Eco-Interoception: What plants, fungi and protista have taught my body

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ECO-INTEROCEPTION
WHAT PLANTS, FUNGI AND PROSTISTA
by Sara Dottererer
HAVE TAUGHT MY BODY
SCHOOL: SOUTHERN METHODIST UNIVERSITY

YEAR: MAY 2023

COMMITTEE: MELANIE CLEMMONS

COMMITTEE: SARAH NANCE

BURKE JAM

ABSTRACT

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FINAL THOUGHT
To me, ecology is the relational, full-body awareness that I am made up of and deeply connected to everything around me; and for better or worse, this is reciprocal. I form ecotones, an ecological transitional zone between two ecosystems, with the world around me. I use this ecotonal lens to blur binaries and dissolve boundaries between me and the world “outside my body.” During my Masters of Fine Arts at Southern Methodist University, I have continuously explored and represented the lives of various more-than-human species outside of my body, including plants, fungi and protista through an ecotonal lens. Although these organisms are mostly outside my body, this process has helped me visualize and thus, better understand what’s going on inside my body by means of a process I’m calling Eco-interoception. Interoception is the perception of the internal state of a body ranging from physical to emotional sensations. Eco-interoception is a tool I have developed to improve my perception of my body’s internal state through ecological learning. This tool has become a form of healing as I imagine and emulate neurogenesis or the creation of more neural connectivity in my brain via linemaking derived from root systems in plants, fungi and protista. Eco-interoception is both anthropomorphic, as I project other species’ patterns and cycles onto myself to understand my own body, and anti-anthropomorphic, as I strive to decenter my anthropocentrism by exploring ways of being beyond human intelligence. My practice is recursive: the procedures of my practices invoking the concept I am grappling with in multiple ways that create an ecotonal visual language of rhizomatic-fractals. Representing internal and environmental cycles of decay and growth is core to my process as I capture rhizomatic patterns that become fabric; transform prints into paper yarn and knit; grow plants, mushrooms and mold cultures; sew into mold and formulate choreographic objects; and capture all of these works as 3D models for virtual worlds. My persistent search for a deeper understanding of more-than-human intelligence and necessary cycles of growth and decay have guided my eco-interoception via a healing artmaking practice.

Key Words:
Ecotones, Rhizome, Neurogenesis, Anthropomorphism, Eco-Interoception, Healing, Mycelium, Slime Molds, Fractals, Virtual Reality, Linemaking, Biomaterials, Mending/Patching
I.
I make widening circles, at first, starting small. And slowly, I see things in my life that I’ve seen before, but with weeks of memory and perspective layered upon each new circle. They continuously rotate until their layers bring someone or something into focus. For a moment, I’m humbled to believe I’ve gleaned some inkling of divine understanding, and then it’s gone.

II.
I have become a series of ADHD loops, leading me somewhere, feeling obsessive and insular, entangling me inwards, to see the connectivity of all things. My brain needs this interconnectivity between objects, peoples, concepts, materials–for a single moment of clarity. How can I untangle all of this...weave it all together?

III.
First, I was fixated on smartphones, and their impact on human body movement, a sense of self, and the ability to connect. But that fizzled in anxiety. It didn’t have roots or dirt. I used to be entranced with the dance of urban pedestrians on a concentrated street corner. But, humans began to bore me.
II. POEM

IV.
Branching fractals in wintering trees
offered themselves to my imagination,
 lure me from above as I walked.
A branching fractal is so appealing, because it is in us.
(Us as in humans, but other species too).
Our eyes scan in fractals...my obsession is nothing
but an evolutionary-approved stress-relief tactic.
A tree in winter is what the brain looks like in depression.
A tree in spring is what the brain looks like when it's "healthy"--
synapses flourishing and firing.
Do you think I could eat a fractal?

V.
And then, fungi entreated me,
an often overlooked or feared species.
They gestured to me from below as I walked.
Mycelium (the root systems of mushrooms) finally gave me
a visual representation of how I imagine the network of my brain.
Thin, yet strong fibers making
connections across vast distances.
Fungi led me outside of myself only to realize an entangled and
far-reaching pathway that guided me back inwards.
To see that what was around me (in nature) was inside me.
To see my body as the earth's.

VI.
Now I move towards the oldest eukaryotes, protists...
more specifically, to slime molds.
They are hard to categorize --
interspecies, transpecies, multispecies?
They do not dawdle, distracted by looped thoughts, instead
Finding the most efficient pathways forward.
I wanted to partner with them to make a map for the exhibition,
but they didn’t agree.
That’s the thing with working with other species:
They do what they want.

VII.
The last thing I have to tell you:
Don't be fooled.
There is nothing to understand,
no right path to follow.
This is simply my elaborate
coping mechanism.
The only question I have for you is:
What’s yours?
"The danger of all poets and I think artists in general, is it some moment we think we don’t deserve to do this work because what does it do? Well right now it anchors you to the world again and again and again. And it says, ‘You are here.’” - Ada Limón

I am here (I tell myself over and over again). My subconscious practice that I return to weekly and sometimes daily is taking pictures while looking upward, framing the trees with the sky... and downward, framing the base of a tree with the sidewalk or dirt. [It is as if] I need to embody myself on earth — positioning myself between what is below and what is above. My bouts of depression make me feel “of the earth,” on the earth, stuck in it. While anxiety makes me feel “of the sky,” floating, stuck hovering above. I am constantly oscillating between the two worlds, somehow staying in the

liminal space between sky and earth, trying to accept the flow of the water and air that pulls me along, regardless. But in the meantime, I am here (I tell myself over and over again). I walk with the song “body” by Gia Margaret that blends an Alan Watts lecture entitled “Overcoming Social Anxiety” with ambient sounds. He says: “How does your head look to your eyes? Well I tell you, it looks like what you see out in front of you, because all that you see out in front of you is how you feel inside your head. It is easy enough to stand still, the difficulty is to walk without touching the ground. Why do you feel so heavy? It is that you feel that you are carrying your body around. Common speech expresses this all the time, life is a drag. I feel that I am dragging myself around. My body is a burden to me... When there is nobody left for whom the body can be a burden, the body isn’t a burden. But so long as you fight it, it is.” And for me, the past two years have been reimagining my head and all of its contents, and thus, what I see in front of me. A feedback loop of ever-meandering discovery as I try to re-see my body and the art it creates— not as a burden, but as a tool for experiencing the world.
I will make a map that brings you to the current status of my artistic process from the start of my Masters of Fine Arts to now. In the 1980 book, *A Thousand Plateaus*, Gilles Deleuze and Felix Guattari write, “The rhizome is altogether different, a map and not a tracing. Make a map, not a tracing. The orchid does not reproduce the tracing of the wasp; it forms a map with the wasp, in a rhizome. What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real. The map does not reproduce an unconscious closed in upon itself; it constructs the unconscious.”

In writing, I reveal the unconscious paths of the collective that I have tapped into to arrive at an ever-growing and pathfinding fixation on trees, plants, fungi and slime molds.

The organization of *A Thousand Plateaus* is a rhizome, decentering the linear progression of text-based books. They write,

“A book composed of chapters has culmination and termination points. What takes place in a book composed instead of plateaus that communicate with one another across microfissures, as in a brain? We call a ‘plateau’ any multiplicity connected to other multiplicities by superficial underground stems in such a way as to form or extend a rhizome.”

In this line of thinking, the book can be opened to any page, and reopened to fifty pages later to find interconnections between scattered ideas by way of the entangled rhizome roots or a brain’s neural network. They write that “binary logic and biunivocal relationships still dominate psychoanalysis... linguistics, structuralism, and even information science.”

This binary logic or linear reading of a novel from front cover to back is synonymous to the hierarchical nature of a tree where you begin at the ground and move upwards through a dichotomous branching system. In other words, Deleuze and Guattari deconstruct the book and the tree and replace it to a decentralized system of thought that allows for interconnections to be made as the reader chooses. This is what I hope to do for you as you read.
I was initially drawn to look at my work through an apocalyptic lens due to the current state of our tumultuous world – climate change, pandemics, social upheaval, an ever-changing economy, political divisiveness, and the list continues. Apocalypse means to uncover, to unfurl, to find the truth underneath, and this is what my research process is always doing.

After World War I, Lewis Fry Richardson, a meteorologist, began measuring country borders as he believed there was a correlation between war and the length of two countries’ shared borders. He discovered that no single country’s border matched any other, and the deeper he dove into the problem, the more complex and elusive the estimates became.

Later, mathematician Benoit Mandelbrot would term his debacle as the Richardson Effect: “structures which repeat to infinite complexity. Instead of resolving into order and clarity, ever-closer examination reveals only more and more splendid detail and variation.” You will see throughout this paper that the conceptual underpinnings of my work reveals themselves with complexity and entanglement over time at the same time that my art becomes more fractal in form.

My obsession with the apocalypse and branching fractals in trees quite literally led to a new mindset: the embracing of emergence. Andrienne Maree Brown writes, “Emergence is the way complex systems and patterns arise out of a multiplicity of relatively simple interactions. It emphasizes critical connections, authentic relationships, listening with the body and the mind.” Emergence into the ever-increasing fractaled-rhizomatic complexities reveals my previously subconscious co-creation with other species and life forms. In 1967, Lynn Margulis, an American evolutionary biologist, termed endosymbiosis that proposes eukaryotes emerged by living within other organisms. James Bridle, contemporary artist and writer, furthers Margulis’s theory in his 2022 book *Ways of Being,* “More-than-human doesn’t even begin to cover it. Not only are we the products of multiple entangled ancestors, spanning vast ranges of the evolutionary field; we are not even individuals at all. Rather we are walking assemblages: riotous communities of multi-species, multi-bodied beings, inside and outside of your very cells.” Through my art, I visualize my walking assemblage.

Figure 5. *Eco-Interoception Projection Source Image (Artwork by author)*
The exploration of various ecotones throughout my MFA has been a realization of interconnectedness as I reroute myself from the dominant discourse in Western philosophy of “either-or.” This interconnectedness has allowed me to appreciate a new notion of wholeness not only in myself but in the world around me—a process that requires honoring fragmentation as much as the overlap.

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Ecotone: Nature + Culture

“By ecology,” wrote Haeckel, “we mean the whole science of the relations of the organism to the environment including, in the broad sense, all the conditions of existence.” The term derives from the Greek οἶκος (ekos), meaning house or environment; in the footnote Haeckel also referenced the Greek χώρα (hora), meaning ‘dwelling place.’ Ecology is not merely the study of where we find ourselves, but of everything which surrounds us and allows us to live.”

- James Bridle

James Bridle presents his exploration of the physical, natural world via digital lens coining the term, The New Aesthetic, which blends the physical and digital worlds and “deals with the ways in which the digital, networked world reaches into the physical, offline one.”

Ecologies are our relationality to everything around us. Bridle introduced me to the above definition of ecologies and also to the term, an unwelt. He says, “In biology, the German word umwelt, or ‘self-centered world,’ refers to all of the ways in which an organism perceives the world around them.”

An unwelt is the idea that every species and every individual within a species has their own perception of the world around them. Two people, three plants, four birds and five trees can all be existing in the same physical space, but have a completely different feeling and perception of that space. None better than the other. All completely different modalities of sensing and understanding the world around them.

I have developed my own lens for navigating these unwelts: an ecotone. The term “ecotone” began a cascade of explorations in ecology, as James Bridle defines, the connection of all things. In Home Ground: A Guide to the American Landscape, a book written by over 45 poets and writers to create more than 850 original definitions for words that describe American lands and waters, William deBuys, describes ecotones as:

“The area where two or more distinct habitats adjoin... Because it is a border zone where multiple sets of resources and opportunities become available, an ecotone tends to support greater biological diversity than either of the systems it mediates between. Delineating an ecotone, however, can be problematic. Like habitats and ecosystems, ecotones are not self-defining, as, for example, individual species are. They are human constructs, which derive their shape and character from the qualities their observers find most salient. In scientific terms, one might say that the world is composed of gradients with relative discontinuities. Put simply, things change nearly everywhere, and so nearly every place is the edge of something and shares the qualities of an ecotone.”

The ecotone has developed my understanding of the connection between “I am here” to everyone and everything around me. It is my guide for conceptualizing the intertwining of entities that run close to one another and coexist—science & art, healing & breaking down, urban & rural, nature & culture and human & non-human. When I rethink these binaries, I see that modern society is currently arranged within billions of ecotones. Ecotones allow for an expansive, tertiary space to emerge that isn’t torn apart by either/or logic, but rather allows for contrasting viewpoints to exist at once.

I go back to the Richardson Effect and fractals, and I see how ecotones relate: “As our archeological and biological tools get better, as we unravel the web of life, the result is not an ordered tree, with measurable branches and clear delineation between forms and types, but a whirling dance of encounters and interrelationships. The species start to fragment and blur; the field from savannah to tundra and back again, fills up with players. The mud’s churned up... Not a rigid map, but a pattern of interference, all the way down to quantum dance of the energy field behind everything.”

In fractals, in fragmentation, there is blur. The separation of nature and culture is a long-term debate in Western history. This dualistic thinking was born in the rationalism of Enlightenment as nature became an “other” to the culture of everyday life. In artist and author Jenny Odell’s new book, Saving Time, she deconstructs our concepts of time in
In 1843, Anna Atkins, a female British photographer, made the first non-commercial photographic book entitled *Photographs of British Algae: Cyanotype Impressions*. Her father was a biologist so she had access to the materials and knowledge that allowed her to develop a collection of cyanotypes or what she called “shadow graphs” created from an iron solution. Although I see her as a photographer now, at the time, she was more likely seen as a botanist collecting and documenting British algae in the lovely Prussian blue. They were indexical and each contact print was unique. In cultural dialogue, the prints would probably not have been seen as art, more likely as a scientifc, collection of specimens. Due to the advancement of art and science, we now see her work as artistic. The collection contains simplified, abstracted and complex forms. They highlight the patterns, lines and structures seen in algae. With the current precision of photography, we could have a very detailed image of a plant as an index to replace Atkin’s and allow hers to become an artistic representation of algae. In this way, the perception of what is science and what is art has reversed from 1840 to 2023. But her blending of boundaries between art and science isn’t the only thing that draws me to Atkins, it’s her processing of the world around her. She was a woman in a predominantly male dominated field and her photographs draw attention to her awe found explorations of nature. In the 1800s, botanical studies were a hobby for women that offered artistic exploration outside of the domestic space, and today’s female artists are still taking inspiration from her work. Glasstire’s review of Texas-based artist Rachelf Wolfson Smith discusses her visualization of her healing and processing within “The Future is Behind Us” at Women and Their Work. The review relates her work to Anna Atkins’ cyanotypes: “In the same way that women used nature to process personal and cultural pressures in eras past, Wolfson Smith uses her drawing practice as a ‘process of processing’ her own internal needs and struggles.”
Ecotone: Physical + Digital/Virtual

As my work has become increasingly digital, I have found the power of the ecotone in artmaking with technology and its screens. This cyborgian approach to making was first highlighted by Donna Haraway: “By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs.” In the same vein, writer and curator Legacy Russell’s *Glitch Feminism* discusses the glitch as representative of the in-betweenness of gender. She emphasizes the power that digital and online communities give to our emergence as self-designed ecotones of feminine-masculine, physical-digital cyborgs: “Glitch feminism urges us to consider the in-between as a core component of survival. The glitch creates a fissure within which new possibilities of being and becoming manifest... We want a new framework and for this framework, we want new skin... Through the digital, we make new worlds and dare to modify our own.” With technology, I am able to move beyond what my hands can make with physical materials into a new skin that can experiment in building digital and virtual worlds that otherwise wouldn’t be possible. Although messy, glitchy and fragmented, the in-between that “glitch feminism” offers allows an opportunity to hybridize myself with the digital, and in the case of my thesis, other organisms.

Ecotone: Mind + Body

The awareness of the mind-body ecotone is paramount not only to my health, but my effectiveness as an artist. In the 1600s, René Descartes is the founder of Cartesian dualism that separates the mind and body as distinct entities: “with a non-physical mind affecting the physical body, the body affecting the mind.” In this view, the mind is thinking and the body is an “extension, or taking up space.” By making art, I cultivate an awareness of the mind-body connection that leads me to a feeling of “being in my body” or embodiment. Hilary McBride articulates this connectivity in her book *The Wisdom of Your Body* she writes: *"Being a body, seeing the self as inextricable from our and... physicality as the expression of our personhood invites us into wholeness. But when the self has been shattered and fragmented— as it has been for many of us—collecting the fragments, believing they belong to us, and naming them as good is a politically rebellious, spirituality powerful and biomedical healing practice."*

Through trauma, we disassociate our minds and bodies and healing, whether individual or collective, comes from weaving every fragment together as we become aware of our oneness. I don’t think that wholeness can ever be accomplished, but the moving towards is what creates flow states, healing and the integration of fragmentation.

Ecotone: Earth + (Human)Body

“We come from the earth and we return to it, and so we live in agriculture as we live in flesh. While we live our bodies are moving particles of the earth, joined inextricably both to the soil and to the bodies of other living creatures.” —Wendel Berry, *The Body and The Earth*

The most fruitful of ecotones explored has been the connection of my body to the earth—a seemingly giant phrase, but with microbial underpinnings. One of the greatest re-orienting given to me during my Masters has been the most obvious realization that I am a product of my environment and my environment, a product of me. As a child I had a much keener understanding of this reality. I remember exploring leaf piles and the lives of crawfish in the creek beds of my Virginian backyard or the marshlands at my grandparents home in South Carolina. I must have felt the aliveness of everything and my place as a tiny investigator of the great ecologies around me. I believe this to be true because of the way that my research during my MFA has felt like a return to a previously known reality. Perhaps I give myself too much credit and this has instead been a tapping into the collective unconscious, but isn’t that all the same thing?
In “The Wild Life of Our Bodies,” American biologist and author, Rob Dunn writes, “The species that have filled in around us in cities are nature. The species that live on our bodies are also nature.”25 As well as the species that live inside our bodies. To many, the idea that we are nature and nature is us is a blanket term, an obvious one or “hippie” lingo. Regardless, it feels very easy to become numb to. The revelations of my art have proved body as earth and earth as body to be true in a rhizomatic visual language that will take a lifetime to explore all of its offshoots as I bring what’s outside in and what’s inside out.

Sophie Strand, spirituality and ecology writer, continues to be a foundation for my language around connecting the body to earth as a healing tool. She writes, “Illness, trauma, and pain do not belong to an individual. They are a web that includes someone.”27 Or someone(s). A culture even. An ecology. In other words, literal or conceptual waste (from trash to trauma) always resurfaces as long as we avoid its permanency in our interconnected webs of existence on macro-earth to micro-body scales. She articulates not only the ecotone between lake and forest, but between the human esophagus and stomach, and the human arm to its surrounding landscape. Nils Udo visualizes this in his untitled work seen in Figure 13. He took berries and placed them in the hole of a tree showing his intervention and thus, the ecotone of his body and the tree’s. For me, Udo’s work below is a radical blurring of creation, decentering the artist and giving power to nature as the ultimate creator. It is an act of attending to our interconnectedness with the natural world, and perhaps, it is an act of healing.
Returning to the words and mission of artist ἄnthromorph, they say: "We’re disconnected from the rhythms of the land and so we’ve turned into cancerous organisms. My work advocates for a human body that’s interconnected to the earth." Artists like Udo, Mendieta and ἄnthromorph have helped me articulate and emphasize the importance of visualizing this ecotone: the body and the earth, and healing my cancerous tendency to separate the two.

Ecotone Conclusions

Ecotones are everywhere—conceptual and ecological. They weave in and out of my view as I see small examples (a flower laying on the concrete) or larger ones (mountains running up against tall buildings from an airplane) or conceptual ones (nature and culture). It is in these ecotonal mindscapes that I can think with more nuance about the world around me.

Sophie Strand writes of the ecotone: "Life occurs in the overlap. In the floodplains. In the connective tissue that in a human body connects different organs and in a living earth connects different bioregions to weave together the dynamic homeostasis of the greater biosphere. Life experiments and changes and flourishes in the places where bodies meet and dialogue with each other, asking questions, and mutually changing each other." The ecotone constantly pushes me to look beneath surface assumptions, ask new questions and develop a more dynamic mindset that dissolves dualistic thinking. As I learn from my ecotones, I ask them to change me.
Eco-Interoception & Art Therapy

"We tend to think that the brain is sitting on top of the pyramid, and it's controlling the body in general — actually, it's probably the other way around," Tallon-Baudry said. 80% of fibers in the vagus nerve ascend from organs such as the stomach and the heart to the brain, while just 20% descend in the reverse direction. — Kim Armstrong

As I think more specifically about the ecotone of myself and the earth, I dive deeper into a concept I learned about early on in my research: interoception. But first, I will explain how I began to see interoception as a by-product of my art.

Before I actually understood its rigor and research, art therapy was a session with a whimsical therapist in a hybrid art studio-doctor’s office. Many artists articulate their work is like therapy for them. For Anthromorph, their performances and its ensuing imagery is "like a form of art therapy which helps me deal with gender dysphoria...every mask was an attempt to beautify my trans body and hybridize with nature. In nature, you are not queer you are just ‘you’. I found being closer to a shape-shifting animal gave me comfort. It was a gateway for me to transition and has grown and changed with me." Art can be a tool to move into new mindsets by processing our identities. Like Anthromorph, I have always felt this to be true in a colloquial sense, but needed to understand how art therapy actually works.

Towards the end of 2022, I spoke to an art therapist in the Dallas area, Lexi Sorbara, who also specializes in EMDR. I learned that art making offers the same benefit as EMDR therapy as it exercises both the right and left side of the brain — integrating them. I learned about the expressive therapy continuum (ETC) which basically mirrors the structure of our brains. The ultimate goal of using the ETC is to reach a "creative" level by synthesizing three established systems of human information processing: kinesthetic/sensory, perceptual/affective, and cognitive/symbolic. The "creative" level is an "experience of wholeness, healing, and well-being found through self-expression either through the integration of the other three levels or fulfillment at any given level." Therapists working with ETC will leverage mixtures of movement (kinesthetic), perhaps drawing lines that represent how the movement made them feel (affective), and then telling a story about what those lines derived from the experience of movement mean (symbolic). This three part work over a long period of time can contribute to "embodied intelligence." I learned that the art I have been making since I was little, within dance and the visual arts, had an explanation that could be further harnessed in art therapy research.
The ETC extends to the use of materials in art therapy. This material continuum seen in Figure 14 and 15 charts material usage from fluid materials like clay (for more depressed clients this material might be used to bring energy and activation) and on the other end of the spectrum, resistant materials like wood (for more anxious clients this might be used to offer a feeling of control). In my own practice, the desire to spread ink onto paper directly with my hands meant I was seeking expression in combating depression. The desire to work with harder materials like pencil or wood meant I was seeking control in response to anxiety. Both actions help me to focus for longer periods and combat symptoms of ADHD.

Art therapy's neurological basis gave me a better understanding of how interoception was being responded to through my body and the materials I chose. So what is interoception? First, I will explain the precursor to our interoceptive abilities: allostasis. Our bodies and brains are deeply interconnected and previous notions of their hierarchical structure or separation disserves our ability to regulate our emotions and navigate change. Illustrated in Figure 16, Allostasis is the idea that we are constantly working towards “achieving stability through change”\textsuperscript{33} or regulating the body's internal systems “by anticipating needs and preparing to satisfy them before they arise.”\textsuperscript{34}

Allostasis is a rhizomatic system consisting of multiple processes that help us navigate change with resilience. I’m particularly interested in metabolism, mostly for the way its linguistic roots relate to my practice. Metabolism is derived from the Greek word metabolē which means “to change.” Metabolism in the body describes living tissue undergoing the “growth and rupture of connective matter (cell death) through the anabolic and catabolic processes—often happening at the same time.”\textsuperscript{35} Metabolism is key to understanding my artmaking as a healing process – one in which I am acknowledging the co-current processes of assembling or building energy while at the same time, breaking down or releasing energy. These are processes that I know are happening inside my body, and I’m mirroring them in
the way that I make art which harkens back to my newfound understanding of the fundamentals of art therapy. I emulate these processes continuously across media building worlds within formulations of growth and decay: tracing and building fractal and rhizomatic patterns from source images that then turn into fabric, cutting out a print from paper into yarn to knit with, growing mushroom cultures and mycelium sculpture, sewing into mold and formulating choreographic objects, and using these rhizomatic patterns in 3D models for VR.

The output of allostasis, of which metabolism is one piece of many interconnected processes, is interoception or the ability to perceive our body's needs. Illustrated in Figure 18, interoception is the brain's representation of the sensations of the body and it is "central to everything from thought, to emotion, to decision making, and our sense of self."36

Knowledge of interoception, an awareness of what's going on inside of the body, has allowed me to see my art's capacity for not only self-healing, but healing in relation to the natural environment. As I document processes outside of my body in nature (plants, trees, rhizomes, mushrooms), I use that documentation to imagine what's going on inside of me - the cycles of decay and growth - always fluctuating. Eco-interoception is a tool I have developed to improve my perception of my body's internal state through ecological learning.

This tool has become a form of healing as I imagine and emulate neurogenesis or the creation of more neural connectivity in my brain via linemaking derived from root systems in plants, fungi and protista. In the past two years, I learned to look outside myself to explore, visualize and better understand the processes occurring within my own body: cyclical, rhythmic and recurrent. Plants, trees, rhizomes and fungi have become a metaphor for and mode of neurological healing through the building of virtual worlds and sculptures, the creation of prints and videos, the making of ink, and drawing. Before showing you how these three kingdoms were synthesized in my thesis exhibition, I will tell you what each kingdom taught me.
In order to find solutions to the “complex, knotting” problems of today, we must turn to other species, or so says James Bridle in his book *Ways of Being*. He believes that many of us only perceive intelligence as something that is solely human. But he prods us to move past this limited notion: “it’s possible to think beyond that. As soon as you pay attention to it, you can’t help but become aware of our interdependence on everything else in the world and our relationship to it.”

I have developed a better understanding of my own body and the world around me via exploring three different kingdoms: plants, fungi and slime molds. This is not to say that I equate humans with other species nor do I believe that there is ever a direct translation between species. But, I do know that understanding the nuances of intelligence, feeling and cycles of existence has helped me better understand what’s inside of me and what’s outside. I will only ever see these species via human eyes and in turn, they will only ever see me through plant/fungi/slime mold “eyes.” The limits of my language lie in my humanity.
Before I became invested in fungi or slime molds, I was entranced by wintering trees. In the winter of 2021, I took images of trees while walking through the streets in New York City. I constantly battle my short attention span, and this attentiveness to trees pushed, and still pushes me into longer periods of focus.

Halfway through my MFA, branching fractals became the content of my writing, photography, video, and linoleum prints. I was inspired by the calmness found in the organized chaos of this self-similar pattern. Conceptually, I began to consider the idea that what is inside of my body, its blood vessels and a need for rest, mirrors the cycles of the trees around me– their branches and their loss of leaves for the winter months.

During this time, I was entranced by the work of Zoe Leonard. In the late 1990s, Zoe Leonard developed a series of photographs of trees and fences throughout New York City. She captures trees persisting despite being enclosed by the man-made boundaries that encircle them. These photos question the intersections between the human and natural world as an ecotone. Leonard shares a similar evolution to my experience with branching fractals in New York City, a simple photo becoming a larger consideration:
In the end, Leonard realizes her anthropomorphizing tendency and the limits of her human projection onto the needs of the tree. In her book, *Vibrant Matter*, Jane Bennet, a political and ecological theorist, defines the term thing-power as she looks at the world through a childlike lens as a place filled with vibrant, animate beings—organic and synthetic, objects and animals. This idea of matter being vibrant no matter its humanity or lack thereof expands the life-matter binary that dominates Western thought. Anything matter-filled becomes full of life with this lens, even stationary or seemingly unmoving objects—trees, rocks and fences. As I look at Leonard’s photographs of trees and now mine, I try to view them through Bennet’s vibrancy of matter—as powerful things, full of life yet quite different from their human interlopers.

The patterns of trees move further into my psyche at the beginning of 2022. I began using ketamine in a clinical setting to rebuild neural pathways that had broken down due to depression. This treatment offered a specific example of my tie to the earth as described through eco-interoception. Dr. Carlos Zarate from the Mood and Anxiety Disorders Program at NIMH describes the very literal way this treatment became an of eco-interoception:

“A healthy neuron looks like a tree in spring with lots of branches and leaves extending toward synaptic connections with other neurons. What happens in depression is there’s a shriveling of these branches and these leaves and it looks like a tree in winter. And a drug like ketamine does make the tree look like one back in spring.”

Thinking about the impact of ketamine through Leonard’s photographs and my branching fractal obsession, I more clearly saw the cyclical nature of my body and art in correspondence with ketamine treatment. In a depressed state, my brain led me to represent wintering branches in more structured materials like printmaking on stiff papers and sculpture. However, my regenerated brain via ketamine led me to represent leaves, colors, and fruiting bodies like the mushroom through softer materials like fiber and rice paper. The concepts found in my study of art therapy resurfaced as I began to see my art practice as a form of neurogenesis, or the creation of new neurons in the brain.
Eco-Interoception has allowed me to adopt a fungal imagination. A year ago fungi were absolutely invisible and somewhat disgusting to me, but now they are constantly informing my thoughts and actions.

Within the eukaryotic domain, the kingdom of fungi is surprisingly more closely related to animals and humans than plants. The fungi kingdom is home to over 2–6 million species but the reality is foragers, ecologists and scientists are discovering new things about the kingdom every day. As I integrate my practice into my surrounding ecologies, fungi are essential to take into account as they underpin the biodiversity and health of all ecosystems and this includes our own bodies. In a sense, to study fungi is to study everything.

Fungi have many essential characteristics: eukaryotic organisms, small nuclei, storage of their food in the form of starch, and exhibition of sexual or asexual reproduction. They spread their species across the earth via spores or what one might call seeds in the case of plants; these spores can float through the air or travel through soil. In the case of the mushroom species within the fungi kingdom, mycelium is the structure that sustains the life of the mushroom. As a metaphor, the tree part of a mushroom is the mycelium. Fungi are the digestive tract of our forests or really anywhere they are present. They break down decay and give fruit. In fact, they can break down anything that is hydrocarbon based so that includes pollutive substances like oil or radioactive materials. Merlin Sheldrake, biologist and author of *Entangled Life*, cites that “Fungi are largely invisible ecosystem engineers. Most live as branching, fusing networks of tubular cells known as mycelium. Globally, the total length of fungal mycelium is about half the width of our galaxy. These symbiotic networks comprise an ancient life-support system that easily qualifies as one of the wonders of the living world.” Just a year ago, I had been fixated on branching fractals in trees but had missed an entire galaxy beneath my feet.
Sheldrake writes that “the latin root of the word extravagant means to wander outside or beyond, which is a good word for mycelium as they ceaselessly wander outside and beyond its limits...mycelium is a body without a body plan.” The ever-expanding, resilient and flexible rhizomorphic bodies of mushrooms chart intertwinning pathways that cross species and geographies. They orient and build themselves within the context of their environment and thus the entangled pathways they form are always for the survival of the collective. They are not so interested in the self but the self as it relates to the whole and the collective formation of pathways. In fact, Sheldrake says: “You can destroy 99 percent of a fungal network – just take 1 percent – and it can regenerate a whole new network. There’s a great flexibility that comes from their sedentary lifestyles.” This mycelial flexibility and resiliency is extended into a whole set of senses and behaviors- these patterned networks respond to and work with their environments. They trade and forage resources, recognize their own mycelium versus another species, and break down decaying matter. This collective attunement and responsiveness to the environment is what I hope to do better as an artist, to tap into the collective consciousness like mycelium.

Fungi (and bacteria) extend our bodies beyond the skin, entangling us with the person next to us and the ground. Sheldrake writes, “your body is a planet. Some prefer the temperate forest of your scalp, some the arid plains of your forearm, some the tropical forest of your crotch or armpit...You carry around more microbes than your "own" cells. There are more bacteria in your gut than stars in our galaxy.” Fungi are the root of our ecosystem’s health, but also the well-being of our human bodies. When I learned this, it was around the same time I discovered Sophie Strand, a writer currently working between ecology, spirituality and mythology. She writes about the connective tissue disease that she was diagnosed with as a teenager that made her life somewhat unlivable. At the time of her diagnosis, she was finding the connective tissues between ecology and one of her favorite pieces of writing, A Thousand Plateaus. She began to slowly heal from implementing these interconnections in her daily life, and shares: “And at that point, I was very in deep with Deleuze and Guattari’s rhizomatic philosophy, also learning about mycorrhizal systems below ground, and then realizing that this void in my body of connective tissue is perhaps the open space that let these this other wild connective tissue in.” She realized that the fungi, a rhizomatic structure not dissimilar to the connective tissue within her body, were the underpinning of her body’s health and in order to “get better,” she must partner with these fungi. She must add fungi and bacteria to her body and make new connections, to build resilience, and to slowly start to “feel well.” The goal cannot be to “cleanse” to heal, but rather to get “dirty” in order to fertilize new connections in the body. Not unlike the realization of Sophie Strand, my partnering with fungi in my art practice has led to the exemplification of neurogenesis.
After fungi, I investigated slime molds or *physarum polycephalum*, and their difficulty being categorized. Some argue they are protists, the oldest of eukaryotes, an amoeba that lives in the soil, single-celled organism with multiple nuclei. Like mycelium, all of its tendrils form its intelligence system, and if one branch breaks off, it can rejoin the singular “body” later. Slime molds are not animals, plants or fungi. They are hard to categorize – interspecies, transpecies, multispecies? I was drawn to the way that data-scientists, architects and artists have partnered with this intelligent single-celled being to develop installations, map the spread of COVID-19 and understand the effectiveness of the Tokyo subway system.

When I began developing my plan for the *Eco-Interoception* exhibition, I wanted to partner with slime molds to develop the layout. I wanted viewers to use a map they had designed to navigate the space. My ADHD brain has trouble organizing ideas from most to least importance– often feeling that everything is vital. I wanted help from some being to tell me where to direct my energy– to model how to conserve energy. How could I do less to offer more? I thought maybe they could do better than me in finding the most efficient pathway forward, but they did not agree with the map I presented to them within the time allotted. That’s the thing that I have discovered about working with other species: they do what they want and they live on their own timescales. Each time I would try to capture their exact path from when I placed the slime mold on the paper to when they had moved across most of the paper. But every time, I would miss half of the movement because my camera would die. It was a battle to align technology with another species’ movement. In *Saving Time* by Jenny Odell, she describes an interaction that plant scientist and member of the Citizen Potawatomi Nation, Robin Wall Kimmerer, has with an estate owner who is trying to replicate the flora of the Appalachians on their land: “The owner wants Kimmerer’s help. She is told that the wall, a backdrop for the golf course, needs to look like it’s been there for years:“
‘The mosses will make it look old, so we need to get it growing.’ Kimmerer knows this is impossible. And Kimmerer begins her explanation of moss time and human time to the disgruntled estate owner. So too, I am taught a lesson in partnership with and education from other species. I had initially thought I was partnering with slime molds to learn from them. But in the end, I think I was just using them for my humanly-desires, to achieve my needs, not unlike the estate owner. This was very idea I was originally trying to critique or avoid.

In exploring the lives of trees, fungi and slime molds, I have learned that there is much left to be learned about other species. This is just the beginning. I am still negotiating how best to navigate new species and biomaterials with respect and admiration.
SYNTHESIS

ECO-INTEROCEPTION

WHAT PLANTS, FUNGI AND PROSTISTA
A Rhizomorphic-Fractaled Visual Language

For the past two years, I have partnered trees, fungi, plants and slime molds, physically and conceptually, and am enamored with the rhizomatic paths they have presented to me. Pathways that reveal my subconscious and connect me deeper into the more-than-human world. Mycelium, rhizomes, branching fractals and neural networks have contributed to a visual language that presents itself in the Pollock Gallery. Figure 27 to the left shows the projection at the entrance of the gallery and the basis for the wall-drawing. It allows for these different rhizomorphic-fractals to live in symbiosis—blurring species and patterns.
In *Eco-Interoception* at Pollock Gallery, I built ecotones: science & art, earth & the body, virtual & physical, urban & nature, gallery & outside—removing their separation and representing interconnections between the micro and the macro within our ecologies. I choose to tie myself to my ecosystems and show the inseparability of human bodies from the earth. The process that developed the *Eco-Interoception* exhibition is recursive; the procedures of my practices invoke the concept or issue I am grappling with—a series of Russian dolls that embed a concept within the work in multiple ways that feed off of each other. For me, it is all rooted in my fungal imagination. *Eco-interoception* is a tool that has become a form of healing. Through the making of lines, I reveal thread-like lines hidden below ground "in the form of roots, rhizomes and fungal mycelia" and under my skin emphasizing my "internal vascular and nervous system" as "connected bundles of threads."47 As I imagine a more interconnected brain, I draw rhizomatic lines and emulate neurogenesis or the creation of more neural connectivity in the brain—an act of healing.

**Chance and Collection**

"At a party, John Cage was once overheard saying, "I compose music but mostly I'm a mushroom identifier." Composing for Cage was an act of collecting the detritus of everyday sounds. He foraged for the otherwise overlooked, treating music as a search for awareness rather than coherence. Hunting for mushrooms was a way of nourishing this search: it allowed the senses to stay open to chance. Identifying fungi was also a means of savoring a kinship with decomposition. Cage renewed buried tones with fresh life, just as he deconstructed older, decaying structures of writing into raw sound. His process was fungal by nature."48

![Figure 29. Image of John Cage Foraging in Grenoble, France, 1971 (Photo by James Klotsky](https://shorturl.at/aHKX7)

Building this exhibition was physically strenuous, an act of getting outside of my head into my body. When writing, researching and digital art making became too confining for my physical body, I began walking or driving around Dallas, looking for materials. The rush of adrenaline in picking through people's trash and strenuously moving things into my car is oddly empowering. *Eco-Interoception* is a physical assemblage of seeking to get outside my head and into the world around me. The gallery housed these branches and stumps originally found in abandoned lots, alleyways, front yards, sidewalks and trash bins. I sought out oddly fragmented branches, ones with fungal growth or holes (to later fill with fabric). Years ago I embedded myself in the philosophy and work of John Cage, mostly for his chance-compositions and collaborations with choreographers and visual artists. Only now does his work with fungi (an aspect of his work that always puzzled me) bring itself full circle. Not only have I been exploring fungi in my sculpture and concepting, but also I can finally align with this idea of a fungal process—a kinship with decomposition in order to compose. A search for the overlooked, a honing of my awareness. Each branch held a story of a chance encounter that transformed as I arranged them within the gallery.

**World Building in Blended Realities: The Physicality-Virtuality Continuum**

As we are currently seeing with chatGPT, new technology provokes threats to our humanity. When I first approached virtual reality a year ago, I was terrified by its presence in culture. I thought that it meant people would become walking, disembodied zombies. But, once I began to play with VR, I found a new approach to embodiment. As I put on my headset, I found my bodily awareness was heightened in the virtual world. I felt a new orientation towards my mind-body connection as I moved my arm and didn't actually see it in motion. I was able to experience the separateness of the way my brain instructs my body and vice versa.
Inspired by environmentalist and psychologist, Peter Kahn, and his MIT Press book entitled “Technological Nature,” I scanned and uploaded “nature” into a virtual world. He defines technological nature as “technologies that in various ways mediate, augment or simulate the natural world.” Like Kahn, I’m interested in how building a digitally mediated environment inside the headset composed of organic materials (slime molds, trees and mushrooms) changes how I perceive nature outside the headset. Would it make me more thankful for the world around me? Khan’s research asked “how will we as a species adapt to technological nature?” He concludes that we are a technological species; we will continue to build and design technological nature to have “nature-like experiences.” But, we should “employ technological nature as a bonus on actual nature, not as its substitute” because its neurological benefits will never be the same. In Eco-Interoception, the virtual experience brings to life beings found in nature—trees, plants, fungi and slime molds—in new, colorful forms mediated by the screen of the headset. Viewers use their head and body to move above and below the world—seeing its roots from the perspective of soil, or an aerial view like a bird flying above. When removing the headset, the viewer can begin to view the physical “nature” in the gallery around them through a perhaps heightened lens—especially while placing their headset back on to a branch hanger.

Figure 30. Installation view of Eco-Interoception at Pollock Gallery (Artwork by author)
While building Eco-Interoception, my recursive process allowed me to tie augmented reality to virtual reality to the physical space. In this process, I saw the virtual-physical reality continuum arise which can be seen in Figure 32 and 33 on the next pages. There is a visually manifested movement from virtual to augmented reality to digital to purely physical. As you navigate through the space a continuum is created, your attention shifts from sculpture to phone to digital projection on a physical wall to augmented reality to virtual reality. As you walk to the back room, you are entreated to sit in the chairs facing the wall that opens into the gallery and place on your headset. Immediately, you are taken from a confined physical space into an expansive virtual one pulsing with digital-nature.
Researchers Paul Milgram and Fumio Kishino introduced the reality-virtuality continuum concept in 1994, seen to the left in Figure 32.51 However, in his book Reality+, David Chalmers argues that it should instead be a physicality-virtuality continuum, because this opposes virtuality to reality when virtual worlds are just as real as physical ones. He argues that virtual reality systems, like the Quest headsets I used in the installation, generate virtual worlds that allow us to correctly perceive them—making them reality systems. And then he differentiates VR and AR saying, “Standard VR systems are largely pure virtuality, while AR systems augment physicality with virtuality.”52 Again, all are “real” just different digital spaces.

Another modification I believe should be made in Figure 32 is the translation of the straight line to a circular diagram showing the way in which we constantly circulate between the “physical” environment (replacement for real in Figure 32) and the “virtual” one. I want to acknowledge that the cycle is disjointed due to the awkwardness of navigation between the virtual and physical existences, but one day these navigation may become more seamless and fluid.
At the beginning of my MFA, I was entranced by the work of Rachel Rossin and the way that she blends digital, virtual and physical worlds via immersive installations especially in *Stalking the Trace* and *Peak Performance*. In these two installations, she creates virtual worlds in parallel to physical ones (with video or sculpture)– letting elements of each coexist in a singular installation space. I wanted the virtual world in *Eco-Interoception* to seep into the physical one, and Rossin’s installations were a persistent example driving my process.

The physicality-virtuality continuum served as a way to think about technology’s cyclical presence in the *Eco-Interoception* installation, but also sparked the realization of other continuums present in the work all unified under “what’s outside is in.” What you can see in the VR experience is also in the AR one, and elements inside both are printed on the fabric adhered to the sculptures. The text inside the VR world is linked to the text that you can read on your phone via a QR code found on the gallery wall. This inside-outside concept relates to how I was thinking about the interior of my body, my neural networks and blood vessels, made visible by representing their patterns. The systems on the inside of my body seen in the gallery relate to a continuum that brings me outside the gallery to systems found in nature (fungi, slime molds and trees).
When creating physical sculptures felt confining, I moved to digital making. While no less filled with impediments, video game development is a quicker path to realizing new worlds. In one of my older virtual reality headsets, the app that creates “my world” for Eco-Interception glitches. It twitches and flickers when I moved through it. Within Legacy Russell’s view, the glitch represents an ecotone between function and non-function – existing in a liminal space with expansive opportunities. Due to the glitch, the virtual world I created quite literally vibrates with liveliness. This liveliness is what James Bridle might refer to as another more-than-human lifeform like plants or fungi. Although initially fearing the glitch as a marker of a technological failure and by extension, my failure, I began to see it as an indication that this world I made inside the headset, derived from organic inputs like trees and mushrooms, might actually be alive in its own way. This world might carry on inside the .apk (the app) file on my desk whilst I take a walk around the gallery without it.

The thing-power and vibrancy of matter within a rock or tree defined by Jane Bennet came back to my mind, but this time in a digital space. James Bridle (Ways of Being) and David Chalmers (Reality+) would say that this virtual world I created is very real, alive and natural. Bridle relates every other species’ evolution to that of a computer: “There’s nothing unnatural about a computer. It’s just another different way of putting silicon and hydrocarbons and a bunch of other stuff together to do things, just as evolution has put together all kinds of other interesting forms.” He removes the boundaries between artificial and real in terms of intelligence, the digital and the analogy, while Chalmers does this with the virtual and the physical–reimagining how we can think about technology as its own being. Although much of my digital work began in fear or resentment for technology, my desperate attempt to proactively prepare for how we might look at nature 100 years from now has glitched into a more nuanced ecotone of the physical and the virtual– between nature and technology. I might call this new space a foundation for digital empathy – for the humans that use it, but also for the lives and spaces we create with our devices.
For my thesis, I drew architectural inspiration from the neural synapse, the space where information, like muscle control or memory, is passed. I assembled the branches as a roomscale brain, allowing space between the branches for the passing of energy. I imagined a space in which each “synapse” represents a translation of energy from electrical to chemical and back to electrical again, like in the brain.54 This mirrors the translation of a visual language from human to trees and fungi and back again.

Synapses as Spatial Architect

In a previous iteration of the Eco-Interoception exhibition seen in Figure 31, I thought about the arrangement of branches and objects in the installation as nodes within a network visualization or a mycelium network. I connected every piece to each other through winding threads. The pieces were literally connected by cut out vinyl, cloth or cordage.
Breaking the Rectangle

For many semesters, I received feedback to “break the rectangle” in my installations. In other words, I needed to abandon the rectangular shape of paper or a digital screen that limited a more realistic exploration of mycelium and branching fractals. In *Eco-Interoception*, I did this by creating an installation spanning media, walls, and rooms. In these particular images, the circular projection mirrors a microscope and allows for the digital imagery to intertwine with the wall drawing that spans two walls and extends onto the floor. The branch sculptures coming off of and into the walls break the 2D rectangle further.
Hanging by a Thread and In-Process: Wounds & Soft Skins

When making the fabric-branch sculptures, I leaned into healing metaphors like “hanging by a thread,” being “a work in progress,” “mending and patching” wounds, and “haphazard” existences.

The formulations present in the branch sculptures were made while thinking about a haphazard state, one in which I felt like I was “hanging by a thread”. In thinking about fastening the branches to the ceiling and/or to each other, I chose a few colors of fishing line and was particularly drawn to the neon colors of pink and lime green-yellow. The neon colors play off the colors in the fibers and integrate with the colors in the virtual reality experience. I am interested in the contrast of linemaking with synthetic (the fishing line) and organic (the branch) fibers. I see the line as another nod to mycelial patterns, an extension of the branch, especially when knotted on the thinnest part of the branch. Some ties replicate tree knots merging the organic and synthetic systems. I used fly-fishing ties that indicate medical procedures like the “double surgeon’s loop” as more metaphors for healing.
As I started patching the holes in my branch-sculptures with fiber, I was learning about tree pruning and stub cuts versus callus formations, from author and expert gardener, Misilla dela Llana's Instagram account “Learn to Grow.” She writes, “Leaving a stub can slow down the sealing process of the wounded area and may cause decay making a tree vulnerable to disease or pest infestations. When a branch is cut properly the tree will compartmentalize (defense mechanism of trees) forming a callus around the perimeter of the wound.”55 The fibers that I added to the branches were in recovering calluses and open stub cuts.

Not all my fragmented branches with calluses or stub cuts were filled with fabric, allowing some to remain as “open wounds”, playing off the idea of being in-progress, or within a process of recovery or break down. After two weeks, one branch began to snap as the exhibition continued. This breakage changed the shape of the negative space in the gallery further highlighting the impact of time on cycles of fragmentation and regeneration. Perhaps, the progress I need is actually a counter-intuitive one in the context of our culture. For me, continuing on means breaking down, disintegration, shedding, in order to regenerate as a different type of system- a different mindset. Perhaps this mindset lay not only in the disintegration of the branches but in a “softer” logic offered by the fibers. British curator and writer Pennina Barnett writes “what if the poetics of cloth were composed of ‘soft logics,’ modes of thought that twist and turn and stretch and fold? And in this movement new encounters were made, beyond the constraint of binaries.”56 The fibers on the branches became a literal representation of an ecotone for healing- one that accepts a wholeness filled with patching and
The fabric on the branches became skin in my mind—a virtual skin, morphing organic material into the digital or the virtual—cyborgs of my creation. The holes allow for realizing the impossibility of perfect wholeness and, instead, reveal a glitchy, cyclical nature. A re-purposing of fragmentation. A glitchy blur.

When working with the branches felt like dead ends (literally and physically), I switched my focus to the creation of digital, virtual and augmented reality worlds. The content and materials of these worlds then got brought back to the branches by the patterns printed on the fibers adhered to them. The fiber patches on the branches are scenes screenshotted from the virtual world and from the circular video projected into the room (that is also embedded inside the virtual world).

Aside from the fabric, the projection of the exhibition became another type of skin—a second skin—a digital skin. In this way, *Eco-Interception* is made visual as the branching fractals and neural pathways are literally projected onto my skin—taking what’s outside in and inside out. Donna Haraway writes, “Why should our bodies end at the skin, or include at best other beings encapsulated by skin?... For us, in imagination and in other practice, machines can be prosthetic selves, intimate components, friendly selves. We don’t need organic holism to give impermeable wholeness.”57 Through a cyborgian reality, I can extend my body beyond my skin to envision a larger conception of wholeness.
**Glitch Feminism** states, “Skin is as much about what is kept in as what it keeps out...As skin warps, covers, protects, it paradoxically wounds, occupies and builds worlds...A break, tear, rupture or cut in skin opens a portal and passageway. Here, too, is both a world and a wound.” Worldmaking is only possible within my wounds, the stubs of my branches, the terrain of my virtual worlds, and projections on my body. The wounds are a portal elsewhere.

**Portals Elsewhere: Gallery Ecotones**

I began to see the gallery floor as another skin-like surface to be tied to the skins of the branches in the gallery and the surfaces within the virtual world. In his explorations of “the line,” Tim Ingold writes, “While cuts can be accidental, as in the obvious case of a wounded fingers, cracks are usually so. They result from the fracture of brittle surfaces caused by stress...”
The leaves and organic detritus on the gallery floor tie to the branches in the space, forming an ecotone between the gallery and “the nature outside” the gallery walls. Lastly, I created a shrub outside the gallery window by placing sticks into the soil surrounding a stump. I then tied a pink fishing line from the shrub and adhered it to the window.

In the interior of the gallery, I adhered another pink line to the window and tied it to the nearest branch, adding another more literal layer of bringing what’s inside out and outside in.

Figure 50. Installation image of “bringing the outside in and the inside out” with fishing line in *Eco-Interoception* at Pollock Gallery (Artwork by author)
In a call to conservation, Rob Dunn writes in *The Wild Life of Our Bodies* that humans only make sense in context to their environment and their relationship to other species saying, “It is where the wild things are that we see our bodies and lives most clearly... We need to maintain the kinds of wild places in which the truths about us are most evident.” This view is very anthropocentric, and yet aligned with my thesis. For better or for worse, I have discovered that sometimes the way to get people to care about our changing world is to begin with humans and how they will be affected. After considering the benefit of saving yourself and your children, maybe the world expands from there into a new orientation that decenters the human. Or at least it has for me. I don’t think we can hope to maintain our wild places given that many of us can’t remember what wild places mean or look like. Peter Kahn terms “environmental generational amnesia” in his book *Technological Nature* stating that with each ensuing generation, the amount of “environmental degradation can and usually does increase, but each generation tends to take that degraded condition as the non-degraded condition, as the normal experience.” And unfortunately, Kahn does not “accept the argument that we can simply adapt our way out of our problems.” In other words, conserving our way back to wild places isn’t a worthwhile endeavor.

In ecological communities, climate resilience is often deemed a better goal - focusing on the process through which we heal the earth, not a healed earth. The reality presented to us as we grow is often different than we imagined - sometimes better, sometimes worse. Therefore, the process we take to move forward is the only sustainable goal. Through the example of my own body, I’ve seen that adaptation and conservation are not always the best place to focus my attention, not unlike climate change. For me, my focus is neural resilience. I can never fully heal. My earth might never heal. Instead, the past two years have given me the tools to define and explore my elaborate coping mechanism for neural resilience.

When viewers navigated *Eco-Interoception*, they asked how they should move through it or what they should know. But, I don’t think there is a linear path to navigate. It’s rhizomatic. It’s yours. For me, the path of the exhibition and my Masters of Fine Arts experience has offered an eco-interoceptive, ecotonal lens for the world. This lens will hopefully extend beyond the arts as I knit together my knowledge and curiosity towards our earth, my bodily health and the capacity of the arts to more deeply interconnect the two.
Review: “Eco-Interoception” by Sara Dotterer at Pollock Gallery

by Gustavo Carvajal

Isamu Noguchi, the great Japanese-American artist, once said that “the function of sculpture is to give space meaning.” Meaning is by definition lasting, yet we can only access it momentarily: a smell, a sound, and sometimes a shape can reveal everything to us, and then nothing – the moment is gone.

In her latest exhibition at the Pollock Gallery in Dallas, artist Sara Dotterer observes Noguchi’s precept by creating a space both natural and virtual, using organic as well as digital materials. More than conveying meaning, this installation opens up the possibility for meaning to appear.

The show is composed of 3 parts, or moments. The first one can be classified as “transient art” and consists of a group of sculptures made out of tree branches, some of which are suspended from the ceiling with pink and purple fabric inserted into the bark. All of this is combined with intermittent color video projections. The second part is a virtual reality “experience” in which visitors can play an immersive videogame where one flies over a floating island that resembles a fungi/neuronal network. The third component is an augmented reality app that allows for the spectator to project pink and purple fiber roots onto the tree branches using a smartphone.

I will confess that my first reaction upon entering the gallery space was to think, “Well, it’s just a bunch of branches set in awkward positions, hung from the ceiling and strewn all over the floor.” Later on, I noticed the patches of fabric inserted in some areas of the wood. As for the virtual reality experience, I thought it felt like a very slow version of Mario Kart with amateurish graphics in which one can fly through mushrooms and plants: “cute.”

But then, a simple detail suddenly unlocked an unexpected fountain of meaning and pleasure for me. When I took off the VR headset and controls and placed them in the perch on the wall, I noticed a small branch serving as a hanger. The high-tech device dangling from the piece of tree seemed like a sort of low-hanging fruit. By effect of that simple contrast, somehow engineering, design, chemistry and biology revealed themselves, and the frontier between natural and artificial was momentarily blurred. Then, back in the main space, calmness began welling up inside me just by standing among the branches, which I realized were suspended upside down as if I was the one hovering over them. The simple elegance and beauty of the installation became apparent and I started to enjoy myself to the point that I found it hard to leave.

Earlier while playing the VR game, I’d flown into the bottom of a giant purple mushroom and came out floating into a place of roots and brain fibers. While relaxed, I was able to connect those experiences, and what then came to me personally was the brief understanding of something I’d had an intuition about before: there is no real “outside” of our bodies. The reason why trees resemble neurons and fractals (for Dotterer, bare winter trees evoke neurons absent of synapses whereas blooming spring trees make her think of happy brains), and the reason mycelium webs resemble blood vessels and circuits, is because the more we investigate the “inside,” the more we end up “outside” of our bodies, as if the locus of the “self” has no place in nature.

But this was just the meaning for me. At the same time, it is just branches suspended in uncommon ways in a room plus a VR game. And this is where the show succeeds in my estimation, by being unassuming, elegant in its simplicity. There is nothing to interpret, no politics, no message to decipher. It is, instead, a place for individual metaphors to emerge – or not, without any imposing of meaning.
Figure 1. Rhizomorph (Artwork by author)

Figure 2. I am here (Images by author)

Figure 3. Image from Tweet. (@NoaidiX, “Deleuze (& Guattari) envisioned thinking as rhizomatic—a complex unity with neither beginning nor end—extending beyond the limitations of arborescent linearity,” Twitter, April 25, 2020, https://twitter.com/NoaidiX/status/1254142413670502400/photo/1).

Figure 4. Image from Tweet (@NoaidiX, “Deleuze (& Guattari) envisioned thinking as rhizomatic—a complex unity with neither beginning nor end—extending beyond the limitations of arborescent linearity,” Twitter, April 28, 2020, https://twitter.com/NoaidiX/status/1255255627544305665).

Figure 5. Eco-Interoception Projection Source Image (Artwork by author)


Figure 7. Illustration of an ecotone from an online article. ("Basic Concepts of Ecosystem.” Insight IAS. https://www.insightsonindia.com/environment/basic-concepts-of-ecosystem/ecotone-ecological-niche/ecotone/).

Figure 8. Figure 8. Screenshot from video within Eco-Interoception (Artwork by author)

Figure 9. Image of Chordaria flagelliformis from British Algae: Cyanotype Impressions by Anna Atkins

Figure 10. Installation view of The Future is Behind Us by Rachel Wolfson Smith, Women and Their Work, Photo: Hector Tednoir Martinez

Figure 11. Image of Nile Born by Ana Mendieta, 1984, Sand and binder on wood, 7 x 48.9 x 156.2 cm

Figure 12. Image from an Instagram post. (@anthr0morph, “Earth Angel 1, here to protect the air. Reedited from 2018. Shot by @vassovu,” Instagram, https://z-p42.www.instagram.com/p/B4N4hj1g9-Y/).

Figure 13. Image of untitled by Nils Udo, 1993, Langeland, Denmark, Ilfochrome on aluminium (beech, sorbes (fruit of the mountain ash)), 98x98cm

Figure 14. Image illustrating art therapy materials continuum entitled “Media properties from resistive/cognitive to fluid/affective” adapted from “Drawing from Within: Using Art to Treat Eating Disorders” (Lisa D. Hinz. Expressive Therapies Continuum. 130.)

Figure 15. Image illustrating art therapy material continuum. (Lusebrink, V.B. (1990), Imagery and visual expression in therapy. New York, NY: Plenum Press).

Figure 16. Image illustrating “nonlinear network of mediators of allostasis involved in the stress response. Arrows indicate that each system regulates the others in a reciprocal manner, creating a nonlinear network. Moreover, there are multiple pathways for regulation.” (B.S. McEwen. “Central Role of the Brain in Stress and Adaptation.” In Stress: Concepts, Cognition, Emotion, and Behavior, edited by Fink, George. Academic Press, 2016).

Figure 17. Illustration of metabolism via anabolic and catabolic pathways from online article. ("Overview of Metabolism.” Khan Academy, https://www.khanacademy.org/science/ap-biology/cellular-energy/a/overview-of-metabolism).

Figure 18. Illustration of interoception. (Dr. Neff. “Poor Interoception.” Neurodivergent Insights, https://neurodivergentinsights.com/blog/poor-interoception/).

Figure 19. Exploration of branching fractals through linoleum and oil-based printmaking (Artwork by author)

Figure 20. Image of Tree + Fence, out my back window by Zoe Leonard, 1998

Figure 21. Illustration of transforming neurons from article (Marco Travaglio. “Winter Neurons.” Knowing Neurons. https://knowingneurons.com/blog/2019/01/31/winter-neurons/).

Figure 22. Moss & Mycelium (Artwork by author)

Figure 23. Exploration of spare drawings (Artwork by author)

Figure 24. Neural Connectivity (Artwork by author)

Figure 25. Slime mold in petri dish (Image by author)

Figure 26. Attempted partnership with slime mold to create an exhibition map for Pollock Gallery thesis show Eco-Interoception (Image by author)

Figure 27. Wall drawing and projection source digital image for Eco-Interoception at Pollock Gallery derived from images and artworks of slime molds, mycelium, neurons, and branching fractals in trees (Artwork by author)

Figure 28. Installation view of Eco-Interoception at Pollock Gallery (Artwork by author)
Figure 29. Image of John Cage Foraging in Grenoble, France, 1971 (Photo by James Klotsky https://shorturl.at/aHKX7)

Figure 30. Installation view of Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 31. Installation views of various technologies and realities present in Eco-Interoception at Pollock Gallery (Artwork by author)


Figure 33. My adapted version of physicality-virtuality continuum where I added the green arrows and changed the “real” to “physical” (Illustration by author)

Figure 34. Virtual reality headset, branch hanger and screenshot from virtual reality experience in Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 35. [Top] Stalking the Trace (2019), Zabludowicz Collection, London, UK [Bottom] Peak Performance (2017), Signal Gallery, NYC, NY, both by Rachel Rossin

Figure 36. Image of augmented reality build environment, Blender, designed for Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 37. Illustration of neuron from an online article. https://learn.genetics.utah.edu/content/neuroscience/neurons

Figure 38. Installation view of Worlding for Neurogenesis at Hawn Gallery (Artwork by author)

Figure 39. Installation images from Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 40. Screenshot of projected video on the wall of Eco Interoception at Pollock Gallery (Artwork by author)

Figure 41. Installation view of Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 42. Installation view of Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 43. Images from educational video by Misilla Dela Llana. (@LearntoGrow, Instagram, March 5, 2023, https://www.instagram.com/p/CpasHyku4W7/).

Figure 44. Installation view of Worlding for Neurogenesis at Hawn Gallery (Artwork by author)

Figure 45. Original video still that became the basis for fabric printing, projected into Eco-Interoception and “skin” on the objects within the VR world (Artwork by author)

Figure 46. Fabric skins on stub cuts in Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 47. Projection on my body in Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 48. Projection on my face in Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 49. Fabric in holes and crevices of gallery floor in Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 50. Installation image of “bringing the outside in and the inside out” with fishing line in Eco-Interoception at Pollock Gallery (Artwork by author)

Figure 51. Image of Artnet comic. (Guy Richards Smit "How Do You Know If It’s Art and Not… Something Else? [Cartoon]" https://news.artnet.com/art-world/art-whirled-cartoon-copying-2170085).


ECO-INTEROCEPTION:
WHAT PLANTS, FUNGI AND PROSTIA HAVE TAUGHT MY BODY

SARA DOTTERER
SMU MFA 2023