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Embodied, Simultaneous: Toward Kinship and Expanded Consciousness in New Media

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Nancy Baker Cahill

Nancy Baker Cahill is an interdisciplinary artist and expanded filmmaker whose hybrid practice focuses on systemic power, consciousness, and the human body. She creates research-based immersive experiences, video installations, and conceptual blockchain projects rooted in the history of drawing. Her monumental augmented reality (AR) artworks extend and subvert the lineage of land art, often highlighting ecological imagination, civics, and a desire for more equitable futures. She is the Founder and Artistic Director of 4th Wall, a free, AR public art platform exploring site interventions, resistance, and inclusive creative expression. Baker Cahill is an artist scholar alumnus of the Berggruen Institute and a TEDx speaker. In 2021, she was awarded the Williams College Bicentennial Medal of Honor and a C.O.L.A. Master Artist Fellowship. She is a 2022 LACMA Art and Tech Grant recipient, and 2024–5 Harvard metaLAB Affiliate. Her work is held in the collections of the Los Angeles Museum of Contemporary Art, Los Angeles, CA; Whitney Museum of American Art, New York, NY; The Museum of Art and History, Lancaster, CA; RFC Art Collection, Miami, FL; and 0x Collection, Prague, CZ.

76 In this conversation, I will address Nam June Paik's concept of the trans-spatial as an intentional project of creative inclusion, ecological kinship, and expanded imagination.

The term "trans-spatial" provides an apt framework for exploring the impact of augmented reality, virtual reality, machine learning, and experiential film as it relates to expanded cognition. Many years ago, I began translating my graphite drawings into experimental, dimensional drawings in VR. I loved drawing in three dimensions in infinite space where I could only see the two wands I used to draw; my body was otherwise invisible. It felt like a new form of embodiment, of instinct: an expanded cognition. Every mark I made in VR was sculptural, visible from every angle. As 3D drawings I could scale, shrink, or turn at will, they defied physics and the constraints of traditional materials. Because I couldn't see my body, but could witness the trace of my gestures, I developed a new, almost animal awareness of spatial intelligence in relation to, but different, from my analog drawing practice.

The more I worked in VR, the more my drawing on paper changed. I'm convinced (without any scientific confirmation) that it altered my neuroanatomy, and changed the way I perceive and approach two-dimensional space. Instead of treating paper as a substrate, I started imagining it too as infinite space; a void from which I could tease out biomorphic forms waiting to be brought to life. This ongoing cycling between the analog and the digital has activated a strange loop; whenever I return to the starting place of paper, I'm not where I began. My cognition has shifted to include a plurality of media that now informs every mark I make.

As a medium invisible to the naked eye, but visible with the visual prosthesis of a mobile device, AR is a medium well suited for both expanding consciousness, inviting collaboration, and subverting hegemonic influence. I wanted to challenge assumptions about public art; about who decides what it is, where it goes, and why it matters. When I first launched the 4th Wall AR app in early 2018, I did so because there was such a clear barrier to entry where sharing VR was concerned; it was inaccessible in multiple ways. I was curious what would happen if I offered my VR drawings, translated into AR, to an unknown audience to situate in their own chosen "real-world" contexts. What might these collaborations look like? What would Donna Haraway's *sympoiesis*, or "co-making" look like in practice? How might people make their own meaning with this additive digital layer of content? The

imagination and ingenuity people manifested in the early days of 4th Wall was unbridled. People from all over the globe recorded my work in contexts from the hilarious to the poignant to the wildly inventive, and shared their captures online. Through audience participation and creative co-building, artistic projects using AR can dissolve traditional understandings of spatial confines, heighten sensory engagement, and expand cognition to include an acceptance of two seemingly contradictory things being true at once; an artwork that is both present and absent.

One pivotal moment expanded the scope of the app and of my own practice, by literalizing the idea of expanded cognition in its social and political contexts. My dear friend, Tanya Aguiñiga, is an artist and border activist who placed my Hollow Point AR drawing in the United States and pulled it through the border wall into Mexico. That gesture underscored that art and ideas have no borders and cannot be contained, defying physics and international laws, expanding ideas of possibility and transgression. Tanya's intervention inspired *Coordinates*, a geolocation feature on 4th Wall. It allows me to share not just my own work, but also to host works by digital and non-digital artists in the exact locations and settings of their choosing where their work has the most resonance for them outside of any institution of permission. It has since become an ongoing, curated portion of the app that has hosted innumerable artist collaborations, exhibitions, and activations all over the globe. Imagining an entire planet as a spatial canvas with infinite activations like Tanya's expands what is possible for ideas to flourish outside of traditional artistic contexts.

These interventions prompt expanded consciousness—which lasts. A few examples of this phenomenon occur in exhibitions I've co-curated and hosted, and in my first AR work of land art. In *Battlegrounds*, a 2019 exhibition in New Orleans, I co-curated with writer and curator Jesse Damiani, Chandra McCormick's *Holy Family Spiritual Church*, is installed over an empty lot in the lower Ninth Ward. She made visible an essential community hub, led by women, eradicated by Hurricane Katrina and subsequent increasing gentrification. She created literal and metaphoric space for erased or abandoned histories. On-site, even without the visual prosthesis of the phone, its impact lingers in the embodied memory of the viewer. This is true for all 32 of the works in *Battlegrounds*.

The sensorium is important to note here. *Margin of Error*, one of two land

artworks I created for the Desert X Biennial, was inspired by Timothy Morton's book *Hyperobjects*, and installed over the Salton Sea. AR allowed me to embed ideas in natural settings with minimal harm to local flora and fauna, and to embrace alternate modes of perceiving. I do not mean to imply that the energy used to create the works nor the vectors through which they are experienced have no ecological impact; they do, as most manufactured technologies do, with a disproportionate impact unjustly absorbed by the global south. But given the ubiquity and influence of mobile devices in contemporary life, there is an opportunity to use these devices to upend neoliberal mythologies of progress and to highlight ongoing ecological damage. At Desert X, viewers were confronted with a monumental artwork that appeared over a toxic but beautiful water mass, the stench of chemicals on the wind, and the crunch of dead fish cartilage underfoot. All senses were engaged. In this expanded state of embodiment, viewers performed directly with the work by filming themselves and others interacting with it. Gene Youngblood, in his iconic book *Expanded Cinema*, might have recognized this new form of storytelling, witnessing viewers writing themselves into the (con)text of the work. He famously wrote, "When we say expanded cinema we actually mean expanded consciousness." This is a concept to which I will return.

Such overlapping digital presences are often invoked around immersive realms, like the so-called metaverse and the more recent popularity of "spatial computing." Instead, the concept of multi-space as delineated by architectural writer Owen Hopkins, presents a form of embodied simultaneity—of being in more than one "place" at once—and an extension of Paik's pathbreaking legacy. The trans-spatial, *there-not-there*ness of AR, is amplified in this "multispace," which evokes the collapsing of boundaries between the digital and physical worlds, of being in one (or several) ontological spaces at once. This condition is one to which many are now accustomed; the zoom meeting one attends in their home office, simultaneously sharing space with others scattered across the globe, or cycling privately while competing with others on a shared app. It might sound like multitasking, but it embodies a poetic expression of some of the core ideas in quantum mechanics (most of the ideas of which are difficult to comprehend at scale). One series of mine seeds this idea in the way the work is produced and experienced. Many of my drawings become sprawling, quasi-baroque, site-specific sculptural installations. A certain ambiguity of form inheres in the torn pieces; they could just as easily be leaves as feathers. My exploration of multi-space has

prompted me to envision each torn piece as a precise, 3D mark; physical iterations of the sculptural marks I made in VR. Each piece, while static, serves as a frozen energetic gesture in space. This series, *Slipstream*, follows slipstream fiction's *familiar strange or strange familiar* via "epistemological and ontological questionings about reality,"¹ which is part of the disruption that expanded cognition and multi-space notions produce, but we are called to take these changes that are happening all around us, not just in art, seriously. My *Slipstream* sculptures provide the raw material for a majority of my immersive video projects and so are synonymous with the cognitive slippage of moving in any multi-spatial context.

The *Slipstream* sculptures become 3D digital objects through the use of photogrammetry. Something gets lost in translation, and a mysterious latent space opens up. This occurs when the software I use applies material to the digital model where it is invisible to my human eye, and inexplicably excises other portions of the work. I love this translative process as it underscores different and for now irreconcilable ways of perceiving; human and machine. Both visions and versions can be true at the same time; they too are multi-spatial. I bring the mutated sculptures into my 3D software and then subject them to all manner of impossible physics and lighting. To me, this is the apotheosis of digital/analog enmeshing and allows me to blend and play while troubling notions of objective truth, misinformation, and singular authorship so that I am also forced to confront and engage these troubling realities. They exist all at once as the sum of their translations.

One of my new series, *Distortions*, visualizes multi-space in an imagined perceptual blend of human and machine perception. The work explores the disorientation of digitally mediated visual culture and its impact on human cognition. *Distortions* use my biomorphic, abstract graphite drawings as their main substrate. From there, I apply hand-cut "pixels" of all sizes and apply them in patterns that create the illusion of multi-dimensional space. The "pixels" are cut from photographs, other drawings, airbrushed paintings on Tyvek, AI-generated images trained on my own work, holographic lucite, holographic paper, and metallic paper. I construct them fastidiously to create a visual dissonance with its own, irresolvable spatial logic. Their compositions tease the viewer to try and make sense of a new visual language of simultaneity; one that thwarts and rewards (with familiarity).

1 James Patrick Kelly and John Kessel eds. *Feeling Very Strange: The Slipstream Anthology* (San Francisco: Tachyon Publications, 2006), xi,xiii.

80 Nam June Paik said, “Art should be a playground for the senses.” The contemporary condition of the trans-spatial, of multi-space, of being in one (or several) ontological spaces at once, allows artists to confront urgent questions through multiple senses. One interpretation of Paleolithic cave paintings is as a kind of pre-cinema. Drawings coupled with flickering light for storytelling have long prompted transcendent, embodied experiences which seems to be a condition humans actively seek. *SEEK* is my new, immersive, expanded film which deploys layering and camouflage to invite audiences to interactively “seek” in both the literal and philosophical sense through quantum listening and perceiving. *SEEK* is intended to challenge sensory perception and imagination to prompt deeper engagement with the earth’s imperiled biosphere. Because the canvas of the LED dome is intended to mimic VR, what audiences inevitably experience is what Writer Zay Amsbury describes as “ontological vertigo.” There is a vertiginous nature to a visceral embodied experience in 3D; when one’s body may briefly “know” it is not inside of the simulated digital experience, but is otherwise cognitively embedded in it, and along for the virtual ride.

SEEK invokes the provocation: what might be hidden in plain sight, and what might an unconstrained human imagination discover in the gaps? By focusing on our collective interdependence on and in fragile ecosystems, I ask, how can we mobilize new forms of cognition to move through the world more attentively? Filmic collage provides a layered, multi-spatial—almost quantum interface through which one can explore themes of discovery, integration/distinction, simultaneity, and revelation. Part of what inspired the work is the current technologically mediated condition of not being encouraged to rely on our own embodied, sensory intelligence (or “embrainment”) as we encounter the world around us. As Robin Wall Kimmerer writes in *Braiding Sweetgrass*, “Paying attention is a form of reciprocity with the living world.” By dissolving the screen interface, *SEEK* shifts the self-centered lens outward, inviting viewers to “disappear” together into a chameleonic shared reality, and underscoring our collective interdependence. Abstraction also plays a crucial inclusive role. Much of the imagery serves as a Rorschach test, allowing audiences to connect in their own respective ways to what they see and feel. Evolutionarily speaking, avoiding a possible sixth extinction may require new sensory adaptations. *SEEK* asks, could quantum listening, seeking, and finding lead to a new baseline of ecological awareness and collective resolve?

A recent AR Land Art project is *Lifelines*, which presages some of the work of *SEEK* in the Prime Desert Woodland Preserve, a protected, historic desert in the Antelope Valley. Commissioned by the city of Lancaster and the Museum of Art and History, the work was intended to challenge human exceptionalism by towering over viewers. In this work, three, colossal Joshua trees breathe at what I imagined to be “tree speed.” Humans can’t perceive Joshua trees breathing, so I wanted to use AR to invite humans to witness and consider the systems surrounding and including them while they are physically and sensorily positioned in that landscape—in terms they’d understand. The climate crisis has imperiled not only these majestic trees but many local species of migratory birds. A murmuration of ghostly birds swirls around the trees. *Lifelines* offered an opportunity to reframe our interdependent relationship with this natural ecosystem and epistemologies erased or ignored by the “progress” of modernity. To move through the Prime Desert Woodland is to encounter its enduring planetary intelligence, above and below ground. In *Material Feminisms*, Karen Barad writes, “This ongoing flow of agency through which “part” of the world makes itself differentially intelligible to another “part” of the world and through which local causal structures, boundaries, and properties are stabilized and destabilized does not take place in space and time but in the making of space-time itself.”² Her description of this dynamic reflects what I am attempting to explore in this work. The opportunity and challenge is to intuit when and how those changing topologies briefly fuse; and to isolate, even for a moment, a glimpse into an expanded universe.

As awestruck as I am by the capabilities of experiential technologies, I am no techno-fetishist. Ontological vertigo is also induced when considering the dizzying and disorienting influence of machine learning in the service of extractive, capitalistic interests. The weaponization of AI in a myriad of contexts—military, robotic, political, and social—is an ongoing threat. Though AI may seem to apply these days to ChatGPT or image generators, the softwares we all use are undergirded by forms of AI and so I am cognizant of AI’s proliferation and implications beyond labor-reduction or entertainment. These threats are of human origin, however, and when thinking about climate change, I could think of no better symbol than the after-effect of the ultimate weapon of man-made cataclysm and ecocide, the mushroom cloud.

² Karen Barad, “Posthumanist Performativity,” in *Material Feminisms*, eds. Stacy Alaimo and Susan Hekman (Bloomington, IN: Indiana University Press, 2008), 135.

This massive, 2021 AR land artwork was a tentacular,

multi-nodal blockchain project. I wanted to underscore human responsibility in the destruction and fragility of all interdependent ecosystems— at scale. As the radioactive cloud dissolves, another mushroom cloud appears in counterpoint, one that is otherwise hidden from view, underground. What spreads across the sky is a mycelial network: the fungal colonies that form the connective tissue of all carbon-based life on Earth. These resilient and regenerative networks sustain life, versus destroy it. The idea was to grow a supportive network of care, like mycelium, based on self-repairing structures. By blanketing the sky with a poetics of interconnectedness, I hoped viewers might also imagine an alternate, communal, often invisible cloud—one that privileges generosity and mutual accountability.

A sub-category of the trans-spatial might include what Stacy Alaimo calls “trans-corporeality”, the time-space where human corporeality, in all its material fleshiness, is inseparable from “nature” or “environment.”³ Last year, the Whitney Museum in New York commissioned and acquired *CENTO*, an AR artwork and immersive video. *CENTO* is a participatory AR project focused on a bioengineered future creature—an experimental, living test for community-building and adaptability in the face of the climate crisis co-built by a global audience. *CENTO* asks, would a creature imagined as a collage of human, cephalopod, microbiome, avian, mycelial, marine species, and machine fulfill or even “exceed” basic evolutionary requirements for fitness on a volatile planet? What would a bio-ethically produced, trans-corporeal self look like? Could species egalitarianism exist in the body politic of a new hybrid creature? And how could humans contribute to co-building such a creature, and in doing so, become embedded in it themselves? Anyone anywhere can add a feather to *CENTO*’s body—where it will appear in real-time. Each of the twelve feathers is endowed with a specific property (like communication, or toxic filtration) that might ensure survival. Metaphorically, with each added feather, *CENTO*’s evolutionary fitness increases.

CENTO has changed dramatically from its inception in October of 2023. As new feathers are added, the earliest feathers fall away, or digitally “molt,” so *CENTO*’s body becomes a process, versus an object. *CENTO*’s morphing underscores the necessity of ongoing, collaborative action, and materializes our biological inextricability with other critters, plants, and

3 Stacy Alaimo, “Trans-Corporeal Feminisms and the Ethical Space of Nature,” in *Material Feminisms*, eds. Stacy Alaimo and Susan Hekman (Bloomington, IN: Indiana University Press, 2008), 238.

lifeworlds we often ignore. *CENTO*'s impact, like other affective, trans-spatial encounters, goes well beyond the brief moment people engage with it (remotely or in person). People have messaged me that their children insist they visit *CENTO* on weekends. Others have reported spending real time deliberating thoughtfully over which feather they choose, and why. AR's lasting, trans-spatial impact remains strong here; for *Cultured* magazine, Corinna Kirsch wrote,⁴ "I keep going back to the 4th Wall app, whether I'm sitting at home, riding the subway, or waiting for an appointment. Oddly, I find myself thinking about *CENTO*'s vulnerability, that it needs me—or maybe I need it? *CENTO* calls for a caring commitment with our "more-than-human"⁵ kin, in the words of ecofeminist Donna Haraway."⁶

One person, after adding a feather to *CENTO*, reported it felt like "voting." This fall, I will launch *Body Politic*, which expands on *CENTO*'s co-building model to include direct democratic action. This fall, participants anywhere in the world will be able to vote on one of twelve human rights currently at risk in the United States and their votes will be registered in real time, visualized in a spinning disco ball above three dancers whose movements alternately communicate joy and pain. *Body Politic* serves as a collective call to action, emphasizing the trans-corporeal urgency of active civic participation and advocacy to retain fundamental human and civil rights when authoritarianism surges in nations around the world.

Expanded cognition, multi-space, ontological vertigo, and trans-corporeality are the anchors for the expanded consciousness that I cultivate through my practice. This is why I call myself an expanded filmmaker, by Gene Youngblood's definition. When I speak of expanded consciousness I am directly addressing individual human experience, whereas when I invoke cognition, I am referring to an even more expansive phenomenon with

potential overlap with our more-than-human kin. As my research deepens, I am increasingly interested in fluidity between and among realities, and in the adaptive capacity of humans to operate using what Katherine Hayles calls, "the cognitive capacity that exists beyond consciousness... nonconscious cognition."⁷ The legacy of Nam June Paik's notion of the trans-spatial expands cognition, ignites imagination, and provokes new considerations of kinship across cultures, species and ecologies.

4 <https://www.culturedmag.com/@corinna-kirsch>

5 <https://www.culturedmag.com/article/2023/11/02/artists-cyborg-art-trend>

6 <https://lareviewofbooks.org/article/making-kin-an-interview-with-donna-haraway>

7 N. Katherine Hayles, *Unthought; The Power of the Cognitive Nonconscious* (Chicago, IL: The University of Chicago Press, 2017), 9.