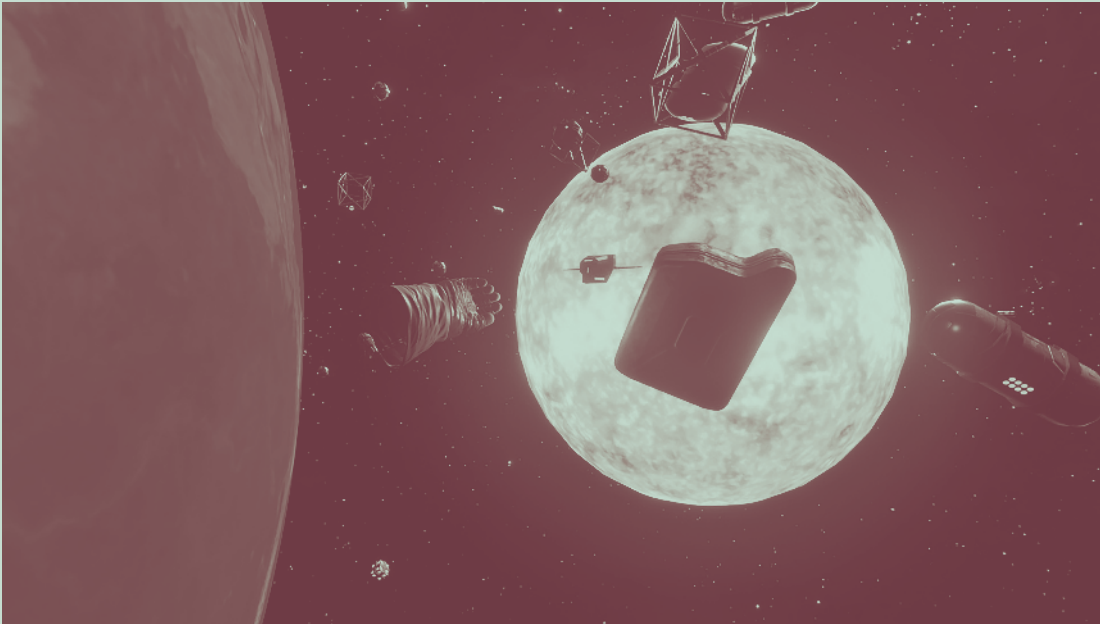
Fig. 10
Video still from inside Meta Oculus 2 goggle. *Nature is an event that never stops*, 2023, World four (The Universe) © 2023 Sophie Erlund.

Fig. 11
K-means CIE Lab Space data visualization, data analysis visualisation, Samuel E. Tepper (2024).

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main clusters of choice. The means of these clusters are plotted as plus shapes on this graph, while the original seed colour is plotted as the circled triangle in the lower middle.

These clusters appear as "greenish" (left), "orangish" (middle), or "purplish" (right), yet tend to occupy an arc within the circular or cylindrical colour space. The high variability relates to recurring differences in context and cue relating to the nature of this VR world.

WORLD 5—THE META SPACE

The fifth world depicts an overgrown, decaying concrete structure strewn with objects. This scene merges natural and artificial elements, perhaps suggesting a future where human creations are reclaimed by nonhuman forces. The interplay between decay and regeneration prompts participants to reflect on the temporal scales of human and nonhuman existence, emphasising the resilience and agency of the natural world beyond human temporality. Within the dystopian environment, the viewer encounters a large orange and an oversized foot, the latter reaching up to chest height.

The narrator explains that their colours can be adjusted by spinning them. The viewer is then asked a subjective question: "What is the colour of an orange?"

Here again colour selection was graphed in CIE LAB space (1976), where participants selected in a continuous range of orange colours, preselected from a greenish-yellow at the left side to a deep, dark orange at the right side. K-means clustering was used to identify 3 main clusters of choice. The means of these clusters are plotted as plus shapes on this graph, while the original seed colour is plotted as the circled triangle in the lower middle.

The clusters appear to demonstrate three distinct categories of preference, "yellowish" or relatively unripe, average orange near the default "seed," and tropical, very ripe deep orange, with most people selecting in the middle, but more people seeming to prefer the ripe-looking colours (on the right side). The perception of food and food-related colours uses highly-evolved mechanisms that may be visible in the shape and similar qualities of the selection choice in this task.

The colour matching tasks in this world delve into the interplay between canonical colours and personal identity through two distinct
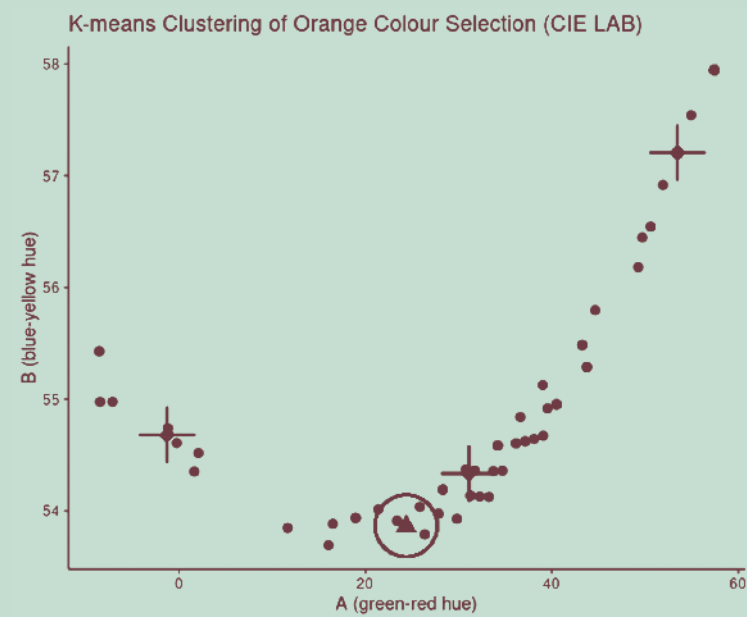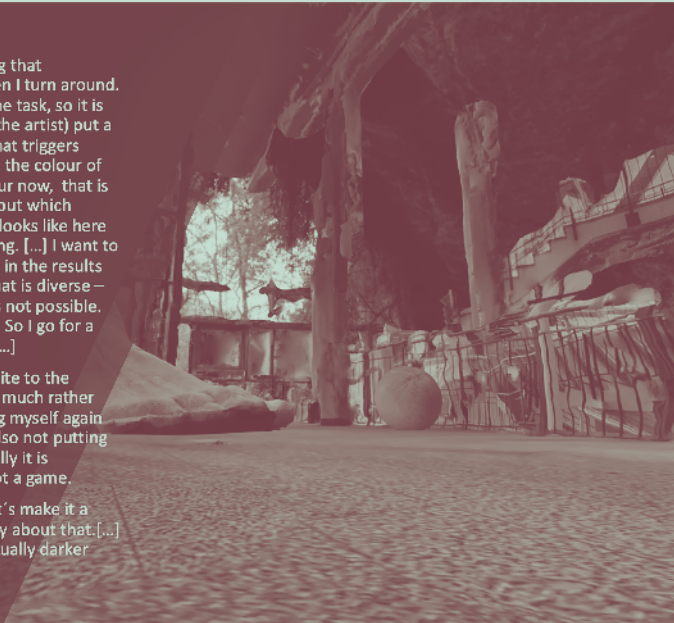
Fig. 12
Video still from inside Meta Oculus 2 goggle. *Nature is an event that never stops*, 2023,
World five (The Meta Space) © 2023 Sophie Erlund.

Fig. 13
K-means CIE Lab Space data visualization, data analysis visualisation, Samuel E. Tepper (2024).

"So I am walking through that landscape, enjoying that relaxedness of this memory with my dog, and then I turn around. And I see the orange. [...] And there is of course the task, so it is with an inner smile that I tell myself: Ok, so she (the artist) put a tropical fruit for us, right outside of Berlin. [...] That triggers me. [...] I can feel, it is more important to me than the colour of the sky for example. [...] When I decide for a colour now, that is also a political decision. [...] I feverishly reflect about which colour to take. Do I go for what I think an orange looks like here in the supermarket? Or where it is actually growing. [...] I want to take a colour that reflects some of this discussion in the results later. [...] The topic that we are part of a society that is diverse – and then again not – like here. [...] But I know it is not possible. Because the data, it does not know who I am. [...] So I go for a lighter orange, a supermarket orange as I see it. [...]

Then I go to the foot. And I turn it consciously white to the extreme. The lightest I can find. Whereas I would much rather trick the program. Say I am darker. But I am telling myself again that this is not how one should behave. We are also not putting make-up to try out something else, right? Politically it is important to stand in for what you are - that is not a game.

But then I go back to the orange and think: ok, let´s make it a real tropical fruit. Ripe, sweet, fruity. And I feel joy about that. [...] Though the question of course is: are oranges actually darker there? Or just sweeter?"

"I go to the foot and start turning. I turn and turn and the colour is not changing much. It strikes me in a mixture of disbelief and fear: are not all colours of the pallet of skin colours represented?. [...] It´s like air getting sucked out of my belly with this thought. It can´t be. [...] A flood of thoughts around skin colour pencil boxes and black life matter issues hits me. [...] I move the foot as far as I can. With relief I find a lot of darker colours. And for a moment I am reminded of this emoji thing: of choosing a different skin colour than yours. And this undecided discussion in my mind if that means standing in solidarity or denying your privilege."

Fig. 15
Quote from interviewee.

yet interconnected colour-matching tasks. The first involves matching the colour of an orange fruit, inviting participants to reflect on how deeply ingrained associations with familiar objects influence their perception.

Additionally, in the Meta Space world, participants are prompted to match the foot's colour to their own skin tone. This task pushes their reflection further by tying colour matching to personal identity, as participants are prompted to align the foot's hue with their own skin tone. This task makes the experience intensely personal and introspective.

Each of these colour selections in turn, and especially in this case, helped participants relate the emotionally-laden contexts behind colour selection.

WORLD 6—THE CONTROL CENTRE

The final scene ties the participants' experiences together by visualising their cumulative colour-matching contributions alongside those of previous visitors. Long strands of coloured orbs move through a chequered cubic space, symbolising the relational network of decisions that form the artwork's evolving archive. By externalising these contributions, the scene underscores the ethical dimensions of collective responsibility and interconnectedness, situating the individual within a broader community of participants and beyond into ecological systems.

In sum, the six worlds of *Nature is an event that never stops* exemplify the potential of VR to create spaces that disrupt traditional notions of place, body, and self. By blending real and virtual elements, Erlund's artwork offers participants a transformative experience that reorients them within a dynamic, entangled universe.

The artwork explores the complex interplay between sensory input, expectation, and experience in colour perception, reflecting contemporary shifts in cognitive science's understanding of perception. Once seen as a linear process where sensory data flowed from the environment to the brain, perception is now understood as a dynamic interaction occurring throughout the visual processing pathway. Expectations and prior experiences are no longer seen as "later" stages but as integral to perception from the start.

Fig. 16
Installation view *Nature is an event that never stops*, 2023, Kunstmuseum Wolfsburg, 2024.
Photo: Kunstmuseum Wolfsburg, 2024 © 2023 Sophie Erlund.

This framework underpins the colour-matching tasks within the VR worlds, which transform participants from passive observers into active creators of colour. Each world highlights a distinct aspect of this interaction: while world one examines cultural transmission, as participants attempt to recreate colours that inevitably evolve over time, mirroring cultural processes, world four emphasizes the complexity of colour perception on lighting and contextual factors. World five engages canonical colours in the orange fruit colour matching scenario, exploring how associations with familiar objects shape perception and colour match two in world five–the foot–ties colour to identity, making it deeply personal.

Through these explorations, the artwork highlights that colour is not a fixed property but a product of sensation, experience, and cultural context. This synthesis challenges viewers to reconsider how they perceive and understand the visual world.

NAVIGATING METHODOLOGICAL DIFFERENCES
This mode of collaboration challenges common hierarchies in knowledge production by creating a shared space where art and science mutually interrogate and inform each other. Such an approach shifts the traditional roles of artist as "visionary" and scientist as "empirical analyst" into a dynamic interplay of co-creation and co-experimentation, blurring the lines between these disciplines. In fact, this very blurring introduces complexities that are central to the project's aesthetic and ethical ambitions.

By merging the experimental rigour of cognitive science with the speculative openness of art, the project transcends disciplinary boundaries and foregrounds relational approaches to inquiry. The colour-matching tasks in the artwork are directly inspired by cognitive neuroscience theory, yet unfold in a setting that resists the reductionism of the laboratory. Instead of isolating variables to eliminate ambiguity, the VR experience embraces the complexity of perception as shaped by culture, memory, and embodied experience. The challenge may lie in making sure the VR functionalities are designed well enough for the experimental tasks to be carried out.

The foundational tension lies in the differing methodologies of cognitive science and contemporary art. Cognitive science prioritises reproducibility, data integrity, and measurable outcomes, whereas art often embraces ambiguity, subjective experience, and the open-ended interpretation of meaning. In the context of this

collaboration, these divergent priorities manifest in the design of the VR environment and the interactions within it.

For example, a cognitive scientist might aim to ensure that user responses within the VR experience are quantifiable, aiming for patterns that can be analysed and interpreted via statistical inference. On the other hand, the artist may prioritise the affective and sensory dimensions of the experience, even if the data generated is "messy" or resistant to clear interpretation.

Unsurprisingly, different qualities of the VR environment, such as lighting, shadows, and texture can contribute to the complexity and difficulty in creating reproducible results in colour matching.[10] These differences highlight significant methodological hurdles in interpreting cognitive science within complex, novel spaces that pertain to real-world and VR contexts.

THE ROLE OF "UNCLEAN" DATA
(IN SERVICE OF ECOLOGICAL VALIDITY)

In cognitive science, the term "clean data" often implies results uncontaminated by noise or variables deemed irrelevant. Yet, in this project, the notion of unclean data takes on an entirely different significance. The participants' diverse reactions to the VR environment, influenced by prior technological experience, personal associations with colours, and even momentary emotional states, produce a dataset rich with complexity. Instead of filtering out these so-called inconsistencies, the project embraces them, reframing them as part of the aesthetic and ethical narrative.

For instance, a participant unfamiliar with VR may struggle with navigation, leading to incomplete or unexpected colour chains. While this might appear to compromise the reproducibility of results, it also foregrounds the embodied and affective dimensions of the medium. The challenges participants face become opportunities to reflect on the accessibility and inclusivity of the technology. This approach aligns with the broader goals of relational ethics: valuing the diversity of participant experiences rather than seeking to standardize or homogenize them.

DESIGNING FOR RELATIONAL COMPLEXITY AND
EMBRACING THE AESTHETIC VALUE OF FRICTION

The VR medium itself introduces unique design challenges that intersect with the project's ethical aims. Most participants enter the

"It was the second scene, where there's these very tall grasses and sort of natural sounds in the background. [...] Something about the movement of the grasses, maybe the sounds, put me in a relaxing mood. [...] Then the prompt started talking about changing the color of the sky in relation to your body position. And so I tuned into that and [...] moved my head around a bit. [...] And then I am prompted by my movement changing the sky into some sort of more orange reddish tinted color. [...] It´s beautiful. Like a sunset [...] I remember thinking: this reminds me of being on psychedelic drugs. [...]

It precisely reminded me of this one time, when I was in Warsaw and we took an experimental psychedelic drug and walked and stopped in a park. [...] I remembered specifically the view. It's a long Park and we are facing it. And there are some waterways and transecting canals and bridges across those. And the color of the sky starts to [...] take on this sort of like pinkish hue. Like "Candyland". [...] I remember us laughing about this word – it was special. Because you know – it´s so complex being on psychedelics. But on that we agreed. [...] And (I remembered) this sensation of being acutely more aware of your environment. Being put sort of really in the place where you are. Out of your head. I like to call it spatializing. [...] It´s a beautiful memory . But it's also associated with a certain feeling of anxiety, tension in the pit of my stomach - maybe the physical experience of being on a psychedelic but also related to being in Warsaw, (where) if you step on the grass, people look at you funny. So, you feel sort of double observed.[...]

And then I had a sort of reflective thought on that, which was: what's special about the experience is that it's a moment where my perspective is very directly changing my environment.[...] And I thought: I know that that is true theoretically, right? It´s an axiom of quantum physics. But it's really rare that you directly or immediately have that experience [...] Only when you are on psychedelics – or in VR... [...] It's like this is an idea that hovers between subjective and objective truth for me. And so my thinking about it is: yes, I know this to be true - but is it true? It almost still feels like a belief. [...] (And) some part of me also like, doesn't believe it, or retracts. [...] I suppose it is a retraction. I don't think I'm even actively dismissing it. I'm like acknowledging it. And then moving on to something else."

Fig. 17
Quote from interviewee.

virtual environment with little to no prior experience, raising issues about how to design an interface that feels both intuitive and evocative. In other experimental setups, usability is commonly prioritised to minimise interference with data collection. Here, the act of navigating the VR space, with all its challenges, is integral to the artwork's meaning. The interface was designed, therefore, to strike a delicate balance between functionality and ambiguity, encouraging exploration without alienating users.

These challenges are not merely technical hurdles; they become part of the artwork's aesthetic fabric. The moments of friction, where participants grapple with unfamiliar sensations or interface elements, invite introspection about their own agency and relationship to the virtual environment. This dynamic mirrors the broader theme of relational being, emphasising that understanding emerges through interaction and negotiation rather than passive reception.

This aesthetic strategy resonates with broader philosophical discussions about the role of art in unsettling established epistemologies, as suggested by Jacques Rancière.[11] By creating conditions where participants must navigate uncertainty and complexity, the artwork fosters a form of aesthetic truth that transcends empirical verification. This truth is relational, emerging through the interplay of participant, environment, and the collaborative processes that shape the work. In this sense, the work itself becomes a living example of relational being, inviting participants and collaborators alike to reconsider their relationships to knowledge, technology, and one another.

EMBODIYMENT AND CARE IN THE DIGITAL REALM

In its engagement with VR, *Nature is an event that never stops* provokes a reconsideration of embodiment. Participants report tactile sensations—vivid impressions of touching virtual materials like decaying concrete or strands of mycelia. These materials, rendered digitally yet resonant with physicality, evoke themes of care and environmental connection.[12]

Here, aesthetics transforms into ethics. The textures remind us of our entanglement with nonhuman environments and their fragility. As participants navigate the virtual space, their choices resonate with broader questions of sustainability and care. In this way, the artwork reclaims VR from the extractive logic of techno-capitalism, proposing it instead as a site for relational reflection.

Designing for Relational Complexity

What does it mean to "know" relationally? This artwork suggests that knowledge is not a solitary pursuit but an entangled process. As it experiments with sensory modalities, the project opens new possibilities for interdisciplinary collaboration and public engagement. Yet it also confronts the ethical challenges of its medium: the accessibility of VR, the implications of data collection, and the risks of reinforcing cultural biases.

CONCLUSION: THE ROLE OF VR IN FOSTERING AWARENESS, CARE, AND INTROSPECTION

The use of VR in *Nature is an event that never stops* challenges conventional boundaries between the virtual and the physical, encouraging participants to reflect on their role within a shared, relational space. The artwork's six VR worlds—each representing different scales of perception and reality—invite viewers to move beyond anthropocentric viewpoints and consider nonhuman perspectives. These shifts in scale are not just aesthetic choices but are integral to the artwork's ethical message, prompting viewers to reconsider their place in the natural world and their responsibilities towards it.

The final scene, with its live-stream projection and accumulation of colour-matching data, serves as a visual metaphor for the cumulative impact of individual and collective actions. The coloured orbs represent not only the visual contributions of each participant but also a metaphorical representation of human impact on the environment. This visual narrative encourages introspection about one's role in a shared future and promotes a sense of collective agency. The implications of making individual contributions visible within this collective narrative are significant; it invites participants to consider their responsibility in shaping relational futures, and how their actions, no matter how small, contribute to a larger whole. This approach reflects a broader move towards relational aesthetics that emphasises interconnectedness and shared responsibility, aligning with the journal's focus on aesthetics, ethics, and relational being.

Nature is an event that never stops is a stab at merging aesthetic practice with ethical reflection contributing to a forum for potential future interdisciplinary projects. The use of VR technology, combined with insights from cognitive science and relational ethics, points to innovative ways of engaging audiences in discussions about the environment, social justice, and sustainability. This artwork provides a new model for how aesthetics can be used to explore complex issues.

Looking ahead, future innovations in relational aesthetics could benefit from expanding the participatory aspects of such projects, incorporating diverse cultural contexts, and utilising digital platforms to reach broader audiences. This would not only address the limitations of VR as an accessible medium but also encourage more inclusive dialogue on relational ethics. Additionally, as more interdisciplinary collaborations between artists and scientists emerge, there is an opportunity to explore new ways of visualising data, embodying experience, and fostering collective action. Projects like *Nature is an event that never stops* suggests that art can play a meaningful role in transforming complex data into visual narratives, thus bridging the gap between personal experience and collective responsibility.

Ultimately, the artwork hopes to be a testament to the power of aesthetics to provoke critical reflection on our shared futures. By merging the visual and the experiential, the aesthetic and the ethical, *Nature is an event that never stops* contributes to ongoing discussions on the role of art in a changing world. It encourages viewers to consider how we perceive, interact with, and care for the world around us, prompting us to reflect on our responsibilities as individuals and as members of a larger community.

NOTES

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