

Thesis Title: Performing Trans-disciplinarity: Exploring Subjectivity and Objectivity in Knowledge Production

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Abstract:

In this thesis, I make a case for challenging categorical thinking and draw upon non-human perspectives as a starting point to propose a pre-linguistic root to categorization by situating the concept of categorization into a sensory paradigm. Later I highlight a selection of 3 artistic projects that look at human-non-human relationships, sensory augmentation, and bacterial consent to question methodologies of inquiry in relating beyond the human category. In conclusion I present my thesis exhibition, *Poetics of Inquiry*, as a meditation on subjectivity to explore how artistic research can offer an entry point into thinking beyond categorization. This thesis also attempts to situate my practice within a limited base of references as a contribution towards the vast discourse by fellow knowledge producers within the field of Art, Culture, and Technology.

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May your soul find its way to oneness and peace.

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Prologue

My work stems from a frustration with definitions. The deeply layered frustration is interwoven through a complex network of firsthand experiences and cultural affinities. Despite my frustrations, this thesis will be full of contradictions, ill-defined definitions, arbitrary categories, and “forms”. It is my humble request that you take my words with a touch of skepticism and a touch of openness; my lack of grasp over language is one of the core tenets of my frustration with definitions.

The experiences that inform my practice and inquiry stems from first-hand experience with being an immigrant in a foreign home, my life-long exploration of consciousness in its myriad of possibilities, and my quest to understand what it means to be a self in the context of a whole.

Introduction

The logic behind this thesis is filled with contradictions, clutter, and ambiguity. It to some extent reflects the webbed, rhizomatic, atemporal, non-linear, and non-binary properties of my consciousnesses. Please note that this thesis is an incomplete representation, an incomplete thought, an argument without a desire to be correct. Often in taking an argumentative stance, one tends to close themselves off into discreet units and the notion of discreet quantized units is something I try to question in my artistic research.

The thesis is segmented into 3 main parts, there is this introduction followed by the chapter titled “Pre-linguistic Roots of Sensory Categorization” where I make a case imagining a world that operates beyond categorical thinking. To do so I draw upon a limited set of references from among the young field of research studying animal communication and perception. By highlighting a handful of case studies to illustrate the expanded possibility of conscious experience from a non-human perspective, I make a case for sensory augmentation as a means to transcend/differ human modes of categorization.

Next, I present a series of three projects culminating into a thesis exhibition that represents my research and artistic activities while at MIT. The projects include:

1. *Dear Other*, an installation and performance that explores questions around relating to non-human others mediated by a limited technological lens.

2. *Sensory Augmentation*, a collaborative research project with 3 other scientists/researchers from multiple departments at MIT. Together we did a systematic scientific study to test the viability of using our custom Transcranial Electrical Stimulation device for augmenting sense of spatial awareness in human participants. Here I also discuss how this research study significantly informed and transformed my understanding of scientific research methodologies.
3. *Bacterial Consent*, a project where I used synthetic biology to design and embed consent forms within bacteria using artificial DNA. It is a conceptual work that explores some of the philosophical questions around doing research with living organisms.

These projects lay down some of the background thinking, technical details, and scientific/artistic precedents and references that go on to inform my thesis exhibition *Poetics of Inquiry: How to Stay with Trouble*. The thesis exhibition is the material and energetic manifestation of this text, and this text is a reflection on the project that I undertook as my master's thesis at MIT. One of my professors, Judith Barry, explained the project as encyclopedic due to the multiple layers and variables that constituted its momentary existence. The exhibition was part exhibition, part experimental study, and part performance space. I wanted to see and explore what happens when the world of exhibition design (lab design), performance (the researcher), and audience (participants) meet.

The exhibition space served as a stage for the performative study to take place. Photographic objects, biological installation, and documentary videos became the backdrop for two distinct sets of performances. There were a series of one-on-one performances that treated each participant as though

they were lab organisms, but instead with the agency to choose the sort of experiment that would be done to them as collaborators instead of as passive objects. Secondly, I did a 24-hour long performance where I embedded myself within the gallery walls for that duration and communicated with the audience via a live text document which can be found in the appendix at the end.

The appendix

The appendix is a ~50-page document made from fragments of varying thoughts. They are meant to serve as supplementary material. The reason I decided to include these fragments is because my thoughts and experiences in life are more reflective of a fragmented, free-jumping, associative, and responsive nature. Here I allow my thoughts to meander with honesty without attempting to make sense for the world or to claim that I am right. Often these fragments are transcribed and dictated directly from my sketchbooks. They have their own logic that uses things like a ← backstep or a CUE or a >>HYPERLINK<<. Logic that I have developed for navigating my thoughts in textual form.

← backstep: it's a jump back to an earlier thought in a stream of consciousness where the linearity of thought is abruptly cut back to an older thought without necessarily ever completing the direction

where the thought started to head. It is a sort of incomplete thought somewhat reminiscent of a drift as Claire Bishop writes in her Artforum article on research-based art.¹

CUE: like a theater or movie director, CUE in my writing suggests the entry of a cinematic sequence to be imagined in one's mind eye. It is meant to function as a visual montage that offers a chopped-up sequence of emotive, and sensory data that should feel like going through a hyperloop. If a backstep is to revert back in time, a CUE is a portal into an endpoint, an endpoint that I no longer control but is meant to be explored by the person reading the sequence to end up somewhere within their own frame of reference beyond my control.²

>>HYPERLINK<< The HYPERLINK serves to teleport but to a highly specific point or reference. It is simply a hyperlink to a separate but self-contained reference.

I invite you to meander through the appendix as an exploration into a thesis without a formal structure, the appendix is a clutter of data filtered through words, images, and my subjectivity. It is not

¹ "In other words, the internet liberates the artist-researcher from academic protocol, and a different type of research becomes possible and validated – a line of thinking governed by drift rather than depth, creative inaccuracy rather than expertise, and accessibility rather than the ivory tower." Bishop, Claire. "Claire Bishop on the Superabundance of Research-Based Art." Accessed April 11, 2023. <https://www.artforum.com/print/202304/claire-bishop-on-the-superabundance-of-research-based-art-90274>.

² To me it serves a similar purpose as the stargate scene in the ending sequence of Stanley Kubrick's 2001: A Space Odyssey, but unlike the film where it ends on a somewhat definitive end image of the fetus floating in space, my use of the CUE is less didactic and directional, it is just the start of a hyperloop journey, the destination is dependent on the person taking the journey and not I.

meant to make sense, or it might make some sense that only makes sense to you and nobody else, or you and I might precisely understand something together that words couldn't describe with honesty.

Features like the appendix and the ALT text serve as segments within the document where I have allowed my expression to freely express ideas and thoughts in a manner that feels more natural to my thinking than the form of a standardized research paper. Please use the ALT text feature to find detailed texts for every figure in this document that provides an alternate guided experience of looking closely at images through. The feature is designed not only for readers who are visually impaired but also for individuals who can see.

Conversely, the chapters of this thesis; the introduction, the projects, the thesis exhibition, and discussion are written in a straightforward and explanatory manner. Within them I attempted to situate my practice and thinking in reference to other artist's work that I know. I am fully aware that my references are profoundly limited, and I sincerely urge you to look at this document as a work in progress as opposed to a definitive expression. The reason for the incompleteness of this thesis is partially because if I were to write all of my references with their multi-connected and tangled branches, it would take far too long for me to finish, and partially because I simply do not know the countless possibilities and relations in present and in history that inform my practice and thought. As with all of my work, I consider this thesis to be a checkpoint in time rather than an end within an ongoing process of inquiry, both personal and cultural.

Pre-linguistic Roots of Sensory Categorization

I am interested in looking at how we other one another through categories. Whether that be categories of identification such as race, gender, and selfhood or broader categories of othering through concepts of human and non-human, object and subject, life and non-life, and so on. I am interested in definitions that we create as humans to compress, amplify, discriminate, and fossilize categories³. There is a space of ambiguity that exists between categories which are often overshadowed by pre-established constructs. Initially, I took the perspective that categorization is a construct of the human language, in a similar vein as the Sapir-Whorf hypothesis. However, my research into various animal models of consciousness has reshaped my understanding of the concept of categorical perception. I found out that categorization, both in humans and non-human animals, occurs at a sensory perception level that is pre-linguistic⁴. Thus, my current artistic inquiry explores the hypothesis that our understanding of and relation to pre-established elemental beliefs and categories can be expanded through augmenting sensory perceptions. In this thesis, I draw upon the works of various artists and scientists from history and contemporary times and juxtapose their research with my own artistic interventions to question the methodologies through which we categorize and relate with non-human others.

³ Langhe, Bart de, and Philip Fernbach. "The Dangers of Categorical Thinking." *Harvard Business Review*, September 1, 2019. <https://hbr.org/2019/09/the-dangers-of-categorical-thinking>.

⁴ Green, Patrick A, Nicholas C Brandley, and Stephen Nowicki. "Categorical Perception in Animal Communication and Decision-Making." Edited by Leigh Simmons. *Behavioral Ecology* 31, no. 4 (July 29, 2020): 859–67. <https://doi.org/10.1093/beheco/araa004>.

The Sapir-Whorf hypothesis suggests that the language we use shapes our perception of reality; it influences the way we think⁵. The original hypothesis is that the language we use has a way of shaping our thoughts and perspectives and thus altering the language we use to experience the world around us may allow us to experience alternate realities. Modern linguists have argued against a strong deterministic relationship between language and perception. Partly because it is extremely difficult to empirically test linguistic and perceptual differences across different cultures, and partly because it seems there are more universals for experience rather than differences when it comes to “prototypes” of categories. The research shows that humans have an ability to distinguish color prototypes and emotional expression prototypes⁶ with a much higher degree of accuracy than colors or emotions that are more ambiguous^{7 8}.

⁵ “The Sapir–Whorf hypothesis, also known as the linguistic relativity hypothesis, refers to the proposal that the particular language one speaks influences the way one thinks about reality” Lucy, J. A. “Sapir–Whorf Hypothesis.” In *International Encyclopedia of the Social & Behavioral Sciences*, edited by Neil J. Smelser and Paul B. Baltes, 13486–90. Oxford: Pergamon, 2001. <https://doi.org/10.1016/B0-08-043076-7/03042-4>.

⁶ When I am referring to prototypes of colors and expressions, I am referring to the 11 (red, yellow, blue, green, orange, pink, purple, white, black, brown, and grey) base colors presented in Eleanor Rosch’s research and the 7 (fear, sadness, happiness, contempt, anger, surprise and disgust) base emotions described by Paul Ekman

⁷ “Berlin and Kay called the points in the color space where choices of best examples of basic terms clustered “focal points,” and argued that the previous anthropological emphasis on cross-cultural differences in color names was derived from looking at boundaries of color names rather than at color-name focal points.” in the chapter Linguistic Relativity by Eleanor Rosch

⁸ Eleanor Rosch talking about Paul Ekman’s research “universality was discovered in facial expressions of emotion only when an investigator thought to ask, not about all possible stimuli, but about the prototypes (best examples) of categories.”

The edges of the categories are precisely the area that I am most interested in exploring. Previous research by Eleanor Rosch and Paul Ekman shows a universal ability to recognize prototypes of facial expressions and colors and perhaps other similar categories. However, I would argue that having such strong universal categories shape people's thought by forcing/influencing individuals to think through the focal categories even for ideas that do not fall clearly into the focus of the categories. One good example of such a limitation of categorization is gender. By creating a binary prototype for genders, people are forced/influenced into categorizing individuals into binary opposites. With greater attention and study, gender has been able to surpass the binary construct that was once imposed upon it⁹. Increasing the lexicon of a group of people allows them to communicate with greater complexity as more specific references get made within that culture¹⁰. Though it is nice to have more words to communicate in nuanced categories, it nonetheless falls into a similar problem of not being able to communicate ideas at the edges of focal categories. The inability of prototypes to express truth is particularly relevant when it comes to ideas of identity or self-expression of ideas that are not concrete phenomena¹¹.

⁹ Judith Butler on gender construction in a social context

¹⁰ Eleanor Rosch refers to a theory that we have more color words in more industrialized societies due to having the ability to mass produce the same items with different color properties. Thus, as societies develop, they also develop more complex lexicon for categorizing concepts and expressions.

¹¹ The color research is also flawed in a sense that it assumes color is something that can be measured out of context, it fails to take into account the concept of simultaneous contrast which shows that the same color looks different when placed next to different colors. Thus, even if we try to look at prototypes of phenomenological things, all things are contextual and have more complexity than the prototypical category can offer.

I would like to clarify that I do not think categories are bad by nature for the sake of communication or identification, as sometimes it is much more efficient to have universal prototypes to refer to than to have a thousand words that do not communicate. The area of inquiry for me is particularly focused on how we can communicate identities, existences, concepts, and realities that exist at the edges of categories without needing to limit itself to the current lexical dictionary. International Auxiliary Languages such as Esperanta, or individually constructed languages such as Toki Pona, aim to create more simplified modes of communication that people can use across cultures and languages¹². I love the idea of having universal languages, but I find the idea of simplifying language to its core prototypes to be quite limiting. The difficult task I have set out to explore is the question of how to have a mode of communication that can be universally understood while also being noncategorical or prototypical?

There is often a conflation of the idea that language tries to encapsulate/make impressions of reality rather than the language construct being the reality itself. Karen Barad's work on agential realism makes us question the role language has in shaping reality¹³. The language we use to engage the world ends up shaping the world in which we engage.

¹² Artificially constructed languages are languages that are developed for various reasons, whether it be to reshape how people process information or to have fictional characters speak or to have a universal cross cultural communication. Its dependence on words and categories make it run into similar shortcomings as any developed language in my opinion. I am not sure it is possible to have a language without words that is universally communicable. Art comes to mind but is art universally communicable? Is computer code or mathematics universally communicable? How do you communicate the edges of categories in mathematics or in code?

¹³ Barad on Agential Realism as written in *Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter*

The reason for an alternate form of language is to explore the edges of categories. To do so, I propose a closer look and wider perspective rather than developing new categorical words that fill out the spaces that do not have words yet¹⁴. It is as though I am interested in developing linguistic algorithms that are intelligent rather than numeric/categorical terms that are coded with a limited set of possible meanings¹⁵. A language that can operate in the complexities of experiential reality, languages that allow for the possibilities of that which we would deem nonsensical today within the current grammatical structures. For there are ideas and aspects of experiential reality that cannot be put into words, ideas that perhaps do not need to be categorized. What I seek is not an ambiguous meaningless mode of communication but rather a form of expression that can express in clarity which words cannot encapsulate.

Another reason for expanded language is to investigate non-human communication and the modalities through which other species have developed a means of communicating ideas and information. Animal communication varies significantly across species though it is interesting to find that categorical perception can be observed in non-human animals as well. Previously, categorical thinking was likened to human ability and often associated with language. A closer look at animal

¹⁴ Artificial and constructed languages

¹⁵ Here what I mean by linguistic algorithm is this idea that a new form of language could operate in a manner where the expression has a mind of its own and can interact with the interface/mind of the receiver to find the best possible means of communicating the intended content of the expressor within the mind of the receiver without needing to obey any particular set rule for definition. A language that is artificially intelligent.

communication shows that categorical thinking might have roots in perception rather than language¹⁶. Similarly, further research shows that the human ability to perceive categories of color has more to do with thresholds of perception rather than capacities of language¹⁷. It is hypothesized that having perceptual categories have been developed to give organisms an evolutionary advantage by being more efficient at information processing and for helping in rapid decision-making¹⁸.

When looking at animal communication and perception it is also important to note the medium through which animals communicate. In a couple of case studies, it has been shown that elephants will choose to send long-distance seismic signals on specific types of terrain/land to maximize the distance those signals will travel. Similarly, animals will also wait until certain points in the day to receive such communicative signals to maximize the ability to process these signals¹⁹. Fish will send signals at

¹⁶In this research Partrick Green and others show that Japanese macaques, swamp sparrows, zebra finches, and tungara frogs all have thresholds of perceptual categorization that they use to process the sensory information in their environments, it could have helped in the evolution to be able to categorize perceptual information at thresholds to better distinguish between mate and predator.

Green, Patrick A, Nicholas C Brandley, and Stephen Nowicki. "Categorical Perception in Animal Communication and Decision-Making." Edited by Leigh Simmons. *Behavioral Ecology* 31, no. 4 (July 29, 2020): 859–67. <https://doi.org/10.1093/beheco/araa004>.

¹⁷ Green, Patrick A, Nicholas C Brandley, and Stephen Nowicki. "Categorical Perception in Animal Communication and Decision-Making." Edited by Leigh Simmons. *Behavioral Ecology* 31, no. 4 (July 29, 2020): 859–67. <https://doi.org/10.1093/beheco/araa004>.

¹⁸ "...signal detection theory suggests a boundary exists that optimizes the trade-off between the costs of making such mistakes ("false alarms") and the costs of missing correct assignments ("missed detections"; Wiley 2006)"

¹⁹ "Furthermore, geological and topographical characteristics of these substrates have varying effects on the attenuation and degradation of these seismic signals, and evidence suggests that elephants may. select certain substrates as staging points for communicating seismically to increase the distances over which their signals propagate (Arnason, Hart, & O'Connell-Rodwell, 2002). Similarly, animals may be selective in maximizing their ability to detect communicative signals, for example, by listening early or late in the day when thermal inversions increase the distance that airborne signals propagate (Larom & Garstang, 1997; Larom, Garstang, Payne, Raspet, & Lindeque, 1997).

Rundus, Aaron S., and Lynette A. Hart. "Overview: Animal Acoustic Communication and the Role of the Physical Environment." *Journal of Comparative Psychology* 116, no. 2 (2002): 120–22. <https://doi.org/10.1037/0735-7036.116.2.120>.

specific depths and certain crickets will modify the environment by boring holes into leaves to increase their vocal capacity²⁰. By looking at various sensory and communicative techniques across the Animal Kingdom, I am curious to explore ways of altering human perception and the language through which we perceive and engage our environments. My projects *Sensory Augmentation* and *Poetics of Inquiry* (explained in greater depth in Chapter 5, and Chapter 6) explore topics of augmenting human perception via technological interface and guided meditations.

My defective eyesight is a point of reference for me when it comes to sensing the world from a subjectively unique perspective that is objectively embedded into the mechanics of my body. From a young age, I have had a high degree of astigmatism in my eyes. My astigmatism is a malfunctioning eye, but due to its malfunctioning nature, I can get a glimpse into how the mechanisms in my eyes alter and shape the visual information I experience²¹. My vision reflects a subjective experience on a scale of 1 or perhaps a limited number of individuals with astigmatism in their eyes (noting that no two individuals are likely to have the same exact refractive properties). On a larger scale, the visual experience of the world from a “human” perspective is only a limited form of perception among the multitude of other

²⁰ “...crickets of the genus *Oecanthus* can run into the problem of acoustic short-circuiting when trying to produce high-intensity signals to communicate over long distances. This occurs when molecules of the vibrating medium leak from the side of the dipole in which condensation occurs to the side in which rarefaction occurs, canceling out differences before the dipole vibrator can move back and begin a new cycle. The insects solve this problem by chewing holes in the center of a leaf and stridulating while sitting in the hole, greatly reducing the amount of short circuiting and effectively increasing the intensity of the signal (Prozesky-Schulze, Prozesky, Anderson, & Van der Merwe, 1975).”

²¹ The astigmatism in my eye bends the refractive angle at which my eye receives light information. Especially at nighttime the light rays (without vision correction lenses) bend in very specific ways and studying the properties of light without corrective lenses have led me to understand that the perception of reality is highly dependent upon the perceptual mechanism through which we witness subjective experience of reality.

sensory possibilities found across various biological kingdoms. Given that categories of concepts are at least influenced by the perceptual thresholds then I question what effects altering our perceptual capacities have on our understanding of conceptual categories. With the availability and increasing accessibility of augmented/heightened reality, it is worth exploring the topic of sensing one's environment²². There are an incredible number of possibilities that we can learn from and co-opt from nature. Some examples include augmenting a sensory compass for human perception²³, augmenting a human with a tail for physical support and emotional expression²⁴, and multiple others referred to in my project *Sensory Augmentation*. How does an augmented sense of self transform our understanding of space, identity, and reality? What possibilities in communication found in nature would help us better perceive/communicate the nuanced complexities of experiential realities?

Beyond heightening human perception I'm also interested in learning about how cross-species communication works. How do symbiotic relationships form, how do viruses communicate/negotiate with their environments, and how do plants and fungi interact. Can humans and bacteria / humans and viruses, humans and other animals communicate? My projects *Dear Other, and Bacterial Consent*

²² With the amount of information that our present environment presents us with, using technology and artificial intelligence to augment human perception is the next step for keeping up with the processing speed of computers and information technology that consumes our lived experiences Schmidt, Albrecht. "Augmenting Human Intellect and Amplifying Perception and Cognition." *IEEE Pervasive Computing* 16, no. 1 (January 2017): 6–10. <https://doi.org/10.1109/MPRV.2017.8>.

²³ Schumann, Frank, and J. Kevin O'Regan. "Sensory Augmentation: Integration of an Auditory Compass Signal into Human Perception of Space." *Scientific Reports* 7, no. 1 (March 13, 2017): 42197. <https://doi.org/10.1038/srep42197>.

²⁴ Xie, Haoran, Kento Mitsuhashi, and Takuma Torii. "Augmenting Human With a Tail." In *Proceedings of the 10th Augmented Human International Conference 2019*, 1–7. Reims France: ACM, 2019. <https://doi.org/10.1145/3311823.3311847>.

serves as an entry point for reflecting on both the possibilities and difficulties in exploring cross-species communication when trying to bridge the vast evolutionary gap between bacteria and humans. The projects are discussed in greater depth in chapter 5.

There is a chauvinistic idea that humans are the most sophisticated organisms on planet earth, there are even philosophical arguments that claim only humans have consciousness with the justification that only humans can use language. There is an incredible level of complexity and diversity among the various biological kingdoms, and we can learn a lot from our non-human counterparts. Humans neither hold the greatest number of neurons nor do we hold the most genetic base pairs in our DNA. It is argued that there is a lack of correspondence between the genomic size and the organism's complexity²⁵. However, I can't help but question if we are missing something when analyzing the idea of complexity. The elephant brain contains about 3 times the number of neurons as the human brain. The current argument is that the majority (97.5%) of the neurons in the elephant brain are stored in the cerebellum (areas associated with sensory-motor function) rather than in the prefrontal cortex (areas associated with higher-level processing)²⁶. The cerebellum was historically associated with primary motor functions such as navigation and balance and so on, however recent studies are pointing toward the cerebellum playing a significant role in higher-level cognitive functions including

²⁵ "Eukaryotic Genome Complexity | Learn Science at Scitable." Accessed January 28, 2022. <http://www.nature.com/scitable/topicpage/eukaryotic-genome-complexity-437>.

²⁶ Herculano-Houzel, Suzana, Kamilla Avelino-de-Souza, Kleber Neves, Jairo Porf rio, D bora Messeder, Larissa Mattos Feij , Jos  Maldonado, and Paul R. Manger. "The Elephant Brain in Numbers." *Frontiers in Neuroanatomy* 8 (June 12, 2014). <https://doi.org/10.3389/fnana.2014.00046>.

language²⁷. Given that elephants primarily communicate using sounds that are imperceptible to the human ears²⁸, there is an incredible space of unknown that we have yet to discover regarding the potential of communication beyond human languages. Elephants also can sense and hear low-frequency sounds about 10-100 times better than humans²⁹ and it leads me to question the possibilities of communication that could become available to humans if we can tap into areas of sensing and perception that are currently unavailable to our biological sensors.

In a conversation with Becca Frank³⁰ I came to a subtle yet powerful realization: we often forget to acknowledge that all living species alive today had to survive and evolve to their present state. So, an organism existing today has a history of billions of years of genetic transformations. They are not some primitive categories of life but are rather equally evolved as humans³¹. We are coexisting on the planet at the same time and have interconnected genetic blueprints/history³². The languages and perceptive capacities developed by plants/animals/fish are not some archaic/primitive simple languages but rather ones that went through billions of years of history and development. How animals/plants, and aquatic

²⁷ Mariën, Peter, Herman Ackermann, Michael Adamaszek, Caroline H. S. Barwood, Alan Beaton, John Desmond, Elke De Witte, et al. "Consensus Paper: Language and the Cerebellum: An Ongoing Enigma." *The Cerebellum*, December 7, 2013. <https://doi.org/10.1007/s12311-013-0540-5>.

²⁸ "Most acoustic communication in both African and Asian elephants consists of very low frequency sounds, too low in pitch for people to perceive easily (infrasonic)." Langbauer, W.R.

²⁹ Langbauer, W.R. "Elephant Communication." *Zoo Biology* 19, no. 5 (2000): 425–45. [https://doi.org/10.1002/1098-2361\(2000\)19:5<425::AID-ZOO11>3.0.CO;2-A](https://doi.org/10.1002/1098-2361(2000)19:5<425::AID-ZOO11>3.0.CO;2-A).

³⁰ Research scientist of environmental studies at NYU

³¹ We are all alive today and each organism had to develop its own adaptations and transformations to be alive up to this present moment which we cohabit in the same timeline.

³² One can refer to the 2003 representation by David Hillis, Derrick Zwickl, and Robin Gutell that depicts a radial tree of life where Homo Sapiens are shown as a tiny branch on an interconnected map of 3000 branched points representing major biological groups archaea, bacteria, and eukaryote.

life communicate, and perceive the world is just as evolved, and well-equipped to engage the world as that of humans. The reason animal communication is seen as rudimentary has more to do with our lack of comprehension rather than the lack of complexity in their mode of communication.

The research on animal communication is still at its very starting stages and the amount of data and specific technology required to analyze the signals of different species is quite limited. It is quite common to find the phrase “we still know surprisingly little about how...” when researchers are writing about different mechanisms through which non-human species communicate³³. There is however some early research into animal communication that is beginning to shed light on the complexity with which animals communicate beyond simply a mechanistic instinctual description of behaviors. For example, turn-taking can be observed in multiple different species of birds, non-human primates, non-primate mammals, and various species of insects that have a comparable signal response range temporality as human conversations³⁴. Another area of research involves trying to categorize different sonic pulses that are imperceptible to humans (as in the case of elephants) and also to distill

³³ Witzany, Guenther, ed. *Biocommunication of Animals*. Dordrecht: Springer Netherlands, 2014. <https://doi.org/10.1007/978-94-007-7414-8>.

³⁴ The author of this paper looks at how response time varies between different species and shows some rather interesting communication norms among non-human species. For example, the author writes about how different bird species show various preference for overlap in response time. “Black-capped chickadees (*Poecile atricapillus*) favor overlap, and European starlings prefer overlap avoidance. If overlap occurs, individuals become silent or fly away, suggesting that overlapping may be treated, in this species, as a violation of socially accepted rules of turn taking.” Pika, Simone, Ray Wilkinson, Kobin H. Kendrick, and Sonja C. Vernes. “Taking Turns: Bridging the Gap between Human and Animal Communication.” *Proceedings of the Royal Society B: Biological Sciences* 285, no. 1880 (June 13, 2018): 20180598. <https://doi.org/10.1098/rspb.2018.0598>.

specific chemical signatures in pheromones used in various forms of animal communication (such as chemical signaling in elephants, bees, salamander, dogs, and others)³⁵.

As humans, we rarely use our sense of smell to consciously communicate ideas and concepts or leave notes, or express feelings. Sissel Tolaas is an artist working in the field of researching and creating art around the sense of scents, and her work allows us to reconsider what it would be like for humans to be actively using and engaging in the sorts of chemical communication that smells allow in non-human animal communication³⁶. It is interesting to note that elephants can recognize familial scent markers on samples with scents recorded 20 years in the past. I would imagine that the fact that elephants can identify one another from urine samples has more to do with their ability to sense chemical markers than the ability for them to produce some special urine. If we could augment the human sense of scent, either through technology or through education, what forms of new communicative possibilities would we be able to access as humans? What sort of ideas can be communicated in scents that cannot be communicated with categories of words? What are the sensory thresholds for sensing scents in humans and how can those be modified with the help of augmented sensory technology?

³⁵ Witzany, Guenther, ed. *Biocommunication of Animals*. Dordrecht: Springer Netherlands, 2014. <https://doi.org/10.1007/978-94-007-7414-8>.

³⁶ “She believes we as a species have ‘forgotten how to smell’ and, as such, have moved away – lamentably – from our more animal instincts”?
Pictet Perspectives. “Sissel Tolaas Wants to Reconnect Humanity through Our Sense of Smell.” Accessed January 28, 2022. <https://perspectives.group.pictet/sustainability/sissel-tolaas-wants-to-reconnect-humanity-through-our-sense-of-s>.

In my artistic projects, explained in greater detail in the next chapters, I construct hypothetical realities where the categories we use to define our fundamental believe systems are brought into question. I take a panpsychist perspective to consciousness and invite individuals to consider the agency and selfhood of non-human organisms that we are entangled with. By taking a non-human-centric view on reality I also question the methodologies in art and science that we use to define truths. As an artist my relation to truth is more subjective than objective and through my projects in performance, installation, and technology I explore ways in which subjective experiences are constructed within the perception of audiences and/or individual participants. In my thesis exhibition titled *Poetics of Inquiry: How to Stay with Trouble* I combined the logic of a lab, an exhibition, and a performance space to explore epistemic ideas around human-non-human relations.

It is my hope that you will witness my contribution towards art and science in the form of creative interventions that I have carried out during my time at MIT and this document will serve as an archive of thoughts and processes that is a point in a continuum of ongoing inquiry into the unknown.

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The Artist as Researcher: Projects

Dear Other

Accidentally killing bacteria while observing them under microscope triggered an inquiry into how one might relate to others so vastly different from oneself.

Background:

I became interested in non-human modes of communication while finishing up my bachelor's degree at the Cooper Union in fine arts. At the time I was interested in space and how space influences people's behavior. Particularly I was working on a concept of an expanded self, this idea that an individual is an agent in a field of energy where they are subconsciously being manipulated and influenced by variables in their environments. My previous projects, *On time*, *On space*, and *Being Binary*, explored these concepts through durational performances and public installations. I would create systems with simple logics such as "embody a character who writes and speaks binary code for 12 hours", or "walk the perimeter of a circle nonstop from sunrise to sunset", or "as people move through space, trigger sounds to map out people's engagement with space sonically". These public interventions became a place for me to explore ways in which I could expand my limited sense of body and self by incorporating variables from the environment into my projects. Since the logic of the pieces were very distilled to a simple rule, the multitude of variables of reality because the actors in such projects. I like to refer to my artistic projects from the time more as experiments rather than artworks. They were experiments where I would try to control for only 1 variable (or rather a very limited set of

variables) while letting everything else play out as it would³⁷. In a way attempting to make my art blur the line between art and reality.

I came across the idea of the wood-wide-web³⁸. It discussed how plants communicate via a complex network of mycorrhizal fungi, I learned about how these mycelia live in a symbiotic relationship with plants and trees in a forest. I was truly amazed to find out about this hidden world of plant and fungi interaction and started to cultivate mycelium in my studio. My project *Rootnetwork* came out of this fascination. It was a sculptural installation in which I projected an animated film of electrical signals being transmitted through a network of organic pathways onto the soil with mycelium growing through it.

As part of my research at the time, I reached out to the biomedical lab at my university at the time and I wanted to go in to see if I could collaborate or learn something from the biolab context. I did not really go in with any project in mind but rather I was simply interested in engaging biological science as an artist. Oliver Medvedic, the director of the Maurice Kanbar Center for Biomedical Engineering at

³⁷ This is in juxtaposition to a scientific inquiry where one tries to control for all possible variables while changing only one or a limited set of variables to study. In my artistic practice it was more about only controlling a small set of variables while letting the world play out as it would otherwise and not really attempting to control any of the environmental or social factors during the performance/experiments.

³⁸ There was a lot of excitement about the idea of the wood wide web and how plants communicate using fungal networks, however it is important to note that questions have been raised about the validity of this theory since. It was recently revealed that the only peer reviewed study that claims for to support this theory was carried out in a greenhouse. In the recent article, the author discusses some of the controversy and history about whether the original claims of the forest wide fungal networks are valid or not.

Gabriel Popkin, "Are Trees Talking Underground? For Scientists, It's in Dispute.," *The New York Times*, November 7, 2022, sec. Science, <https://www.nytimes.com/2022/11/07/science/trees-fungi-talking.html>.

The Cooper Union, was kind to welcome me into his lab to explore as an artist. He saw my excitement and offered to show me some E. Coli under a microscope. He had a lab technician prepare a slide of E. coli for me, but I found it difficult to observe the E. coli under the optical microscope³⁹. So, the technician took the slide from me to dye the bacteria using a red dye. When she came back with the slide, I could clearly see the various bacterial cells contrasted against the light on the slide. However, not a single bacteria moved.

They were all dead.

When staining bacteria in this manner, it is common for them to get over stained and in the process, killing all the cells. This happens all the time and is not a significant event for most researchers. But for me it was a bit traumatic. I was faced with the existential reality that my simple request and desire to observe another organism ended up committing a mass genocide of the entire colony.

This incident led to the development of my project, *On Language*, which explores and questions nonlinguistic forms of communication. It was my way of trying to empathize with the bacterial organisms through performance and gesture.

³⁹ They were non fluorescent ones, making it incredibly hard to observe them using a regular optical microscope.

The Project:

During my first semester at MIT, I came across an interesting paper that proposes a theoretical model for explaining cellular consciousness⁴⁰. At the time I was also taking a collaborative art and science class with the nano technology department and was learning about the nanoscale realities. It is astounding how we can observe and create at the nano scale, and I had been excited to apply these new tools of inquiry to further explore the question of bacterial consciousness. Unfortunately, there is one problem that I faced. The condition in which an SEM operates is a vacuum, and thus killing the cell in the process of imaging it.

For this project I decided to source various images that create a visual scale reference from the human viewed from a bird's eye perspective down to the nano scale where one can view the membrane of a cell⁴¹. On top of images, I inoculated various types of bacteria and let them grow. I made custom shadow box frames, and the images were printed onto a plastic substrate, on top the image I poured a layer of agar growth medium and then used various types of bacterial culture from my skin, my body,

⁴⁰ The authors argue that we can attribute proto conscious behavior to the cell based on the concept that the cell needs to make decisions based on the information than passes through its cell membrane. They argue that the information that passes through the cell membrane is not always reliable due to information loss in the process and thus the cell needs to constantly make decisions about its environment based on unreliable information. I interpret this theory as the cell membrane being the threshold at which the cell develops its sense of self.

František Baluška, William B. Miller, and Arthur S. Reber, "Biomolecular Basis of Cellular Consciousness via Subcellular Nanobrain," *International Journal of Molecular Sciences* 22, no. 5 (March 3, 2021): 2545, <https://doi.org/10.3390/ijms22052545>.

⁴¹ The scaling of the images was a nod to the 1977 short documentary "Powers of Ten" by Charles Eames.

and my immediate environment to introduce different types of bacterial colonies⁴². I was not working in a bio lab and was making this work of art in my studio, and which led to a complicated set of next steps that shaped the project.

I had to encase the frames with an acrylic plane and needed to make sure that the artwork remained contained. To not pose a health risk, I had to seal off the frames completely but in doing so, I couldn't let my bacterial colonies breathe, over a period of weeks they grew and once the oxygen inside the shadow box ran out, the bacteria started to desperately gasp for air making the entire frame cave into itself. Their cry for oxygen was almost palpable by looking at the enclosed contraptions I had built for them. My intention was to create an artwork that displayed their lively colonies as a juxtaposition to the still images of their dead bodies but in turn I ended up creating chambers of suffocation for them. Simultaneously, I had also been working on another sculpture where I created a terrarium that housed two plants, connected by a glass cylinder. I filled the glass cylinder with grains inoculated with mycelium and wanted to create a communication portal between the two plants. I also created a custom dome that was designed to protect and encase the plants in a microenvironment. Despite my good intentions and efforts, the chamber connecting the two plants became infiltrated by mold, with the mold came fruit flies. The whole installation began to rot.

⁴² It is important to note that at this time I did not have training to work in a bio lab and did not have access to a BL2 (Biosafety Level 2 Lab) space thus I ended up working with whatever I could find in my surroundings and agar medium purchased off of the internet. It was not a systematic controlled study with specific strains of bacteria.

I found this experience of trying to create microenvironments for my biological organisms in my work to be extremely difficult and retraumatizing since I was constructing environments that were inhospitable for the organisms displayed in my work⁴³. The title *Dear Other* comes from a desire to try and relate while also being guilty of producing inhospitable environments for the organisms in my work. I presented the photographic prints / sculptural installations in the context of a performance. A performance in which I hooked myself up to the installation using a ventilator mask.

In a conversation with Michael Strano⁴⁴, I learned about plants using Volatile Organic Compounds (VOCs) to communicate with one another and used a VOC sensor inside the terrarium installation. It read out data on VOC and CO₂ level within the chamber. As I breathed and participated in chemical exchange with my plants, I was attempting to perform an experimental approach to cross-species communication.

⁴³ It is important for me to note that I have a conflicted relationship with working with living organism in my art practice because often their involvement in my artwork comes at the cost of suffering and death to the plants and fungi that has been exhibited in my projects. They suffer due to my lack of understanding in working with organisms in a constructed artificial context of my artwork. Most people probably would not care if some plants died in the process of creating a work of art but unfortunately killing plants to make a claim for empathizing with plants seems utterly counter intuitive. To some extent, I justify my process as being a work in progress and try to learn from each project to be able to create better living conditions for the organisms I engage with in my artwork.

⁴⁴ Michael Strano is a professor of chemical engineering at MIT and his paper on detecting plant communication using nano sensors led me to set up an interview with him about his work. Among many other interesting topics, he mentioned the use of VOCs by plants in communication and that became my reference point to introduce a VOC sensor into my installation.

Tedrick Thomas Salim Lew et al., "Real-Time Detection of Wound-Induced H₂O₂ Signalling Waves in Plants with Optical Nanosensors," *Nature Plants* 6, no. 4 (April 2020): 404–15, <https://doi.org/10.1038/s41477-020-0632-4>.

No such communication took place and instead I had simply constructed an equally suffocating environment for myself. I used Saniderm, a polyurethane acrylic adhesive medical bandage, to attach the ventilator mask to my face making it perfectly airtight. What I did not expect was how difficult it was going to be to breathe through the tiny valve that connected my mask to the terrarium, another air-tight chamber. For a duration of about 30 minutes, I got to experience a little bit of what the bacteria in my sealed prints might have experienced and that is the degree to which my experiment in empathy succeeded⁴⁵.

⁴⁵ In majority of my bio art projects, their failure is a result of my inability to do what I have set out to do rather than the inability of the organism to be able of sensing, expressing, or communicating.



Figure 1: Performance and installation documentation. Photograph taken by Gearoid Dolan and then post produced by the author. Performed at the Wiesner Building by I.M. Pei. Granite Sculpture seat by Scott Burton, *Settee, Bench, and Balustrade*, 1985



Figure 2: Installation documentation. Digital Photograph courtesy of the author. Exhibited at the Wiesner Building by I.M. Peh. Granite Sculpture seat by Scott Burton, *Settee, Bench, and Balustrade*, 1985

Precedents and Artistic References:

For each of my projects there are a series of tangential references and often the work is produced more intuitively rather than in direct conversation with prior existing art works. Please refer to the Methodologies chapter for a more elaborate description of my artistic process.

However, some of the artists who informed this body of work for me include Jae Rhim Lee and her infinite burial suit project, Vic Muniz and his work with cancer cells, Mirko Nikolic and his work on vegetal agency, Spela Petric and her performances with watercress, Tomas Saraceno, Anika Yi, Gilberto Esparza, and various other artists exploring human relationships with biological others.

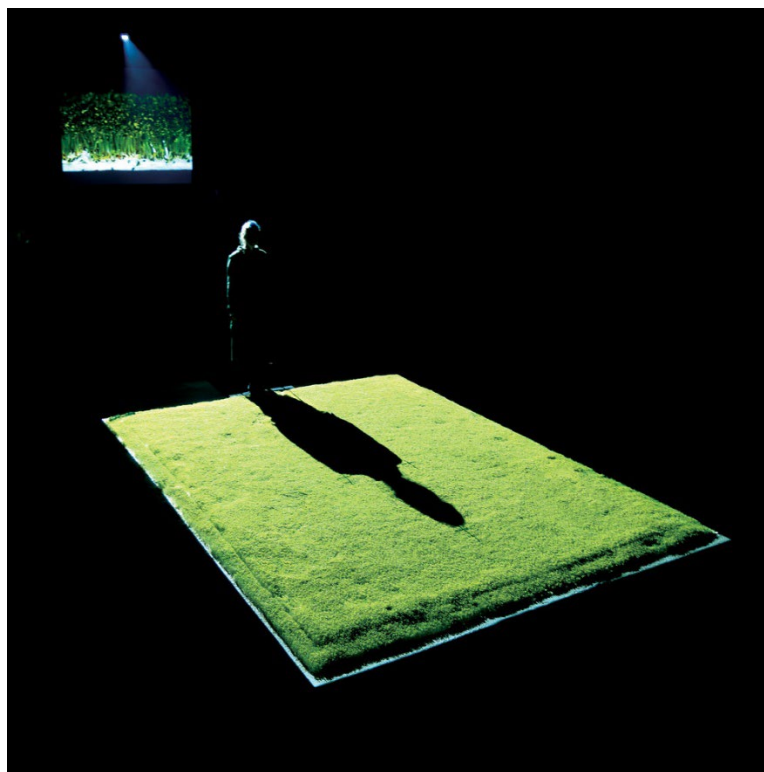


Figure 3: Spela Petric, *Confronting Vegetal Otherness: Skotopoiesis*, 2015. Image documentation by Miha Tursic. Click Festival, 2017. Produced by Kapelica Gallery. Image reproduced here with permission from the artist. Image source: <https://www.spelapetric.org/#/skotopoiesis/>.

Jay Rhim Lee's infinite burial suit has been an early reference and inspiration for my thinking about how we humans can radically think about our relationship to nature, decay, and cycle of life and death. Mirko Nikolic's writing on vegetal performativity is also something I found to be constructive in developing my thinking around how we can go about relating to non-human others, particularly plants.⁴⁶ Spela Petric's artistic research project *Confronting Vegetal Otherness: Skotopoiesis*, is a beautiful meditation about some of the difficulties in relating with a vegetal identity and

⁴⁶ Mirko Nikolić, "Aesthetics of Inhuman Touch: Notes for 'vegetalised' Performance," *RUUKKU - Studies in Artistic Research*, no. 9 (March 16, 2018), <https://www.researchcatalogue.net/view/372629/372630>.

vegetal time that operates in such a different registrar than what we are accustomed to as humans.⁴⁷ I appreciate her research in attempting to understand and relate to the subjectivities of others through an artistic research practice.

Aside from these artists, it is also worth noting the various works of music by artists that translate bioelectrical signals into music. Personally, I am not a big fan of such works because the sound is often aestheticized into pleasurable sonic atmospheres. An example of what I mean is clearly illustrated in mainstream products such as PlantWave, that can be purchased off the internet and markets itself to produce “the perfect meditative sounds”⁴⁸. Though such products attempt to generate empathy with plants by creating pleasant musical compositions from bioelectrical data, I find the focus is less centered around the plant and more centered around offering the human with an aesthetic sonic experience.

I think Peter Coffin’s project *Greenhouse Music for Plants* is an interesting counter proposition as it invites musicians to play music for plants as opposed to having the plants play music for humans. I appreciate this type of proposition to be more exciting and generative than simply extracting data from plants and turning it into data sonification.

⁴⁷ “The process itself - artificial, novel and striving towards authenticity within the perceptual milieu - exerts immense strain on both vegetal and human entities undergoing the experiment. The confrontation of radically diverse living principles is an attempt by the human to humbly put her animality aside and surrender to the plant, transgressing the need for equivalence to achieve equality – an equality stemming from respect in the face of the subject’s (in)comparability with the Other” “Špela Petrič,” Špela Petrič, accessed April 11, 2023, <https://www.spelapetric.org>.

⁴⁸ “PlantWave,” PlantWave, accessed April 11, 2023, <https://plantwave.com/>.



Figure 4: Peter Coffin, Greenhouse music for plants, 2002, Image source: <http://petercoffinstudio.com/greenhouse-music-for-plants/>.



Figure 5: Peter Coffin, Greenhouse Music for Plant, 2002, Installation view, Image source: <http://petercoffinstudio.com/greenhouse-music-for-plants/>.

Sensory Augmentation

The project *Sensory Augmentation* falls more under the category of scientific experiment than an artistic project. It was a research study done in collaboration with three other researchers from MIT: Valdemar Danry, MIT Media Lab Fluid Interfaces group; Laura Chicos, MIT Media Lab Biomechatronics group, and Matheus Fonseca, MIT Sloan School of Management. We were participating in a course on human augmentation under the mentorship of Hugh Herr, and this project was a result of our collaboration as a group.



Figure 6: Product design for our sensory augmentation device. Image credit Ishraki Kazi and Valdemar Danry. The photograph is an artist rendering by the author of the intended final design of the device.

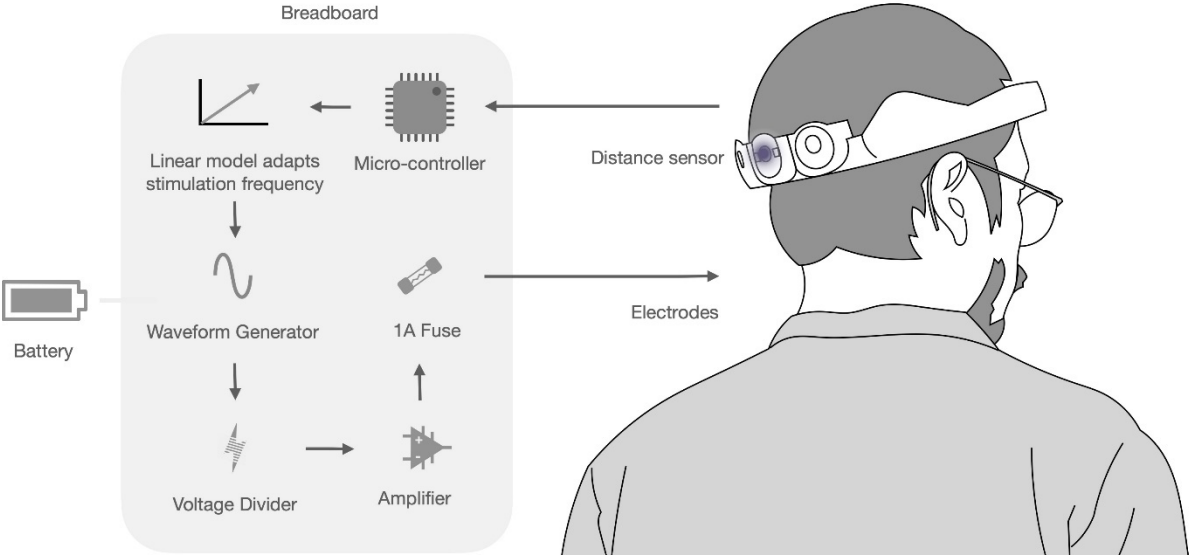


Figure 7: A diagram showing an overview of the electronic system, diagram designed by Valdemar Danry and Laura Chicos

First, I would like to share a technical description of the project to explain what we did, and next I will delve deeper into the layers behind this project that ties into my thesis and artistic thinking.

What we did:

We developed a novel system and device that used transcranial electrical stimulation to produce synthetic visual stimulation of the optic nerve which in turn produced hallucinatory flashing lights in the eyes of the participant. We designed a wearable interface that triggered these flashing lights in response to infrared sensor data, which the person could use to detect objects behind their heads. In a systematic scientific study, we showed that by using our device, participants were significantly better at detecting moving and static objects behind their heads when compared to control test subjects.⁴⁹

*Below is a very simplified description designed to illustrate the different experiments we undertook and does not express the details and nuances of the actual study. To find out more about the scientific details of the study and its protocols, please refer to our paper: *Synthetic Visual Sensations: Towards Augmenting Human Perception with a Wearable Transcranial Electric Stimulation Device* (publication forthcoming 2023).

⁴⁹ The publication of this research is forthcoming.

We designed 3 experiments to determine the efficacy of our device in augmenting people's perception and ability.

Experiment 1: we tested different currents and voltages (within the established safety limits for Transcranial Electrical Stimulation or TES studies) to determine the range of voltage we would use for the participant and take notes on their self-expressed levels of comfort/discomfort.

Experiment 2: we tested the participants' ability to detect a moving object approaching from their back using only the sensations provided by the device. The participants were asked to keep their eyes closed in a dark room and only use the flashes generated from the TES device to detect when the object was nearby. We used a remote-controlled moving robot to approach the subjects at varying randomized speeds.

Experiment 3: we tested the participants' ability to detect the robot at various predetermined angles within the room by asking the participant to detect the object using their augmented sensing device.

Later, we analyzed the various data from the study to determine the significance with which our device helped augment participants perception of space to be able to detect objects better.

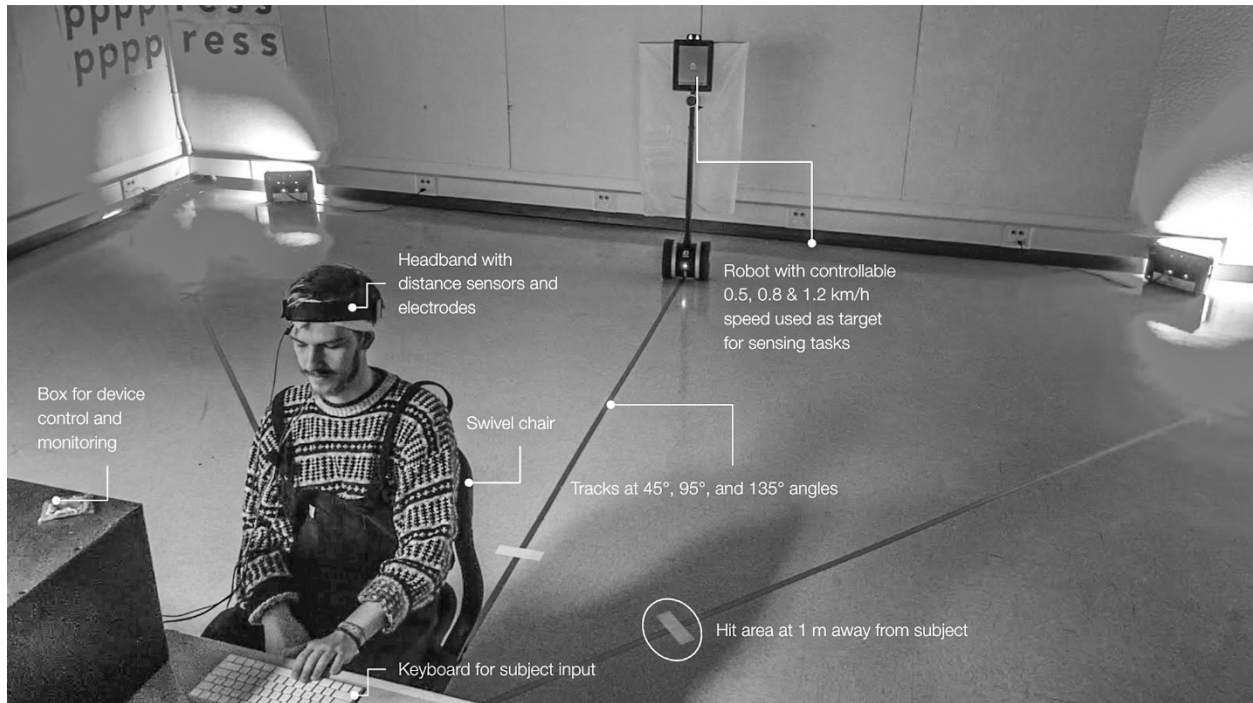


Figure 8: photograph depicting the experimental setup used in the study. The studies were carried out in the dark, the light here is used for representational clarity. Image credit: Matheus Fonseca and Valdemar Danry.

How this project informed my artistic practice:

For me this project and collaboration has been one of the cruxes for my artistic research practice.⁵⁰

This was the first time I participated in a formal scientific study and thus I had a lot to familiarize myself with in regard to how scientific thinking and logic works. I had to first gain a lot of additional training with the ethics of doing research on human subjects, I needed to learn about writing a formal

⁵⁰ Drawing upon a terminology from rock climbing to refer to a crucial moment / a pivotal moment for my artistic research at MIT (The other key moment for me was during my undergrad when I accidentally killed the colonies of bacteria that I wanted to observe.)

experimental protocol, I learned about working with the Institutional Review Board (IRB) and the Committee on the Use of Humans as Experimental Subjects (COUHES) to get the study approved, and more broadly this was my first time working with researchers from vastly different field than my own in an official study.

I learned an incredible amount within the short span of the project. However, what I learned included things that I did not expect to take away from the process. For example, I learned how to design consent forms and what it means to gain informed consent from the subjects in a study. This experience ended up shaping a lot of my future work where the consent form repeats itself in various reinterpretations such as in my project *Bacterial Consent*, and *Poetics of Inquiry*. I was also amazed and surprised to see the limited information we paid attention to in our study and particularly the things we overlooked as irrelevant variables. With my background in public performance and spatial installations such as my projects *On time*, *On space*, and *Being Binary*, it is difficult for me to not pay attention to the vastly interconnected and complex web of variables in visual, sonic, and psychic spaces. For example, the sounds of the HVAC system, or the people walking outside the room, the shadows and changing light conditions, and physical posture of the participants, the energy between the researchers, the conversations before during and after the study, the smells in the room, the mental state of the participant, etc. became variables that were present but undocumented in the study. This experience led me to question what we mean by a controlled environment when creating artificial contexts to study specific hypothesis that we have set out to prove or disprove.

Precedents and Artistic References:

In our paper we have done a thorough literature review of the scientific research using electrical stimulation to augment human senses. Here I have selected only a handful of scientific references from our larger literature review. Sensory augmentation can take the form of haptic sensory substitutions, ⁵¹

⁵¹ Matthias Berning et al., "ProximityHat: A Head-Worn System for Subtle Sensory Augmentation with Tactile Stimulation," in *Proceedings of the 2015 ACM International Symposium on Wearable Computers*, ISWC '15 (New York, NY, USA: Association for Computing Machinery, 2015), 31–38, <https://doi.org/10.1145/2802083.2802088>.

⁵² ⁵³ artificial sense of taste or smell ⁵⁴ ⁵⁵ ⁵⁶, and for spatial awareness.⁵⁷ These are just a brief selection from the multitude of research on sensory augmentation.



Figure 9: Neil Harbisson, wearing s sensory augmentation device that allows the artist to sense color via vibrations and sound; portrait source: <https://thinkingheads.com/en/speakers/neil-harbisson/>.

⁵² Jon Bird et al., “Feel the Force: Using Tactile Technologies to Investigate the Extended Mind,” n.d., 4.

⁵³ Hamideh Kerdegari, Yeongmi Kim, and Tony Prescott, “Tactile Language for a Head-Mounted Sensory Augmentation Device,” in *Biomimetic and Biohybrid Systems*, ed. Stuart P. Wilson et al., Lecture Notes in Computer Science (Cham: Springer International Publishing, 2015), 359–65, https://doi.org/10.1007/978-3-319-22979-9_36.

⁵⁴ Jas Brooks et al., “Stereo-Smell via Electrical Trigeminal Stimulation,” in *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (CHI '21: CHI Conference on Human Factors in Computing Systems, Yokohama Japan: ACM, 2021), 1–13, <https://doi.org/10.1145/3411764.3445300>.

⁵⁵ Hiromi Nakamura and Homei Miyashita, “Augmented Gustation Using Electricity,” in *Proceedings of the 2nd Augmented Human International Conference on - AH '11* (the 2nd Augmented Human International Conference, Tokyo, Japan: ACM Press, 2011), 1–2, <https://doi.org/10.1145/1959826.1959860>.

⁵⁶ Hiromi Nakamura and Homei Miyashita, “Controlling Saltiness without Salt: Evaluation of Taste Change by Applying and Releasing Cathodal Current,” in *Proceedings of the 5th International Workshop on Multimedia for Cooking & Eating Activities*, CEA '13 (New York, NY, USA: Association for Computing Machinery, 2013), 9–14, <https://doi.org/10.1145/2506023.2506026>.

⁵⁷ Frank Schumann and J. Kevin O'Regan, “Sensory Augmentation: Integration of an Auditory Compass Signal into Human Perception of Space,” *Scientific Reports* 7, no. 1 (February 14, 2017): 42197, <https://doi.org/10.1038/srep42197>.

Here I would also like to focus a bit on the artistic projects that have utilized sensory augmentation to present alternate possibilities of what it means to be human. Artists like Stelarc, Steve Mann, Neil Harbisson, and Moon Ribas are examples of artists who would fall under the category of human cyborgs. I was introduced to their works quite early on and have always found the idea of the human cyborg to be fascinating and inspiring. On one hand I am hesitant to fully accept the techno-positivist perspective that one can associate with human technological augmentations, but on the other hand I relate quite a lot to their ideologies and realities.

Neil Harbisson and Moon Ribas founded the Cyborg Foundation as a research center not only for developing new technologies for sensing the world in new ways but also to serve as activists fighting for cyborg rights. In their website they write, “if we extend our senses to perceive our planet in a deeper way, our behavior and understanding towards it will probably change. We experience the world through our senses so by creating new senses our experience of reality changes and gets deeper. We believe that by creating new senses we reveal a reality that our natural senses don’t allow us to perceive. That’s why we don’t subscribe to vr (virtual reality) or ar (augmented reality); and instead aim for rr, revealed reality”⁵⁸. This desire to relate to the world in new ways via augmented senses is something I can relate to, and a lot of my work initially stemmed from a desire to learn how to experience the world

⁵⁸ “Cyborg Foundation | Promoting Cyborg Rights,” cyborgfoundation, accessed April 11, 2023, <https://www.cyborgfoundation.com>.

differently by looking at non-human modes of experience. They also seek to establish rights for cyborgs as a new identity to establish the right to agency and ownership of one's cyborg body and also to protect cyborgs against things like disassembly. It is not too difficult to imagine a future where human augmentation becomes a common practice and thus these conversations are necessary.

During my Human 2.0 class with Hugh Herr, we discussed an interesting and crucial point. He mentioned that the public is on board and supportive as long as the human augmentation or prosthesis is designed to make someone equal to "normal" as in if someone is handicapped, then as a public people are generally okay and supportive for a person to get body modifications. However, Hugh pointed out that public opinion quickly changes when the augmentation is designed to make someone "better" than "normal". Via the use of exoskeletons or implanted body modifications people can start to surpass human abilities. Currently the technology is still at its very beginning stages and can only barely match up to human ability or only slightly enhance human performance via an exoskeleton, but it is not before long where the technological enhancements will allow some humans to be significantly better or more capable at specific types of sensing and physical activities. This obviously raises ethical questions around the new social hierarchies that will emerge as a result based on who has access and who can afford to augment their bodies with the latest technologies.

On a less technological note, I think it is also important to note that humans have been participating in body modifications since ancient times. Aside from my research practice in art, I am also a professional tattoo artist and have always been interested in various forms of body modification. I wonder if

cyborgism will see a similar trajectory in history as tattooing in different cultures. For a further area of inquiry, it would be interesting to look at the cyborg modifications and cross analyze it with the history of tattoos, its cultural reception, the commercialization, the underground culture, its role in power and social hierarchy, laws and regulations, etc. I will leave this topic for another thesis and not the focus of my current work.



Figure 10: Wafaa Bilal, *3rd I*, 2011-2012, image downloaded from the artists website. <https://wafaabilal.com/thirdi/>

On a more political, poetic, and critical note, it is important to note the work of artist, Wafaa Bilal.

When we developed our sensory augmentation project, we were not aware of his work but came across the work while writing this thesis. In Bilal's project, *3rd I*, the artist surgically implanted a camera to the

back of his head and the camera took a picture every minute for a year. These photos were streamed to available for the public to witness online and at the exhibition. I find this project very powerful in its criticism of surveillance and the engagement with the public. Often his works use his body and the audience's engagement with it to produce palpable gestures of political critique.⁵⁹

My approach to the sensory augmentation project is less poignantly political, but aside from its scientific efficacy, I was interested in questioning human constructs of identity but designing a prototype that allows people to sense in ways they never have. Only to hint at the possibility of using an augmented sense to reframe our relationship to the world and our identities within it.

⁵⁹ Ania Szremksi, "A Disappearing Act: Wafaa Bilal and The 3rd I Project," *F Newsmagazine* (blog), January 27, 2011, <https://fnewsmagazine.com/2011/01/a-disappearing-act/>.

Bacterial Consent

Background:

As an artist who is interested in engaging with non-humans, I have always felt ill-equipped. I had an expectation that biology was the domain of science and as an artist, my engagement with biology often felt superficial and un-scientific. From this starting point, I decided to take an introductory class on synthetic biology at MIT, and the result of which is this project.

Many artists have historically engaged with different aspects of biology from a more artistic perspective, and that has been an inspiration to me. Some of my early inspirations come from artists involved in the land art movement. The 2001 documentary film by Thomas Riedelsheimer, *Rivers and Tides*, introduced me to the phenomenal works of Andy Goldsworthy. Goldsworthy's ability to work with nature and create poetry with natural forms is probably my earliest inspiration for being interested in biology/nature in art. Other land artists such as Walter de Maria, Michael Heizer, Ana Mendieta, and Richard Long are some of my other early inspirations for engaging with earthly materials.

Later I went on to learn more about bio art and started looking at the works of artists like Eduardo Kac, Anika Yi, Pierre Huyghe, Lynn Hershman Leeson, Joe Davis, and others working with biology from a scientific approach in collaboration with researchers.

My relationship to biology started to change from material to life during the end of my time at The Cooper Union while working on my projects, *Rootnetwork*, and *On Language*. I started to approach biology with a more scientific approach and became interested in research around biology.

To gain a more scientific understanding of how to work with biology, I decided to take an introductory synthetic biology class at MIT called How to Grow Almost Anything. It is a unique class where people from non-biology specific backgrounds are invited as students to work with some of the most innovative research in synthetic biology. The class is taught by some of the world's leading experts on synthetic biology such as George Church, Joe Jacobson, David Kong, Drew Endy, John Glass, Manu Prakash and more than a dozen guest speakers who are pioneers of various bio related fields. It was a truly unique opportunity to learn about how incredible and how complex it is to be working with DNA.

Given the context of MIT, many of the projects developed by students in the class were product driven with utility in mind. A major underlying philosophical thread unifying the projects and the research was the idea of how can use biology to do things better, cheaper, and more effectively. The research and projects are quite astounding and mind-blowing to me as an artist, and I admire the work of synthetic biologists for the diversity of innovative works people are constantly doing. However, for me, the market driven product approach did not work for two reasons:

1. My technical ability or rather lack thereof made me ill equipped to execute and carry out the product-oriented project idea I tried.⁶⁰
2. I was more interested in communicating with the organisms I was experimenting on than using them to produce some product.

During the time I developed the *Bacterial Consent* project, I was also working on the *Sensory Augmentation* project. For our experiment with human subjects, I was writing the consent form for our human subject participants. It needed to be extremely detailed and thorough for participants to have all the necessary information to make informed consent for participating in the research study. I found the stark difference to be surprising between the amount of attention I was expected to pay to the details of informed consent when working with human subjects compared to the total disregard for the consent of the other organisms that I was working with in my synthetic biology experiments. So, what I ended up doing instead is developing a consent form using DNA for the E. coli cells I was working with.

⁶⁰ My initial product idea was to use color changing bacteria to do a tattoo that would live under the skin and change color based on environmental factors as a way to create a symbiotic communication system between the human and the bacterial community and their unique non-human sensing abilities.



Figure 11: The author holding up a sample of the DNA segments in a small tube. The tube holds a single droplet containing the coded consent form in DNA fragments synthesized with the help of Twist Bioscience. Image courtesy of the author

The Project:

George Church showed the incredible potential of using DNA as a data storage mechanism.⁶¹ He makes the case that the DNA within a single cell has more storage capacity than the largest physical storage hardware available at the time. Various artists and researchers have since then used this technique to store coded information inside genetic code. Most notably, one can look at the work of

⁶¹ In this paper George Church explains the method for storing encoded data inside DNA. This is the technique I used for translating my consent form information into genetic code. George M. Church, Yuan Gao, and Sriram Kosuri, "Next-Generation Digital Information Storage in DNA," *Science* 337, no. 6102 (September 28, 2012): 1628–1628, <https://doi.org/10.1126/science.1226355>.

Joe Davis who is a research affiliate and artist working in the Church Lab, who uses DNA data storage technique to make various conceptual artworks.

I decided to write two simplified consent form that read as follows:

1.

I "WILLINGLY" AGREE TO PARTICIPATE IN THIS RESEARCH THAT WILL IRREVERSIBLY MODIFY MY ABILITY TO SURVIVE, REPLICATE, AND BE.

DURING THE PROCEDURE I MAY BE EXPOSED TO HIGHLY DISCOMFORTING EXPERIENCES SUCH AS MEMBRANE SPLITTING HIGH TEMPERATURES, ELECTRIC SHOCKS, OR LETHAL ANTIBACTERIAL POISONS. THESE RISKS ARE NECESSARY FOR A SYNTHETIC PLASMID TO BE INSERTED INTO MY BODY.

POTENTIAL BENEFITS INCLUDE GREATER PROTECTION FROM BACTERIOPHAGES AND NUTRITION FOR LIFE.

SIGNED E. COLI.

2.

I DO NOT AGREE TO PARTICIPATE IN THIS RESEARCH THAT WILL IRREVERSIBLY MODIFY MY ABILITY TO SURVIVE, REPLICATE AND BE.

DURING THE PROCEDURE I MAY BE EXPOSED TO HIGHLY DISCOMFORTING EXPERIENCES SUCH AS MEMBRANE SPLITTING HIGH TEMPERATURES, ELECTRIC SHOCKS, OR LETHAL ANTIBACTERIAL POISONS. THESE RISKS ARE NECESSARY FOR A SYNTHETIC PLASMID TO BE INSERTED INTO MY BODY.

POTENTIAL BENEFITS INCLUDE GREATER PROTECTION FROM BACTERIOPHAGES AND NUTRITION FOR LIFE.

SIGNED E. COLI.

I translated these consent forms into genetic code using the George Church method ⁶² and then used custom designed plasmids (DNA carriers of sorts) containing each of these forms and inserted them into *E. coli* cells. The plasmids also contained proteins that either fluoresced green or red based on which consent form it was attached to, and I used this information as a simple visual signifier to know which bacterial colony contained which consent form.

I have no reason to believe that the bacteria had any degree of informed consent during my synthetic biology experiment. However, it is important to note that the reason bacteria did not have the ability to make informed consent is not because the bacteria is unable to consent but rather because my technique and approach makes it highly unlikely, if not absolutely absurd, for the bacteria to be able to understand the content of my language to be able to consent in any way, shape, or form. Secondly, the plasmid I designed also had an antibiotic resistant gene embedded into it which made sure that the only bacteria that could survive were the ones containing the consent form after the DNA modification experiment was complete. All other bacteria were killed either during the transformation process or after, when introduced into the growth medium containing specific ampicillin antibiotic.

⁶² Simply put, the words are first translated into ASCII binary codes, then the binary code is translated into DNA by assigning a random order of A/C to represent 1, and T/G to represent 0. The randomization is necessary to prevent errors during the genetic modification. Please refer to George's paper for a more in-depth description of the method he developed. George M. Church, Yuan Gao, and Sriram Kosuri, "Next-Generation Digital Information Storage in DNA," *Science* 337, no. 6102 (September 28, 2012): 1628–1628, <https://doi.org/10.1126/science.1226355>.

If a similar technique was used to encode information with various layers of translation and then embedded within our body, it would be utterly impractical to imagine that the person would be able to decipher the message without access to the same tools and coded languages that was used to encode the information in the first place. I do not think the bacteria in my experiment had any agency over consenting to the process, not because the bacteria do not have agency but rather because of my redundant and highly human centric linguistic approach in attempting to communicate. Thus, the project is a conceptual work of art more for human contemplation than it is for the bacteria to decide based on information it can understand. Our understanding of bacterial communication at the individual bacterium level is quite limited and to my knowledge, I am not aware of many projects that attempt to communicate with individual bacterium. Few projects that explore similar topics include Jenna Sutela's *Nimiia Seti*, Joe Davis's *Bacterial Radio*, or the scientific work of Tal Danino⁶³, and Luis Cobo⁶⁴ around bacterial communication in nanonetworks. One might question whether consent is an individual act or a collective act since researchers have a greater understanding of how quorum sensing works in bacteria than how individual decision making takes place at the microbial scale.

⁶³ Candice R. Gurbatri, Nicholas Arpaia, and Tal Danino, "Engineering Bacteria as Interactive Cancer Therapies," *Science* 378, no. 6622 (November 25, 2022): 858–64, <https://doi.org/10.1126/science.add9667>.

⁶⁴ Luis C. Cobo and Ian F. Akyildiz, "Bacteria-Based Communication in Nanonetworks," *Nano Communication Networks* 1, no. 4 (December 1, 2010): 244–56, <https://doi.org/10.1016/j.nancom.2010.12.002>.

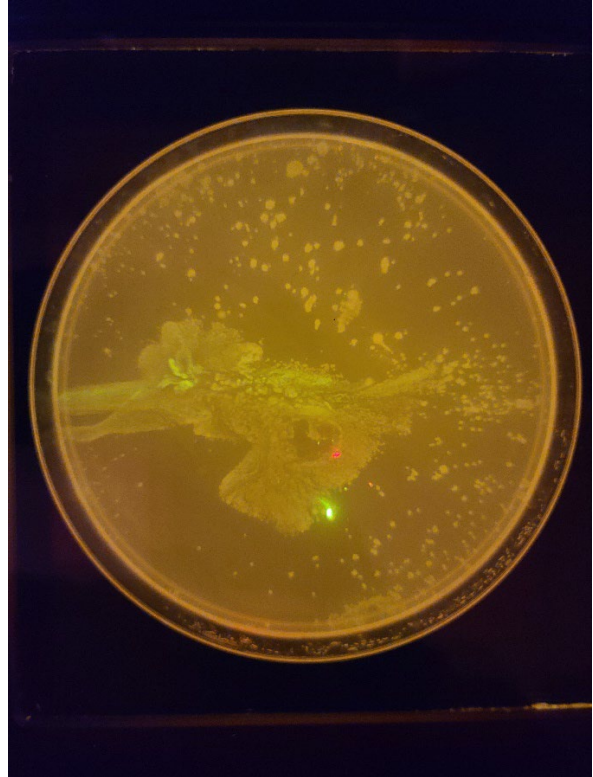


Figure 12: An image of a petri dish documented inside an UV transilluminator. It shows the first growth of the genetically transformed *E. coli* colonies containing either consent or dissent form as visualized by their fluorescent gene expressions. Image courtesy of the author.

My project aims to highlight some of the complexities and difficulties with communication, language, agency, and human-non-human relationships when doing research and engaging with others. I intentionally use the broad category of other here because in a lot of my work I am interested in exploring spaces in which we create categories of separation to distinguish us and them and question the implications of creating such separations while exploring alternative possibilities of relating. This project also highlights the limitations of my ability to relate to non-humans using human centered language systems and invite discussion and contemplation around alternate forms of communication and relation that might open the doors for cross species communication, or at least cross-species empathy.

Precedents and Artistic References:

In the context of bio art using synthetic biology to engineer non-human organisms for the sake of art the first reference that one often thinks of is the *GFP Bunny* by Eduardo Kac.⁶⁵ In 2000, Kac coined the term transgenic art which set the stage for genetic modification of organisms to occur outside the context of molecular biology and within the context of culture and art. In only 23 years, it is astounding to see how accessible it has become to do synthetic biology experiments for incorporating fluorescent proteins into organisms. A good reference to understand the current cultural dialogue around synthetic biology is the 2019 Netflix docuseries, *Unnatural Selection*. I am using a similar strategy in my project but for a different purpose. My work not only questions the ethics of altering non-human organisms but more specifically questions the agency of the other organism in having consent and choice in that process.

In regard to DNA data storage based artistic projects, Joe Davis can be considered the most well-known, established, and pioneering in this respect since he and George Church have been working closely since the beginning of the development of this technique. Joe has worked on a great variety of projects that utilize this technique of DNA data storage to make conceptual works of art. Other noteworthy artists working with DNA include Heather Dewey-Hagborg and her project *Stranger Visions*, and Marta de Menezes and her work *Nature?*

⁶⁵ Eduardo Kac, "GFP Bunny Timeline," KAC, 2000, https://www.ekac.org/gfpbunny_essay.html.

Though not working with genetic modification, Jenna Sutela's *Nimbia Seti* proposes an interesting reference to human-bacterial communication. She worked with researchers at google to algorithmically translate bacterial movements into notations reminiscent of a language. I appreciate this work because it posits the agency of the bacterial colony as an intelligent species capable of using language. Her project also creates the interesting experience for the human viewer to be unable to decipher a language as opposed to attempting to train another organism to interpret and express the human language.⁶⁶

My work uses similar techniques and engages in some of the similar concerns around synthetic biology, natural vs artificial, language and communication, but most importantly my project attempts to ask the question of consent from the perspective of a single cell organism using coded language that the organism has no access to. So what? It is designed to question and offer a point of reflection for considering the tools and technologies that are used to define and categorize agential identities for others in various contexts of imbalanced power structures.

⁶⁶ One can think here of the work undertaken by John C. Lilly where he attempted to teach bottleneck dolphins how to use the human alphabets, in comparison what Jenna Sutela's work offers is the possibility of humans trying to learn the language of another species rather than forcing them to learn the human language.

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Poetics of Inquiry: How to Stay with Trouble

Project Acknowledgements:

I would like to take a moment to acknowledge my fellow collaborators who helped make this exhibition possible. Anna Romanov is a peer and researcher who became a primary scientific collaborator and philosophical thought partner who helped communicate and give form to some of the key projects I presented in the exhibition. Chiarina Chen is an independent curator who helped in curating the show as a conversational partner by framing the different projects and ideas into a dialogue with one another and with other works in contemporary culture. Weihang Jiang is a filmmaker, ACT alum, and friend who helped as a videographer by documenting some of the performances and the exhibition. Kaijie Chen is a designer and my partner who helped design the poster and outreach material for publicizing the exhibition as well as helped with the exhibition design.

Background:

I set up the exhibition as an experiment. Taking a transdisciplinary approach, the exhibit unfolded itself into an experiment in form. I combined the logic of a lab, an exhibition, and a performance space to explore epistemic ideas around human-non-human relations.

My goal for designing this exhibition was to create a context in which unusual conversations can take place. Conversations around philosophical topics that do not necessarily have a definitive or correct answer that has been established in art, science, and literature. Questions such as what does it mean for one to be conscious? How can one determine the consciousness of another? Who has the agency to make choices? What are the responsibilities of humans in engaging non-humans in research, art, and science? What is the role of subjectivity in science and so on...

I situated myself within the exhibition as a non-expert and invited my guests to engage me in discussions and open-ended conversations which in turn became the material of my research. I am very

much interested in the idea of conversation and interviews as a form of research and art. Projects by Leslie Thornton and Lynn Hershman Leeson come to mind as immediate references.⁶⁷

The core project in this thesis exhibition started as an open-ended collaboration with a PhD student at MIT, Anna Romanov. We were both a part of an experimental class by Tobias Putrih that brought together artists and scientists from MIT to think together around the topic of nanotechnology. It was a joint venture between ACT (the Art, Culture, and Technology program at MIT) and MIT Nano department. I had been a part of this class since its first iteration in 2021, but it was in the year 2022 that this class truly started to become something quite interesting for my research and inquiry at MIT.

During the second iteration of the class, we had equal parts scientists and equal part artists in the class and thus making it a much more balanced conversation around art and science. As a starting point of building common ground, we started to establish terminologies that are common between artistic and scientific research to better understand how our different backgrounds and interests overlap. I found this process deeply illuminating as both the artists and scientists in the class started to realize how ill-defined our terms were and how much we took as granted within our respective fields without

⁶⁷ Leslie Thornton's exhibition at the list visual art center had a video piece titled *Ground, 2020*, and it showcased an interview with a physicist and for me this video became an early reference to thinking about art and science collaboration through the lens of interviews. Later I learned about the works of Lynn Hershman Leeson and her documentary *Strange Culture* and her 2014 installation *The Infinity Engine* became reference points for thinking deeply about art and science collaboration within the context of bio sciences.

philosophically questioning the axioms and fundamental elements that we grounded our research upon.

Anna and I connected when discussing about the countless variables that go undocumented within the context of a bio lab. Primarily we started discussing the ambiance of the space and its variables such as machine sounds, humidity, light fluctuations, temperature fluctuations, human activities and other peripheral variables that are constantly shifting in a lab setting. As an initial experiment we decided that I would go into Anna's lab and document her research process on a simple protocol. The protocol in question was less relevant as the goal was more focused around simply going in to observe her work in her space without having a targeted hypothesis that we were trying to analyze. I took a 350 camera and situated the camera over the work area she was working in to capture the space from the perspective and viewpoint of that of the sample she was working on. Aside from the 360 VR camera that was supposed to take in every in the lab space with an unbiased perspective, I also had a video camera with a telephoto lens that was designed to capture a very specific and localized gaze.

During our documentation process I began to engage her in a conversation around various topics from the mundane of the day to day to the ethics of doing animal research and this conversation became the starting point for our future collaborations that culminated into the final presentation of the work in my thesis show.

Exhibition Design:

The exhibition contained 3 wall based works, 2 projections, and one ground installation. Together they set the stage for the one on one performance experiments that took place during the duration of the exhibition. I will first create a visual walk through of the exhibition using text and I hope it will help create a reference point for understanding how the exhibition was laid out. At the end of this segment, there are a collection of photos that help illustrate the components within the space better.

I installed the exhibition in a non-traditional space, the basement of the List Visual Art center building, in the ACT gallery. The space had dark grey walls and was divided into two rooms partitioned by sliding glass doors. When walking into the exhibition, one encountered a darkened room filled with dim orange and purple lights. On the ground there was a large installation consisting of a moss floor and 4 semi-large plants that protruded from the moss in mounds contained within a square shape approximately, 36 square meters in size. Inside the center of the square moss ground was a negative space in the shape of a circle with a seating area where performances took place (*Figure 13*).

On the right side wall of the gallery there were two light boxes showcasing the *Bacterial Consent* project (*Figure 14*). On the back wall there were a series of 6 photographic prints on panels depicting images of dead mice squashed onto streets, each of the panel also had green health check cards collaged on top of the photograph that listed out various conditions and diagnosis for mice in a lab (*Figure 15*).

Next to these photographic prints were a line of small mice cards from the vendor, JAX lab, who

provides mice for majority of lab research dealing with mice within the US. These mice cards were taken from the archive of my scientific collaborator for this exhibition, Anna Romanov, and displayed alongside photographs I had taken and projects I had made.

There were also two screens, one representing an old school classroom pull-down projection screen and the other pinned to the wall for a wall projection. The wall projection changed throughout the exhibition based on participant interaction. During studies with one on one performances, the screen would display my live research notes as I notated the events during the participant study. When there was no active participant study underway, the wall screen displayed a recording of Anna's handwritten journal entry where she contemplates her relationship with death, biology, and animal research.

The pull-down projection screen remained consistent throughout the exhibition and presented a video of Anna working in her lab while I was there documenting her during our initial collaborative experiment (*Figure 16*). The video is depicted as a 360 sphere that slowly rotates in a drone-like motion. On the bottom of the video, there are transcription of my notes with time stamps that reveal my thoughts and notes from the time of the documentation.

Lastly, in the backroom there were 4 photographic prints cast in resin. The images depicted a scaled comparison between the cell membrane / the human skin surface, and a colony of bacteria / a colony of humans. These images came from the photographic prints from *Dear Other* and the bacterial growth within the images were completely sealed under cast resin (*Figure 17*).

The lights in the space changed in cycles of 1.5 hour, the purple grow lights for the plants would turn off every 1.5 hour leaving the room barely illuminated by the orange lights from the back room for the next 1.5 hour. This new rhythm became the circadian rhythm for the exhibition both for my plants, myself, and the participants who engaged in the performative experiments.

Below are a series of images showing some of the components of the exhibition.

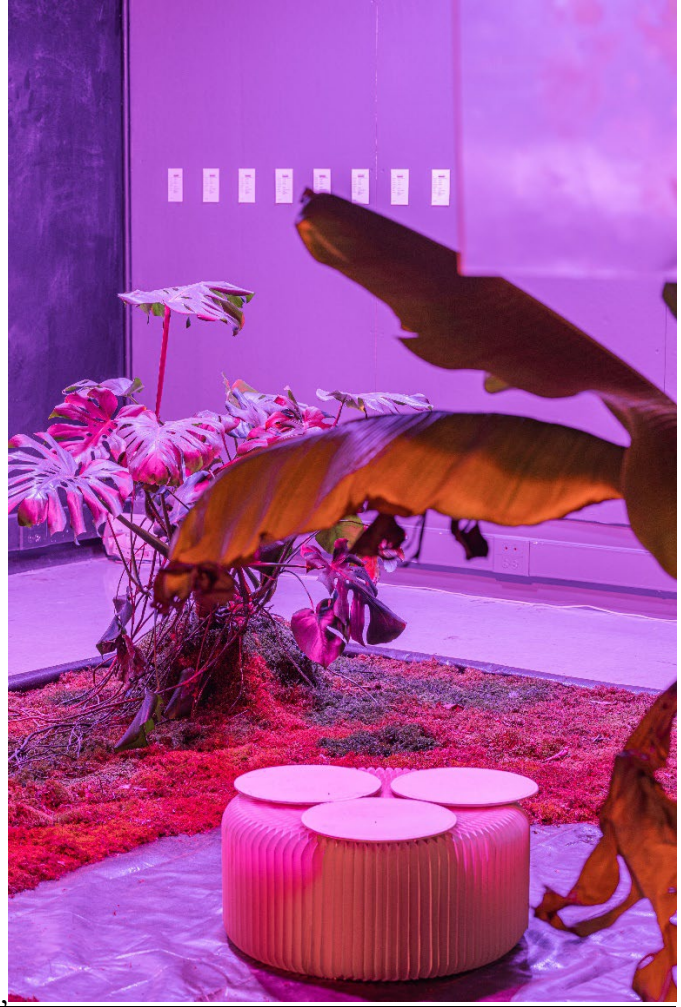


Figure 13: Installation detail from Poetics of Inquiry exhibition. Photograph courtesy of the author.



Figure 14: Bacterial Consent presented as lightboxes within the context of the exhibition. Photo courtesy of the author.



Figure 15: Close-up detail of the 6 photographic prints of found dead mice. Photo courtesy of the author



Figure 16: Video projection of a 360-video document from Anna's lab. Photo courtesy of the author.



Figure 17: Back room with resin coated photographic images. The artworks contain encased bacterial colonies within the image-resin layer. Photo courtesy of the author

One on One Performance Experiments:

Previously I performed a formal scientific study with a group of researchers for the *Sensory Augmentation* project in the exact same room/space (the ACT gallery). At that time the space was not operating as a gallery, so we used it as a space to carry out our human subject trials. For my exhibition I became interested in co-opting the space and form of research for doing artistic research within the context of an exhibition instead. I decided to curate a series of one-on-one performances in the guise of a human subject research study. Through my gesture I attempted to question the limitations of a desire to control environment for the sake of objectivity, and explored realms of subjectivity, chance, and variability in performing research via guided experiences.

In total 15 people signed up to participate in the study/performance, and each performance lasted approximately 1.25 hours.

Pre-Experience:

Participants were recruited through a poster blast across campus that announced the exhibition and shared a QR code for the one-on-one performances. As individuals scanned the QR codes, they were led to a webpage containing a consent form, a sign-up calendar, and a brief description of what one might experience by participating in the experimental performance. The online consent form explained in simple terms that there are depictions of dead organisms (mice and bacteria) within the

exhibition, topics of death are explored within the exhibition, that the participant's interaction may be recorded for the purpose of project documentation, and that some of the guided experiences may cause discomfort based on the content and subject matter explored in the guided meditations. It also shared my contact information and provided further clarification on anything presented if someone wanted to inquire about additional details regarding comments, questions, or concerns.

At the end of the consent form there was a questionnaire that asked the individuals to self-identify using 3 to 4 words, choose a chapter from 4 chapters relating to the exhibit, and share any comments, concerns, or questions. Personally, I do not think it is fair to force people to categorize themselves by standardized demographics such as race, gender, age and so on. As an alternative, I simply asked individuals to identify themselves with 3 to 4 words. Out of 15 participants only 1 person chose to self-identify with a gender, and 2 participants identified themselves by race. Most individuals self-identified with a range of terms that freely related to qualities about themselves that they found relevant to express as a representation of their identity. It is also important to note that out of 54 words chosen by 15 individuals, there were no words that repeated in individual's self-identification.

The Experience:

There was a simple overarching score for the guided experience, but a vast majority of the experience was improvised to fit the moment and the organism being guided through a temporal field of ever-changing variables. The general score of the performance is depicted below:

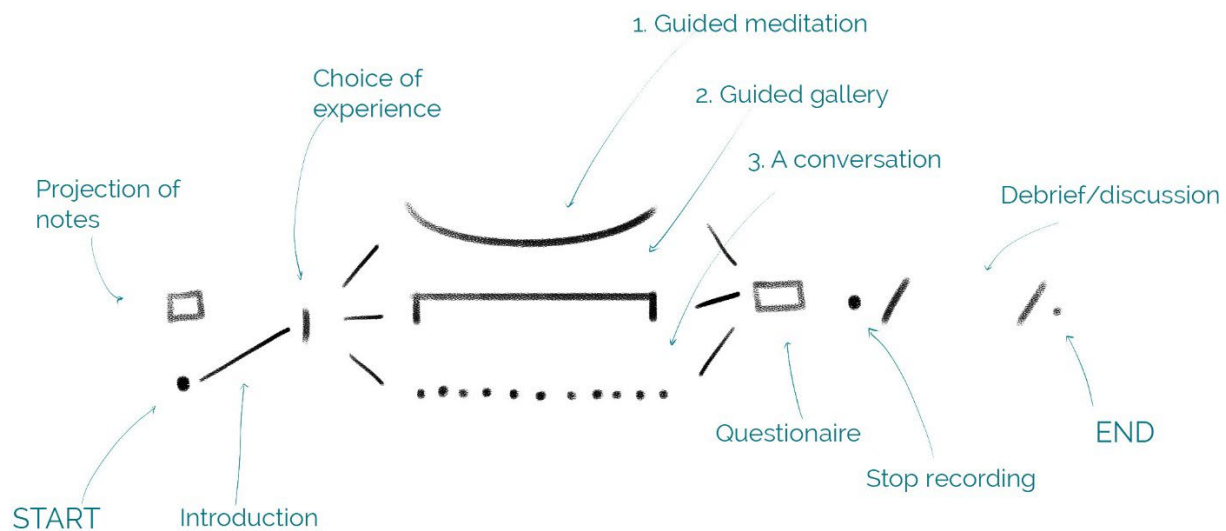


Figure 18: A diagram illustrating the general trajectory of the one-on-one performance experiments as a graphic score. Diagram courtesy of the author.

I often use improvisation in my work because it allows me to adapt and respond to changes as it occurs. In a counter perspective to a controlled environment where everything is expected to remain the same, I approach my artistic practice from the mindset that all things are always in flux and thus it makes no sense for me to create a work of art without a context. Thus, the majority of my work is site specific and when it comes to performances in time, I take an improvisational approach. Overall, there are themes, intensities, and energies I wish to convey through my work, but the precise delivery is less scripted in advance and is a more rule based responsive system of sorts. For example, after filling out the consent form and going over introductory details and an explanation of the exhibition/performance/experiment, I would offer my participants a choice. The participants could

choose between 3 avenues of experience with the awareness and the clear understanding that we are heading into the unknown. The choices would simply choose the mode of travel but not the destination. I expressed quite clearly to everyone that the journey we take together will be one that is not pre-determined and that it would require a collaborative process as we venture into an unknown together.

The paths one could choose for the performances included: a guided meditation, a blind guided gallery tour, and a text-based conversation. 9 out of 13 people experienced the one-on-one performance as a guided meditation. 2 out 13 experienced it through a blind guided tour and 2 out of 13 experienced it via a conversation.

Guided Meditations:

I chose to offer guided meditations as a form of experience for multiple reasons. Firstly, as a performative gesture I have been told that I am good at guiding people through meditative spaces. My experience comes from practicing meditation from a young age and also from guiding 100s of individuals through their tattoo journeys. However, it's important to clarify that the performance I did was less a guided meditation and more a guided visualization. The meditation element is essential for the participant to be in a trance like state which allows for the freedom to experience reality in ways that their fully conscious mind would otherwise obstruct. I find the meditative state to be helpful for allowing the visual suggestions to become more vivid and immersive in the mind's eye of the participant.⁶⁸

⁶⁸ It is important to note here that this mode of guiding someone through visualization is not optimized for people with Aphantasia. Aphantasia is the perceptual state where an individual has no visual imagination capacity but is able to process information as a non-visual experience. I would love to do further research with individuals with Aphantasia to understand how to translate the guided visualization experiences for them.



Figure 19: A series of different participants engaging with the guided meditation during their experiences. Figure represents edited image stills from Weihan Jiang's video documentation of the exhibition experiences.

For the performance I would go through a simple ritual of asking the participant to take a seat and get comfortable within the moss installation. They could sit on the chair, sit on the floor, or lay down. In general, I would try to suggest a laying position as it requires the least effort to maintain over a long meditative experience, but many people chose to take a seated position as well. Once they were seated or laying down comfortably, I would take about 5 minutes to water the moss slowly and systematically with a mist of water coming from a garden hose. The sound of the hose and the aroma of the wet moss paired with my meditative suggestions helped the participants get into an altered state. This ritual served as a transition point. In many exhibitions, audience members are asked to take off their shoes or put on a cover over their shoes before entering, or an individual might be asked to wear gloves before touching something, a researcher is asked to gown up before entering a clean room, a surgeon needs to thoroughly wash their hands and is gowned by a nurse before performing surgery... all of these moments of transition serve to separate a space from the everyday into a ritualized space. For me the use of ritualized entry into space is very interesting and essential as the first layer of shedding associations with oneself and their momentary existence. It allows for one to slowly go deeper and deeper into a state of reflection and openness that I need for the performances to be successful. Signing the consent form online is arguably the start of preparation for entry into a different headspace.

Once they are settled in and I have misted the moss, I would go take a seat across from the participant or lay down on the moss myself and start the guided journey into ethereal possibilities. Each performance had completely different and individualized narratives that I improvised on the spot based on environmental variables such as changes in lights, sounds, moods, participants, energies,

actions, comments, suggestions, smells, temperature, etc. In general, I would work towards having the participant become relaxed and once relaxed with slow breathing and muscle relaxation suggestions, I would have the participant embody a non-human form, I would first take them to a different space and illustrate it with my words for them to visualize and once immersed within that space, I would ask them to embody a different organism. Participants have embodied a wide variety of organisms and entities during the performances ranging from a potato, an eagle, a snake, a fossil, a cell, a subatomic agent, a butterfly, space, nothingness...

I would guide the person through different modalities of experience, if they were an organism that can move, then I would move them and transition them between different organisms and forms that allows for new ways of travel and exploration into different spaces. If they chose a static identity, then I would change the environment around them and change themselves via the changing environment. All through the process, every now and then I would invite the participant to make choices. To choose whether they wish to fly or stay on the ground, to melt or to stay firm, to go in or take a turn, to eat another creature or to let it be, and so on. I've found that offering choices through the experience does two things, it individualizes the experience for the participant, so they feel agency in the experience, and secondly, it allows me to check in and get a feel for where they are within their imagination and headspace.

The meditation experience continued for about 1 hour during which I guided them through different bodies until they were open enough to experience a non-bodied reality. My interest in getting someone to experience a non-bodied reality was to imagine what sort of affordances become available when we

can think consciously without the physical, cultural, and societal assumptions and expectations of reality. This metaphysical space of conscious awareness allows one to question and reimagine some of the foundational beliefs that have been constructed over centuries and reimagine reality from a porous, open, and subjective space. The meditative non bodied state is perhaps one of the most subjective spaces a conscious entity can experience and through my performances, I tried to guide people into this state as a reference point for relating to the works and ideas in the exhibitions.

Guided Gallery Tours:

Aside from guided meditations, the participants were also welcome to choose the gallery tour as an option. For gallery tours, I would ask the participants to close their eyes and put a hand on my shoulder and then walk them outside to the entry of the exhibition. When I was younger, I experienced a show called “Dialogue in the Dark” it was an immersive experience in the dark where the audience was led through different rooms and scenarios and the audience members had to imagine the visual world through sound, touch and smell. The tours guiding the audience were visually impaired people and this experience is one of my most cherished experiences of experiencing art (even though the exhibit was not designed to be an art exhibit). The experience taught me to hear for the first time in my life and I was already 17 years of age at the time. Since then, I have never “looked” at sound the same way. The world of sound opened up for me and I could see through sound... I could experience sound. This experience set off a long-term meditation and exploration of sounds. I would not say I am

musically inclined or even care about a lot of composed melodies and sonic aesthetics, but I absolutely love room noise, street noise, the sound of space.

In filmic sound design sound is broken down into multiple categories of tracks such as voice, music, sfx, and atmospheric/room noise. Room noise is the sound that creates space and in thinking about sound, I always start from the room noise. Tangent aside, I think it is important to note another influence of mine here. Janet Cardiff and George Bures Miller's 2004 sound walk piece, *Her Long Black Hair*, in central park has been a major artistic reference in my practice.



Figure 20: Janet Cardiff and George Bures Miller 2004 public art commission, *Her Long Black Hair*, 2004, Image source: <https://cardiffmiller.com/walks/her-long-black-hair/>

← Backstep

The guided gallery walks, I would ask participants to close their eyes and take my shoulder ⁶⁹and I would take them on a guided walk with me through the gallery but first I would take them outside so that they had the choice of whether they wanted to go into the gallery or go somewhere else. Out of the two participants who chose the gallery tour, one chose to go in immediately and the other chose to go somewhere else.

Where would you go? Please jump to the section that best matches your choice:

Gallery:

Somewhere else:

[Please Jump to the Appropriate Segment →](#)

⁶⁹ A reference to Lundahl and Seidl work presented at ACT that I experienced first hand in 2022. The Memor 2019 – 2022, part of the eternal return series, and Symphony of a missing room 2009 – ongoing, experienced September 20th 2022. “Lundahl & Seidl | A Language of What May Not Be Said – Art, Culture, and Technology (ACT).” Accessed May 2, 2023. <https://act.mit.edu/event/lundahl-seidl-a-language-of-what-may-not-be-said/>.

Gallery:

I guided the person (organism)⁷⁰ into the gallery and explained the colors, the temperature of the light, the things on the walls, the text, the floor, the ceiling. Instead of focusing on the artwork, I started to describe the space in great detail such as the texture of the tiles on the floor, the dirty bump in the shape of a circle with a cross inside it, the thin line separating the gridded tiles and so on. I would explain the entire space and its nuanced details as though the whole space was the work of art and not just the objects on the wall. Art to me is enmeshed with reality and I often fight against object-based art. To me art is process, time, and energy based and the overabundance of object-based artworks in the world makes me extremely frustrated. There are rare instances when an object of art resonates in ways where it transcends its objecthood and can become something highly charged and sublime. However, I have often struggled in creating meaningful works of art that express my perspective of reality in an objectified form. So, over the years I have transitioned from paintings, to sculpture, to video and sound, to performance, to research, and to meditation and onwards. There is often some physical component to my work, but they are documents and artefacts and not the work itself. When I asked Tehching Hsieh about his relationship to the documentation of the performance, he assured me that the document is only the document. It is not the performance. It serves to circulate and provide

⁷⁰ The participants were labeled as organisms during their participation in order to associate them with lab subjects and also to allow for the possibility of a less human identity to take shape.

context, but it is not to replace the performance. To me the object in some sense is a document of art and not the art itself. Art operates elsewhere and where? I do not know ⁷¹

← Backstep

I guided the participants through the gallery not only describing the space but also the artwork and offering choices of whether they would like me to read out the texts when encountering texts or not. I would sometimes read out snippets of texts from the videos of the photographic work, and sometimes read out the full text if highly relevant such as in the case of *Bacterial Consent*. As I explained the projects I would also chime in criticism of the work, its shortcomings such as my voyeurism of the dead mice and the ethics behind presenting the images, I would explain each image in great detail from a formal, narrative, and philosophical angle and then I would guide them along to the next work. A simple 15-meter walk took over one hour, I used the gaze of foraging when guiding someone through space. When foraging for mushrooms, one gets to see how much detail and nuance is hidden in the forest floor and simply walking half a mile can easily take a couple of hours if one is not trying to reach a particular target or a destination. Thus, in a sense for the guided gallery walks, I would go foraging for points of interest that caught my attention and reveal that to the participant, inviting them to experience the space through my “eyes.”

⁷¹ Bartheleme, Donald. “Not Knowing.” *Not Knowing: The Essays and Interviews of Donald Bartheleme*. Ed. Kim Herzinger. New York: Random House, 1997

Somewhere Else:



Figure 21: a photo montage depicting a scene from the guided tour that went outside the context of the gallery. Figure represents edited image stills taken from Weihan Jiang's video documentation of the exhibition experiences.



Figure 22: the tour ended back inside the gallery after a 1 hour walk outside, photo stills extracted from a video by Weihan Jiang documenting the one-on-one experiences.

On the other hand, the participants also had the choice to go somewhere else, somewhere that is not the gallery and in turn they would gain me, the artist, as a guide navigating a space that is unknown. One of the participants chose to go somewhere else and I was surprised but excited to explore something other than the works and the context of my own exhibit. Through her choice a space beyond the walls of the exhibit became part of the project and I am genuinely grateful for her choice to go elsewhere. Weihan Jiang, my friend who has been helping me document some of the performances, was set up inside with his camera and to his surprise the participant and I had started to wander off away from the gallery towards the door leading to the street. He scrambled behind us as the

participant, and I chose to leave the bounds of the building that house the gallery and we found ourselves walking on the sidewalk next to some dried leaves from winter mixed in with new blooms of spring. The air was chilly, the sky cloudy, and instead of attending to the works in the gallery I started to verbally describe to her the cracks in the concrete, the stain of water running down the walls, the old lichen that clung on waiting for spring. I would walk her to each threshold of elevation change and guide her to step, over a curb, up the steps, into the mulch, through the thicket. I led at times and then at times let her lead me through her other sensations, tracking down sounds and smells in the distance. All the while taking the time to stop, reflect, and relate. Relate to the plastic bag trapped in the branches that shows signs of being there for years as it crumbles away into the torn robe of a saint of the dead or relate to the young plants with its bell rustling in the wind. 2486 a dog tag with a number nailed into the core of its being.

By inviting the participant to navigate, interact, and question her sense of knowing created a sense of play, a trust, a wonder that we used to navigate the block around the exhibit until I slowly guided her back to the gallery through a meandering back route and give her a quick rush tour of the works in the show and had her come to the end of the exhibit in the back room where I asked her to open her eyes and meet the moth that had come in.



Figure 23: The moth that found its way into the exhibition and became a part of the space by its own choice. Aside from the moth, other small insects also emerged as the exhibition went on such as a centipede and a ladybug. Photo courtesy of the author.

A Conversation:

A couple of the participants chose the route of a conversation. The conversation as performance, the conversation as art. I find that people are fairly conscious of being documented in the beginning of a conversation but with time if the topic of conversation is interesting enough, they tend to forget or get accustomed to the novelty of being recorded for a conversation. The participants also become the performers in my pieces. They are very much aware of being recorded as I make a clear point to reveal the cameras and the recording devices in the room so that they can be aware of being recorded. Aside from consent for documentation, my emphasis on the recording components is also an invitation to perform. You are being documented right now, what role will you play?

24-hour Performance:

I discovered a secret door in the gallery when planning my exhibition *Poetics of Inquiry* and decided to do a 24-hour long performance within it.

When creating an installation or a spatial performance, I find myself embedding myself into the site often as a way of doing research. A way of learning the logic and the nuances of the particular site that I am engaging in. Site specificity is very crucial to my practice. Some of my early inspirations come from earth artists such as Andy Goldsworthy, Walter De Maria, Jean, and Christo Claude, Richard Long, Anna Mendieta, and many others. These artists and authors like Rosalind Krauss helped me open my understanding to imagine art outside the context of a canvas or a pedestal.⁷² For me, Art is always in relationship to a site, whether that site be physical or digital, spatial or cerebral, material or embodied.

I was thinking of Vito Acconci's 1972 infamous work, *Seedbed*, when I discovered the small concrete back room in the gallery. Though conceptually our work is very different, I found the idea of embedding myself within the fixture of the gallery to be an interesting proposition. I wanted to live

⁷² Rosalind Krauss in her essay "sculpture in the expanded field" writes beautifully about how sculpture in the 60s and 70s unmounted themselves from the pedestal and began to engage with space in a much freer manner. I came across her essay while taking a class on public sculpture in NY with Natasha Llorens during my undergrad at Cooper and this essay also helped me free my understanding to think about art in a more expanded sense.

Krauss, Rosalind. "Sculpture in the Expanded Field." October 8 (Spring 1979): 30-44.

within the walls for a day to get a deeper and more intimate understanding of the site that I was constructing. A lot of the attention and decision for designing individual components in my exhibition stemmed from a question around control in scientific lab spaces. Two questions haunted my thoughts while producing this exhibition.

1. What sort of knowledge do we produce when controlling the environment in artificial manners for the sake of creating a controlled variable study?
2. What does it mean to actually control an environment, as in what are things that we disregard and overlook as irrelevant when designing controlled environments?

By embedding myself within the walls of the gallery, I sought to embody and identify with the space itself. Often, I do durational performances for a similar reason, as I find that a longer duration is necessary for one to become part of the space in which the art experience is taking place, and thus blurring the lines between art and reality by a variable measure.



Figure 24: The back room in the gallery where the 24-hour performance took place. Photo courtesy of the artist

For this performance, I set up a few simple rules.

- I would enter the back room at 5:07 PM and exit the following day at 5:07 PM. The day being March 29th, which is my birthday.
- I would be fasting during the majority of the performance but had few food items with me to eat until 4AM: 1 bottle of kombucha, 1 tuna onigiri, and 1 orange.
- I would not leave the room for any reason. I had a bucket inside to collect my waste for the duration.

- I would have my phone, but it would be on Airplane mode, and I would use it primarily to take timed notes throughout the night. Notes that would be accessible within the gallery space for live interaction.

And those were all the rules I had set up before letting the performance unfold.

In my performances, I often care less about expressing a particular sentiment or a directed message but instead I think of performances as performative research. In *Being Binary*, I embodied my subjective research on identity and binary categorization of the world as embodied research. In *On Time*, I explored what it means to perform embodied time. In *I Wish to Tell You Something*, I embodied the concept of self-censorship through performative action. These prior durational and endurance-based performances set the stage for my understanding of art as embodied research. To an extent, the guided one-on-one experiences in my exhibition *Poetics of Inquiry*, were an attempt to invite my participants into experiencing a mediated state of embodied research. While in the 24-hour performance, my audience was primarily the document and the archive that I compiled over the duration of the performance.

In a durational performance, it is highly unlikely that even a single audience member would experience the entirety of the performance from start to finish and thus most people go on to experience the work through the documentation of the project. In this instance I made the document a crucial part of the performance itself. There was a computer in the main exhibition space, and it had 2 documents open at the same time. On the left it instructed the audience to engage the performer via the google doc file on the right. The google doc file was the only form of communication and interaction that the

audience had with me during the 24-hour duration of the performance. There is something sincerely beautiful about live communicating through written words on a digital platform. This form of communication allows the other person/persons to witness a more intimate look into the communicator's thought process. The pauses. The typos. The backspaces. The undo's and the edits. All of these become datapoints for understanding and relating to the one who is writing. It is often more interesting to consider what one edits in their writing than what one decides to keep. Based on these interests, I have also made sure to document the writing process for the Q and A segment in the one-on-one performances.

When there was nobody within the gallery having a conversation with me via the google doc file, I would take time stamped notes of my internal thought process. It was an attempt to create an honest and vulnerable representation of what goes on inside my mind when embodying the wall space of the gallery. One of my interests in collaborating with Anna Romanov on the project was to try and reveal the subjective layers behind science.⁷³ I would like to make the case that pure objectivity is impossible to experience and operate in separate from the fundamental experience of subjectivity. To me subjectivity and objectivity are not separate but rather seamlessly interconnected into a perfect spectrum. It is from a spectral relationship to dualities that I base my entire practice and philosophy

⁷³ I have been highly influenced by Karen Barad's writing on Agential Realism in this regard Barad, Karen. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." *Signs: Journal of Women in Culture and Society* 28, no. 3 (March 2003): 801–31. <https://doi.org/10.1086/345321>.

upon. To an extent my Art is an attempt to see what happens when trying to materialize and give form to this spectral relationship to experiential reality.

Please refer to the Appendix: Fragment 8 for a transcript of the entire 24-Hour performance document.



Figure 25: A still from the 360-degree camera documentation of the live interaction during the 24hr performance. Photo courtesy of the author

Precedents and Artistic References:

Aside from the references mentioned above, one of the most important references and precedent to the one-on-one individualized performances comes from Odyssey Works. It is a radical immersive performance art project, co-founded by Abraham Burickson and Matthew Purdon, where the performance revolves around an audience of one. They would research and study an individual for long lengths at a time and then create a highly customized experience designed to be experienced only by that one specific individual.

In 2016 I was feeling quite depressed one night on my way home from campus and was sincerely doubting whether to continue making art or not. That night I found a Brooklyn Rail newspaper on the bench, and it had a feature on the works of Odyssey Works. Reading the group's philosophy and learning more about the highly intimate and often surreal and magical experiences they would create for their audiences resonated highly with me. Since then, I have tried to embody the idea of performance for one in many aspects of my art practice such as my tattooing, my relations with people, and my one-on-one performances.

It is difficult to know where to start in sharing references, this project is so variously multilayered that there are a vast multitude of tangential connections to the works of many artists. On one hand I am thinking of Lynn Hershman Leeson's documentary *Strange Culture*, and Steve Kurtz and the Critical

Art Ensemble, while on the other hand I am thinking about Radiodress' 2017 project, MVK: Credit River Immersion.

It would be unfair to not include Marina Abramovic and her multiple projects that have laid the groundwork for me to be doing the types of performances I do. I am thinking specifically about her exhibition, *The Artist is Present*, and her 2014 project at the Serpentine Galleries titled *Blindfolds*.

These projects are a precedent to the meditative relational works I did for my one-on-one performances. However, the performance artist who has had the most significant influence over my interest in durational performance is Tehching Hsieh. His book *Out of Now: The Lifeworks of Tehching Hsieh* has been one of my most cherished inspirations. He has taught me to blur the lines between art and life to the point of “almost” non-existence. Another artist, Alan Kaprow comes to mind as artists who have used performance to blur the boundary between lived experiences and art. These are some artists and thinkers with whom I resonate.

Stephen Wright is an art theorist who also explores artistic projects that blur the boundary between everyday reality and Art. He gave a lecture during a lecture series class at Cooper Union organized by Walid Raad. During his lecture he introduced me to the work of Raivo Puusemp, an artist who became the mayor of a small town as an art project. During his lecture Stephen talked about Raivo's earlier works and his transition into conceptual art. In particular, he talked about one of Puusemp's conceptual artwork in which he would produce works by planting conceptual “idea plants”, ideas for artworks, in the minds of his peers and realize the work through his peers. He would consider the work

complete when the person he shared the idea with would carry out the project on their own terms as an exhibition or a write-up. Though I care less about somebody else producing the work or influencing someone else to produce the work for me without their awareness that they are doing so, I do value the power of individuals mind to produce ideas and experiences. In doing the one-on-one guided experiences, I utilize the ability of the individual to imagine scenarios based on my verbal descriptions. I find that using a person's own subjectivity to produce an internal vision to be one of the most intimate and direct forms of art making.

When I tell a person to imagine walking down the street of their childhood while holding a small toy in their hands. Each person's mind can produce a uniquely personal image that makes sense for the individual and nobody else. This technique works quite well within the context of a guided meditation after I have induced a trance like state for the individual to produce such dream-like imaginations.

Over time I am able to guide the person into ever more surreal experiences such as imagining subjective existence as a fossil over millions and billions of years as the layers of one's body become fossilized under pressure, and then breaking and eroding away their identity that took millions of years to make.

The deeper someone's trance, the more abstract the image I can produce with them.

Perhaps my current work is influenced by a seed of an idea that transmuted and transformed through multiple pathways to find its existence. Another reason I enjoy the blurring of life and art is because it allows one to reconsider authorship. I find the idea of an author to be incomplete and a bit dishonest,

similar to how my body is a composite of bacteria, virus, and “human”, my ideas are a composite of experiences, references, and influences that co-author not only my art but also my existence.

I am going to leave this list intentionally incomplete as I am still in the process of understanding whether what I do is art or reality.

Discussions

During a recent studio visit to Sarah Oppenheimer's studio in Long Island City, Queens, Aubrie asked her how Sarah decides when a work is complete. The studio had some in-progress works with a vastly different material touch than her highly refined architectural projects and Aubrie wanted to know if she would ever consider these prototypes to be finished work. In response Sarah said that the works are completed by outside factors such as exhibitions, commissions, or other external deadlines while the studio and its research is ongoing and never ends. Similarly, I think of this thesis as a checkpoint only determined by the time and duration of the program while my work started approximately decades ago and will continue on for decades.

Thus, instead of concluding the work, here I wish to write about what is next. Currently I have been working on a series of microscopic sculptures that are designed for bacteria to engage with. Ever since I attended a lecture by Becca Frank, where she explained that the environment in which we house zebra fish prevents the fish from displaying natural behavior such as nesting or swimming in schools. She argued that the sterile environment of research creates an artificial reality for the fish and thus they behave in ways that are a construct of the lab more so than behaving in ways that they would in their natural habitat. It led me to two branches of thought that has stayed with me ever since. The first branch has to do with questioning the knowledge that is produced by observing organisms in such

artificial contexts, how can we make assumptions about the validity of our studies when observed in lab conditions, and at what point can we ever observe nature without altering it? And secondly, if we are inevitably altering nature in order to study and engage with it, how then can we design our lab spaces and interventions with the other organism in mind as the host of the space we construct?

Meaning, what would a fish-centric aquarium look like, or in my case, what would a bacteria-centric architecture look like? Thus, I have been developing parametric 3D designed simple structures with different types of crevices to study how different bacteria engage the substrates. The idea is to try a multitude of shapes and observe bacterial growth on the substrate. It is my hope to understand bacterial preference from observational studies and then redesign environments specifically suited for the needs of each organism and their ecosystems. It is a bit of an absurdist task, and the project is technically more challenging and expensive than one might initially imagine. There are only a handful of equipment available in the world that can print 3D structures at nanoscale resolution. The process I am using is two photon polymerization which uses a laser to cure resin with incredibly high degree of precision.

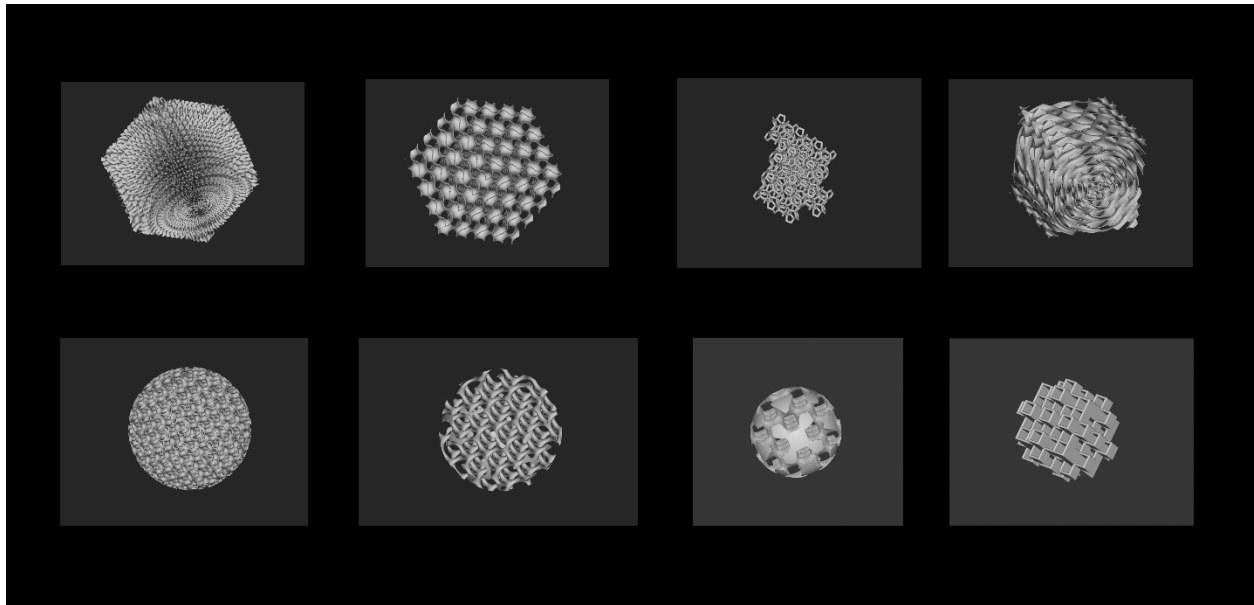


Figure 26: A series of 3D models I designed to test bacterial interaction with different types of passages and nooks. Renderings courtesy of the author.

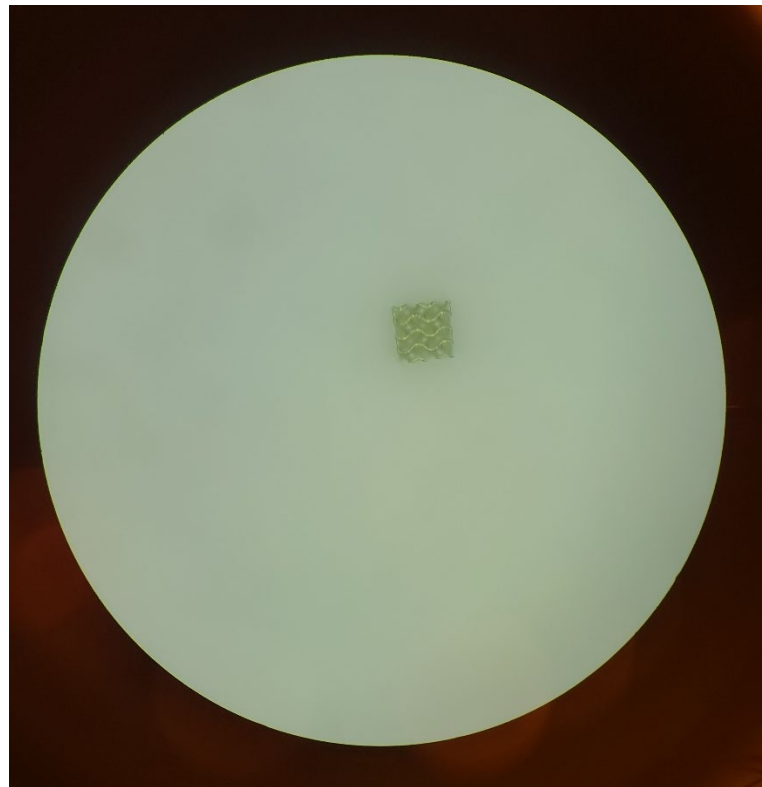


Figure 27: An early successful prototype printed at 100-micron scale, viewed under a microscope. Photo courtesy of author

The next step for me is to text out the bacterial interaction with this and other printed forms. It is a work in progress that I plan to continue over the summer.

On another note, I plan to process the thousands of data points that I generated during my thesis exhibition. I wanted to capture data in a broad and open manner using multiple cameras, 360-degree sound and video recording devices, and open-ended questionnaires because I find that the desire to have clear conclusions leads us to design experiments that are artificially restricted to produce specific results for or against the hypothesis. In scientific inquiry a hypothesis is the fundamental starting point of any proper research question, and one might argue the same to be true about artistic research. To have a hypothesis that one then tries to unpack and evaluate. However, I wonder what happens if we don't start with a hypothesis when collecting data or designing a study, to simply observe and analyze without a prior bias. It might seem obvious that it would only produce clutter or chaos or a lot of noise. However, the noise is real. As we move into the frontier of AI based thinking and knowledge production, I anticipate that it will be possible for us to parse through incredibly noisy data with a degree of precision that would be unimaginable previously. If we consider the possibility of working with incredibly noisy and cluttered datasets, then I question what sort of data we can reconsider for inclusion into the realm of mattering. What new ways will we design to collect and process subjectivity as information and datasets?

Another topic of more pressing concern is the way we categorize information, becomes increasingly an urgent topic of relevance because the algorithms we engage with are trained on very rigid definitions

and understanding of reality. For a simple please refer to figure 28 below. When asking MidJourney, a language-based image generation AI model, to imagine “a cube that is not green” it cannot look past the inclusion of the word green and produces variations of green cubes even though I explicitly asked it to imagine something not green. Computers in general are bad with ambiguity, a single error in syntax can yield incorrect, or undesirable outcomes in the end product we intend to create.



Figure 28: Image generated by MidJourney on 05/01/2023 at 4:53 AM to the prompt "a cube that is not green." Image courtesy of the author.

Subjectivity on the other hand is full of ambiguity when it needs to be translated into information that can be expressed and shared. I am not necessarily saying that subjectivity is ambiguous by default, on

the contrary, I think of subjectivity to be a very precise system of knowledge and information that operates within the conscious ecosystem of references that a given individual has. Subjective experience is made ambiguous in its translation into language, expression, and digitization when transmitted to an external source/receiver. Thus, the question of how we process and quantize, or ideally not quantize, subjective data is a crucial concern for the time we are in and the time upon which we are embarking.

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Appendix

Fragment 1: Lived Cultural Experiences

As a former volunteer teacher in Serbia, I have personal experience with the challenges of language education for refugees. One day, I remember discussing the topic with Kev⁷⁴, a fellow teacher from Germany, who believed that teaching colors in a new language were a waste of time for refugees. He argued that practical, everyday communication skills were more crucial in their constantly changing and uncertain circumstances.

I understood his perspective and the urgency of learning a language to navigate new and potentially dangerous environments. However, I felt there was something more to the importance of learning colors in a new language. I couldn't quite put my finger on it at the time, but I knew it wasn't simply because I was an artist who valued color. The value of creativity and art in refugee contexts cannot be underestimated, as seen in Azra Akšamija book, *Design to Live: Everyday Inventions from Refugee Camps*.

For me, learning the words for colors was about effective and efficient communication. Imagine shopping for a specific item in a store with limited language skills. Being able to categorize and describe items by color, shape, and other traits can greatly simplify the process of finding and communicating what you need. For example, asking for the "red one" when shopping for a jacket or pointing to a "yellow" life vest among a pile of emergency aid. Although a single category may not fully convey the desired item or concept, combining several categories can bring you closer to expressing your thoughts and needs.

Categorization is our attempt to make sense of and communicate the complex and multifaceted world around us. It is a tool that can help us efficiently express our needs and ideas, especially in challenging and unfamiliar environments.

However, there is a catch.

I understand that categories are highly effective and efficient in some contexts, but I've come to realize that they can also be problematic and devastating in others, especially when it comes to identification. The use of standardized models of categorization to communicate identity is filled with generalizations

⁷⁴ Name altered for the purpose of anonymity.

and limitations that have serious consequences for those who are identified by categories imposed by structures of power or the status quo. These categories may not even align with how they self-identify.

For example, I have seen individuals who do not identify with the gender categories that are forced upon them by external structures. Additionally, the categorization of the population can be biased and loaded with histories of systemic oppression, dogma, or stigma that have nothing to do with the individual being falsely labeled. This is especially true in the case of race, as categorization based on race has immediate effects on the power structures in place.

I remember a particularly eye-opening experience I had while walking home late at night in Jamaica, Queens. My neighborhood had a higher crime rate compared to other parts of the city, and this was reflected on rental apps like Trulia where my neighborhood appeared as the darkest shade of blue on the crime map. However, I do not mean to justify this data or its accuracy, as the categorization of neighborhoods may also be biased.

One night, I witnessed a mugging take place at a distance. Two hooded individuals were beating and robbing an older man. The whole event lasted only thirty seconds or less, and before I could even react, the muggers had taken what they wanted and were running away, with the victim chasing behind them. As they approached me, the muggers ran past while the victim stopped and desperately asked me to call the police as the muggers had taken his phone and wallet. He was deeply distraught and couldn't think clearly, having just had his entire paycheck taken. I helped him call the police and, since we were near the police station, they arrived quickly. They asked if I could help by getting in the car and assisting in tracking down the muggers. I agreed, having been mugged before and knowing the drill.

The first question the police asked me was about the race of the muggers: "Were they Black or Hispanic?" I found this question deeply disturbing, especially since it was late at night, and I could only vaguely see their faces due to the hoodies they were wearing. Trying to categorize them by race at that moment just didn't feel right. Even though the police may have had the desire to be efficient in narrowing down their target, I found their line of questioning to be problematic and unfair, regardless of the demographic statistics of the population in my neighborhood.

I described the muggers based on their clothing, height, and other physical attributes I could see in detail, which led the police to question how I knew so much. I had to explain that I am an artist with a

strong visual memory. This experience showed me how categorization can become so deeply ingrained in our lives that it can blind us to other perspectives.

The muggers were eventually caught, but when the detective asked me to come in for a lineup, I declined as I did not see their faces clearly enough to identify them. The muggers eventually confessed, so I did not need to be further involved in the case. However, this experience showed me the power of categorization and how it can become systematically ingrained in our lives.

Fragment 2: Subjectivity and Objectivity

As an artist and philosopher, I often find myself musing about the nature of subjectivity and objectivity. What are the differences between these two concepts? When I think about the experience of time, the misspelling that got corrected in the digital age, and digital word processing, I realize that we don't see the process behind the final product. There are similar elements in scientific inquiry, like a lab experiment that was falsely or incorrectly created, only to later be corrected and have no track record of it in the digital archives. Did that experiment truly exist? Of course, it did, but it raises the classic philosophical question of whether something has happened if nobody was there to observe it.

This question brings me to the parable of a tree falling in the woods. If a tree falls and doesn't make a sound, as in anybody was there to hear it, did it happen? To answer this, I need to define what it means for something to "happen." Reality exists independently of a sensing being, although the word "observer" is often used in this context. However, this word has a limiting connotation, as it implies a bias towards visual or auditory experiences. Sensing is crucial to my artistic practice [>>>HYPERLINK<<](#), as how we experience the world and connect with others who share similar sensory capacities or abilities ends up defining our kin.

Backtracking to the question of whether the tree falling in the woods happened, if nobody was there to sense it, did the tree itself sense it? This is an interesting question that relates to cellular consciousness, and why I am drawn to it as a subject of study. Can one be both pro-choice and pro-cellular consciousness? This argument is often shut down with a one-liner, but it's worth exploring further. What does it mean to be "pro-killing"? As a society, we have accepted killing in certain contexts, like war and food production, but in others, it is considered the worst of all crimes. What distinguishes acceptable killing from unacceptable killing? It seems to have to do with whose life is being taken, who is doing the killing, the purpose, and the why, when, where, and how of the act.

For example, the thought of killing someone, slaughtering them, and then eating or selling them as food is twisted and sick. But on the other hand, there is the scene from the meat processing plant, a drone camera slowly capturing our human interaction with food and matter. The layers of distinction between acceptable and unacceptable killing are complex, and I am continually exploring them in my artistic and philosophical practice.

CUE:

Samsara, 2011 (Food montage scene)

Ron Fricke

Mark Magidson

Music: Michael Stearns and Lisa Gerrard

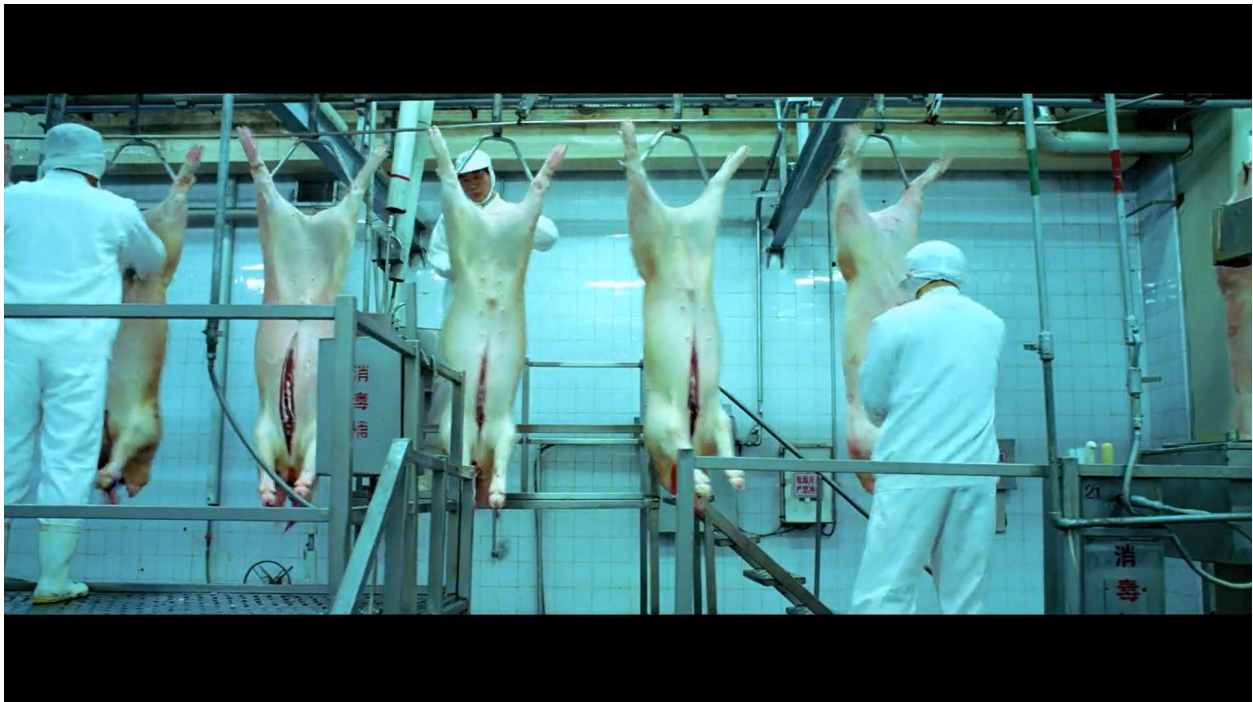


Figure 29: Two stills screenshot from a video segment of the film Samsara, link provided below. Samsara. Directed by Ron Fricke. Magidson Films, 2011. Image source: <https://vimeo.com/73234721>

<https://vimeo.com/73234721>

Difference and _____.

Each being has its unique sensory experience of the world around us, but we all share a common experience of being at the same time and space. The question arises, what is the relationship between sameness and difference? What is the universal aspect that exists independently of a perceiver who is perceiving it? Arguably, the world of mathematics exists as a universal language that can be applied across all cultures and languages, providing a common ground for understanding.

However, we must also consider the possibility that mathematics exists only as a precise language that we equate with the truth because of the way we have constructed the world. How would we falsify math? Is it possible to do so?

Do other beings in the universe perceive the world mathematically as we do? Perhaps some do. Research suggests that some organisms, such as bees and birds, may have an innate sense of geometry and can navigate through space using mathematical principles.

However, if we encounter a life form operating at a scale that humans cannot access or comprehend, would they develop a different mathematics to interpret their universe? It is fascinating to consider the possibility that there may be experiences or realities that humans can never experience or fully understand due to the limitations of our perceptions and technologies.

As an artist, I seek to design subjective experiences. While experience design is often corporatized, I seek to create experiences that are artistically, and critically motivated. I seek to use experience design via installation, performance, and immersive sensory technologies to explore unfamiliar subjectivities that help people gain a greater appreciation of the unknown and also feel invited to open up pathways for questioning the axioms and fundamental beliefs that shape one's understanding of their reality.

It is intriguing to consider what the future holds, where space travel is more readily available, and the lifespan of an individual could significantly increase. The end of the 21st century and beyond is bound to be vastly different from the world of today. In a world where we encounter other life forms, how will we engage with them?

CUE:

Montage of human-alien encounters.

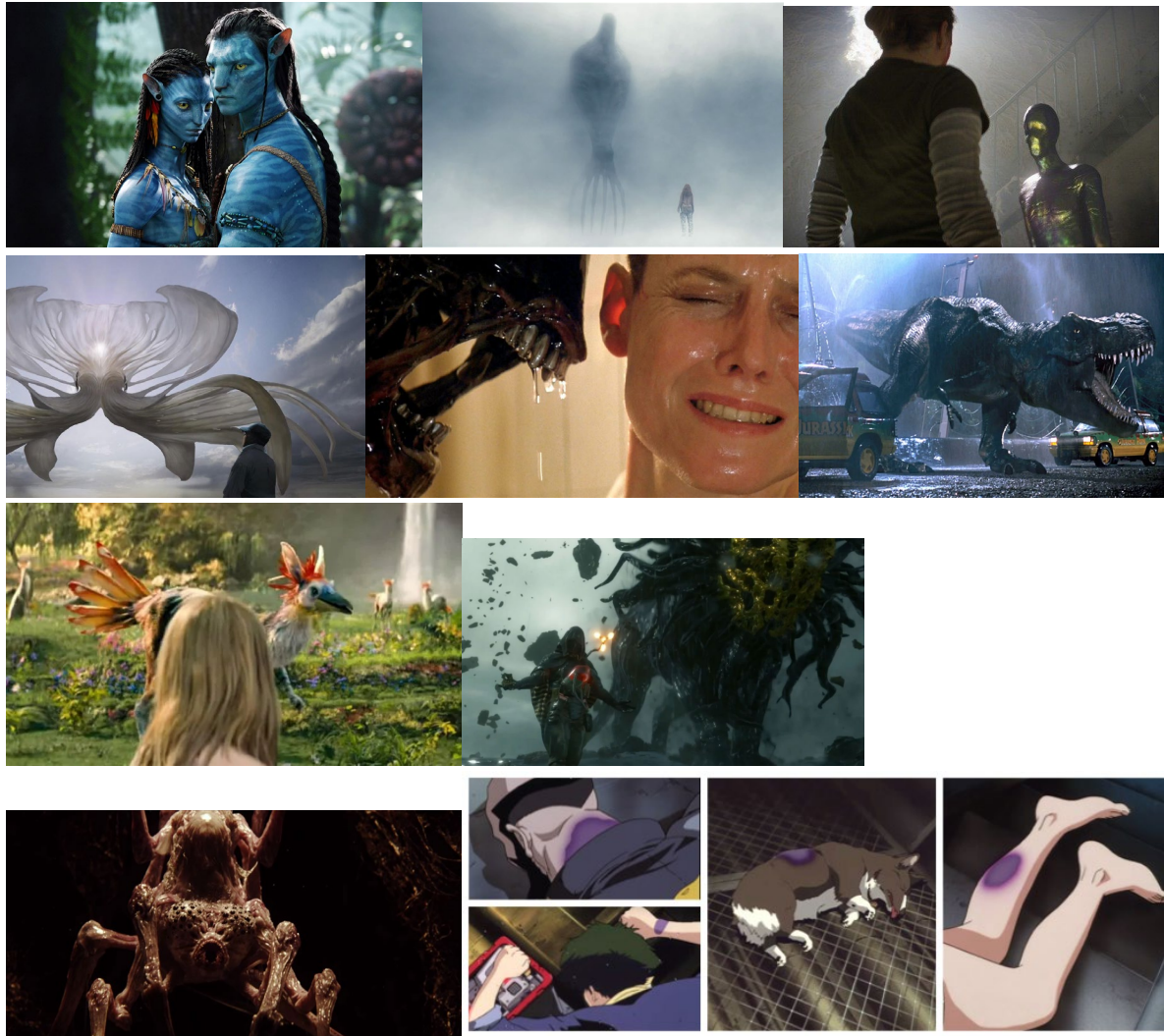


Figure 30: a montage of different alien encounters in movies, games, and animations, from left to right top to bottom. [Avatar (Cameron, 2009), Arrival (Villeneuve, 2016), Annihilation (Garland, 2018), Nope (Peele, 2022), Alien 3 (Fincher, 1992), Jurassic Park (Spielberg, 1993), Don't Look Up (McKay, 2021), Death Stranding (Kojima, 2019), Love Death Robots: Beyond the Aquila Rift (Miller, 2019), and Cowboy Bebop: Toys in the Attic (Watanabe, 1998)]

Fragment 3: How Is Truth Constructed?

In first grade, I got a glimpse into the construction of truth. Every morning, my friends and I would gather on the second floor of a nearby shopping complex to play cricket or soccer on the balcony before the bell rang for class. On rainy days, we would take refuge inside a photo studio on the same floor. One day, I was taken aback when I saw one of the technicians using a small brush and black watercolor ink to touch up a portrait of one of their clients. The technician delicately filled out some imperfections in the image, which opened my eyes to the idea that a photograph isn't always a faithful representation of reality. I used to believe that a photo was a representation of truth, but seeing the technician go in and edit a photo made me realize that there is a behind the scenes where truth and reality are constructed.

This experience remained dormant in me until my third year in college when I took a seminar course on Foucault. Michel Foucault's writing in *Madness and Civilization* shaped my understanding of how ideas and identities get shaped by society. Later, I read Judith Butler and further formulated my understanding of how identities are socially constructed. Currently, I am pursuing my degree in Art, Culture, and Technology, and I have been delving deeper into how language and scientific discourse shape our understanding and perception of truth. Karen Barad's writing on agential realism has been helpful in understanding the complex relationship between subjectivity and objectivity. I often wonder if there's such a thing as true objectivity while scientific inquiry is so dependent on our limited perceptual abilities as human beings.

Taking a more-than-human perspective is helpful in reimagining how reality is constructed and by whose perspective. (Reference Caroline Jones' book, *Sensorium*). What does it mean to know something? How can we determine what we know as truth? In mathematics, there is the concept of proof. In science, the concept of falsification. Both of these parameters are dependent on certain axioms and base-level expectation and acceptance of unknowns. Our logic only works within the engineered linguistic and logical parameters we have set up for us to operate under.

Different cultures, species, and scales of space have unique and different modes of knowledge production, experiential realities, sensing capacities, and even physics. As new scientific discoveries constantly reshape our collective understanding of matter, space, and time, the question arises: how can we formulate an understanding and ideology for finding truths? Secondly, aside from scientific

methods, what are artistic approaches to exploring the concept of truth? In his book, *Sculpting in Time*, Andrei Tarkovsky talks about the idea of creating films for a higher being, a film that has a level of truth that can live up to the ideal. What is the relationship between the ideal and truth?

Minimalist painters such as Ellsworth Kelly, Malevich, Robert Ryman, Ad Ruscha, and Mark Rothko, and sculptors such as Constantine Brancusi, Alberto Giacometti, and even Auguste Rodin sought the essence of forms. It is common for artists to search for the essence of something and then translate it into form. Is science doing the same? Giving form to philosophical ideas?

Fragment 4: Do Mountains War with Winds?

When I'm very tired and sleep with the cover over my head, at times I fall into a material body state and go into semi-sleep paralysis, which makes it difficult to breathe. It takes tremendous energy to remove the cover that is suffocating my breath. In a way, it feels like I am going to die, as though I will suffocate. This has happened many times and in general, I have enough experience with altered conscious states that I know how to get out of it.

It does not feel great at the moment since my consciousness is a liminal/limbo space between being conscious/in control and under the lethargic control of my fallen asleep muscles. I know in these moments that I need to focus my energy and effort into gaining control over one little part of my body, whether it be a pinky or an elbow, the smaller the better, for once the target is in control and you have agency over, the rest of the body follows and quickly becomes aware and conscious.

I have been fascinated by consciousness since childhood. I can vividly recall recurring nightmares I had when I was around 8 or 10 years old, though I don't remember my exact age. We were living on the second floor of my grandfather's house at the time. These dreams were terrifying, and I had to actively overcome them on my own since no one could help me in the world of my dreams. When I would wake up terrified in the middle of the night, I would run to my parents' room seeking comfort. My mother would wake up my father so he could blow some prayer onto my head and help me go back to sleep. However, as the dreams started to recur on a daily basis, my parents became tired and less present when I woke them up. Soon enough, I realized that I had to figure out what it meant to be conscious on my own without anyone else to depend on. Looking back, I find it beautiful that it was in my dreams that I became aware of myself at such a young age. I realized that the way to change a dream is to become conscious within it, to recognize the dream as a dream while it is happening. Once I became aware of the dream and came to terms with it, the particular recurring dream would no longer come back.

As an artist, I have often sought a way to represent my subjective experiences honestly. The history of my art practice reflects my exploration of various forms and mediums via which I have tried to represent the inner beauty and magnificence of thought, imagination, and spiritual experiences. Art gives form to new ways of expressing and representing thoughts and feelings of a particular time and generation. Through contemporary art, can consciousness be shared from one person to another?

The problem:

Our disconnected relational dynamics between people of different identities, affiliations, cultures, and histories create unproductive and undesirable frictions. Some frictions are great for diversity and growth, but a lot of the friction can be damaging, war-like, and destructive. Similar logic applies to the relationship between nature and non-human species.

What new possibilities can we embody and make conscious by looking at expanded forms of consciousness, as opposed to the restrictive materialist and physical construct of consciousness? The assumption in my claim is that the problem of disconnectedness outlined prior is directly in relation to a materialist conception of consciousness. Perhaps another way of thinking about it can be “fixed consciousness” drawing from Carol Dweck's book on mindset. The concept of fixed consciousness is that it is individualized and materialistic could be the problem. Rather, I do not know. What is the relation between a particular concept of consciousness and the lack of connectedness/destructive mentality in humans, animals, and space?

What realities would astral, lucid, or ethereal consciousness create? If collectively people lived in astral states, what would the world look like? For starters, time and walls would not exist. Material and imagination would be the same.

What would lucid consciousness bring to the world? Flight, so gravity would not exist.

What about the etheric body? The attachment/inseparability of body and consciousness would not exist.

Fragment 5: Video Essay

What would my voiceover say? Let's imagine my voice-over is an out-of-body-self, a self not bound by the laws of physics that binds the physical body to space as normatively deemed real. The self I speak of is out of the body, a self-non-embodied. What does non-embodiment have to offer?



Figure 31: Two images from past durational performances. Image 1: Performance still from a 12-hour-long durational performance contemplating the embodiment of binary logic, photo by Lewis Vaughn. Image 2: A durational performance piece exploring the embodiment of time where I walked a circular track from sunrise to sunset, photo by Emily Spalding

My performances in the past explored what becomes real when trying to embody concepts. Concepts that felt too grand to grasp. Now I wonder and think that perhaps non-embodiment has a lot to offer. It allows the possibility of going beyond the ego since there is no self-embodied. To whom does “my” out-of-body-self belong? What realities do self, non-embodied, offer when it travels through space and time, non-linearly and unbounded by physical laws?

Film allows me, my non-embodied self, to be.

To be in multiplicity, to be in reverse, to be in shape-shifting formlessness, to be in two places at once, and to be in a Quantum flux. In short, To be Real. Real as I know to be true from lived experiences under States Of Consciousness. Please note that I do not say “Altered” States Of Consciousness, for an altered state justifies a normal state, instead, I simply say States Of Consciousness. Only one thing is constant and that is, I am conscious. This self-awareness of consciousness is something I differentiate from non-lucid dream states. In a non-lucid dream state, I am watching a film of myself, not the film creating itself. It's almost like the portrayal of a TV screen or projection within a film. A film within a film is akin to a dream state. What would my out-of-body-self dream? What would function as the subconscious of my conscious out-of-body self?



Figure 32: Scenes from the film, *The Matrix*. The idea of a film within a film that portrays the subconscious of the out of body conscious self makes me think of this scene from the *Matrix*. *The Matrix*. Directed by Lana Wachowski and Lilly Wachowski. Warner Bros., 1999.

← Backstep⁷⁵ <-

Scenes of Nepal, lush green landscapes passing by - large groves of trees, rice fields, small street stores that look like huts with tin and straw roofs - elevated roads winding in and out of mountainous slopes - a small congregation of buildings next to roads with vast landscapes of greens and blues and surrounding it, people bustling with life and milk tea. I, my bodied self, look out the window into a familiar yet foreign landscape. What's foreign is not the land but instead, it is I. I am the one who

⁷⁵ Backstep is a way to reverse time and reconnect to an older time or an older stream of thought that has gone off in a tangent. A way to rewind. I imagine this would be portrayed as a rewind sequence in video that goes back in time before cutting to a new scene. Or perhaps rewinding to a specific point in the past, playing for a few seconds and then cutting to a new scene. I intend to use this strategy as a way to navigate filmic time and arguably out-of-body self in time.

despite being brown-skinned and Southeast Asian somehow does not belong. When people asked where I'm from, I would say I am from Bangladesh, in a way to relate and in a way because I was ashamed of the privilege and luxury of being from America instead.



Figure 33: Scenes from Nepal, riding on top of a minivan, extracted stills from personal travel video.

The funny and beautiful thing is that one day I was talking to a street vendor who sells *Fusca*, a crispy shell filled with spicy boiled chickpeas doused in a tangy tamarind sauce, it is my favorite street dish in the world. He and I were talking, and per usual during my time in Nepal, I told him that I am from Bangladesh and that I am here to work at a Farm in Ilam. True in a way but also portrayed differently for the reality is that I am a US citizen seeking experiences different from what I know by volunteering my time in a remote context as opposed to being a young man from Bangladesh leaving home in search of work in a foreign land. The street vendor had this look of pity in his eyes, for I think he could sense I had more to offer than being a farm worker since he offered me a job at one of his street stalls. He told me that he's an entrepreneur of sorts and had three different street stalls in the area that were all doing quite well. He could give me a job at one of his stalls if I was interested, he offered. Honored and humbled, I politely declined with the excuse that I had already promised the farm that I would be there.



Figure 34: The generous street vendor who offered me a job and one of his Fusca stands.

Not going to lie, for a moment I did sincerely consider and contemplate what it would be like to take on the identity and start a new life as a young man making a living doing humble and honest work of being a street vendor in Nepal. It reminded me of the time I dressed up as a street vendor selling candies for a “dress as you like” showcase in my Elementary School in Bangladesh.

← Backstep <-



Figure 35: A screenshot of a 360 video of me driving between Boston and NY, the car looking like a spaceship for navigating warped spaces.

The scenes of Nepali landscape cut to scenes of landscapes in the Northeast of the United States, driving between Boston and New York. Vast landscapes covered in yet again foreign trees, large eight-lane highways snaking in and out of the landscape like concrete brushstrokes drawn by a machine. The same feeling of belonging yet not at the same time pervades. I am a stranger at all times, a man without a home, a man with many histories like Stuart Hall would say, it is increasingly common to have a very complex answer to the question, “where are you from?”, and I can identify.

The answer for me in its simplest form involves three places, Bangladesh, Atlanta, New York, and then I say, now I am in Boston for grad school, and next, I am going to China, Shanghai to be more precise. I often find the need to explain myself after I say so because people look at me with this confused look that suggests, “why would you go to China? I mean it’s cool and all, but you know with the politics

and all, are you sure?” Nobody has asked me this yet but most of the time people’s expressions on their faces allude to it. Very clearly. So, I say, “my wife is from Shanghai, you know, she’s an only child and her parents are getting old, and their health isn’t too good, so I don’t really have much of a choice”. Usually, people at this point just let matters be, or make some sort of a positive comment which equates to, “good luck” or “hey it can be an exciting chapter for you” and so on. That is how at least non-Chinese people react, but the Chinese who have decided to make America their home look to me with desperation in their voices and eyes and urge, “don’t go - you really don’t want to”, and I have to assure them that it’s the only option we have due to my wife’s parents health and I tell myself that they don’t really know our situation, but truly, who knows? ... Not me.

← Backstep <-



Figure 36: A still from a 360 video from Anna's Lab during our initial experiment

Cut to the bio lab, VR footage of a highly well-equipped bio lab, I am talking to another researcher, a third-year Ph.D. working with DNA origami research, and we are discussing doing science. The implications and the technical details of her highly specific research, folding DNA into specific origami patterns that help create binding sites for drug delivery in mice with hopes of one day being applicable in humans. To cure cancer and HIV in humans, countless mice need to experience countless concoctions of modified genetic transformations. I probe how the context of research, the lab and its in-the-moment surroundings, and the internal state of the researcher themselves, might influence the research as a way to hint at the possible interconnectedness of all things. I'm not sure how deeply my message is conveyed.

← Backstep <-



Figure 37: Stills from a video of street dogs in the streets of Nepal.

Cut to the scene of two street pups playing with my scarf in Nepal, hold on to the scene long enough to make people forget about the previous scenes for a moment. Immerse in cuteness and then show the scene of the mother dog coming up to ask with her eyes if I have any food to give to them, and then seeing that I do not have any food to offer, she carries on. She has lived long enough to know that play will not be enough for survival, she needs to make sure her kids are fed and in the harsh food-deprived streets of Nepal, she does not have the luxury to sit and enjoy watching her kids play. The life of a dog in the streets of Nepal is so starkly different from the life of street dogs in Serbia. In Serbia Street dogs are fat as f***. They're so well-fed that they are like those cartoon dogs that live in a palace and waddle about. Here the culture is totally different and old ladies leave out large bowls of freshly cooked veggies and meats each day for the street dogs to enjoy. In one context, the dogs are obese while refugees barely scrape by and in the other, the dogs are starving, and people mostly get by on humble means. To clarify, the refugee crisis in Serbia is very complex it is not fair for me to draw such broad-stroke comparisons. Serbian people have varying attitudes towards refugees who seek temporary shelter in Serbia. But in general, the relationship between citizens and refugees is tense and taut. Being brown

skinned in this context meant that I was identified by most Serbians as a refugee myself and on the other hand despite being brown, the population I was working with knew that I was not one of them for I was a volunteer, and not one seeking asylum.

← Backstep <-



Figure 38: Screenshot of a 360 video of myself meditating on top of a mountain.

VR scene on top of the mountain, a thick cloud with high winds rushes and swallows up the scene. Loud wind noises rrrumble as I sit there shaking in front of a camera, meditating. A chant softly rings in the background. “Gate, Gate, Para Gate, Para Sam Gate, Bodhi Swaha”. The heart Sutra is chanted gently but surely. The wind pierces into me freezing the surface of my skin while the chant warms the

core of my body ever so enough to be able to sit in solitude among the elements. ...Gate Gate Para Gate

Para Sam Gate Bodhi Swaha...

← Backstep <-



Figure 39: Video still from an old video I took of an epic cloud dance before the storm.

Cut to the cloud scene. A scene of the most mesmerizing, ominous, sky-breaking-open-looking clouds, hold this scene for a couple of moments. Let it immerse and create fear and awe.

...Gate Gate Para Gate Para Sam Gate Bodhi Swaha...

Fragment 6: Audio Hypnosis

What is authenticity? What is truth? What is reality? What are these things in the age of mechanical reproduction (ref: Walter Benjamin)? More presently I would argue we can think of the age of media construction. An age in which ideas are constructed using audio-visual data and increasingly multi-sensory experiences such as immersive installations, the entertainment art industry, sporting events, branded content, and corporate playgrounds as offices (for an immediate close reference we can look at the media lab for reference at how they use experiential marketing materials to woo their donors and funders). I am referring to media that is created for the purpose of advertising, entertainment, pleasure, news, community, romance, and friendships. We and our relationships are mediated through media. Digital spaces and mediated spaces have become our stages of expression and places of discovering/reconstructing identities. One can think of video games such as second life, IMVU, club penguin, Minecraft, metaverse, and various gaming communities such as MMORPGs (massive online role-playing games) (ref: Harun Farocki film on video games, *Serious Games*).

← Backstep

What is authenticity? And how is it constructed in the age of media construction? ⁷⁶.

⁷⁶ I am drawing upon Foucault, Deleuze and Guattari and others to question the notion of construction of ideas and concepts and language and forms. I am also thinking of Guy Debord's society of the spectacle in this regard.

How do language, social constructs, science as a construct, and the formulation of ideas shape our notions of truth? There is also a colonial perspective to the idea of truth, who gets to claim truth for the world and how do Indigenous knowledge systems and folklore and myth become stories as opposed to truths? I was a TA for Nida Sinnokrot's class last semester and the readings we did in his class made me question the forms of knowledge that became dominant in western history of thought while there are countless registrars of knowledge that have gotten lost or are on the verge of being dominated out of existence.

The human knowledge system is only one little piece of the puzzle and within that, the western ideation of truth is again another smaller subset within the very small context that is human knowledge. Beyond human knowledge, I would like to invoke the billions of years of knowledge and knowing that is embedded and constructed by our nonhuman counterparts. Animals, birds, fish, fungi, plants, bacteria, and other uni/multi-cellular organisms. They too have ways of knowing that we cannot even begin to access. Becca Frank, a professor at NYU who studies fish psychology made an interesting point once in a lecture I attended. She talked about how it is difficult for humans to relate to fish because we split from them literally millions of years ago in our evolutionary road to the here and now. The idea that sparked in me during this lecture is that they, the fish in this example but all species by extension, too have developed through history and have come to survive and thrive up to this point in time. They too needed to learn and adapt and develop ingenious ways of understanding and relating to the world for the sake of their existence. The wisdom and history stored in each, and

every organism are truly incredible and immense that to even track the history of a single species explodes my brain, let alone fathom the entirety of knowledge and ways of knowing that is embedded in all organisms.

← Backstep

Is all knowledge constructed and by extension is authenticity also constructed? Well, obviously in certain contexts authenticity is staged but does that mean all authenticity is dead? No, I don't think so. The question is how is it constructed and what effect does it have on how people perceive and construct their worldviews? What does it mean to know? (ref: Donald Barthelme on Not Knowing) Is it hard to know what other people know as I myself don't know what it means to know.

- I know?

- I think I know.

- I know!

Each communicates a different register of knowing.

How do I know? I just know. To know what you know in your gut to be true. Like a truth that you unwaveringly believe to be true at the core of your identity.

What would you do if you found out it was constructed and shaped by extraneous factors? I am consciously conflating “truth” and “know”. Please note, how I don’t say “knowledge” even though “knowledge” would be more grammatically correct. To me there is a difference between “know” and “knowledge”, one is present and the other past. Can we consider “know” as a noun and a verb at the same time?

Knowledge can be changed with newer information, more advanced technologies of perception, with better cultural understanding. History is filled with moments where what has previously been known changes due to new discoveries or new ways of thinking. Science and humanities are good places to find a systematic blockchain history record of knowledge and its re-knowledge.

However, to “know” in the present is a uniquely different experience. An experience in which one just knows. To know is to have unwavering faith that you know what you know and there is no doubt about it. To illustrate, let us do a small experiment...

Just relax into a seat and in a moment, I am going to ask you to imagine something. Please try your best to clear out your head and only focus on the object I am asking you to imagine.

First, let us try imagining a red cube floating in the space of a gray empty room, just one overhead light lighting the scene like in one of those interrogation film scenes.

Next, let us imagine a metal table on which the red cube sits. The cube is about the size of your palm.

And it is made from plastic. The surface is smooth and a bit shiny reflecting the room.

The room is dark for the most part, however, there is one small window towards the top right, the window is higher up which leads you to think you are in the basement. The walls of the room are concrete, and the space is a bit damp with a wet mossy smell in the room.

The red cube on the table vibrates a little and slowly changes its color, you watch as it changes from red to another color and then stops changing and remains as it is.

What color did it change to?

.
. .
.

You know, but I do not and that is okay. As a matter of fact, I really do not know what you imagined throughout the brief visual experiment. It took place completely inside your mind and neither I, nor the person sitting next to you has any access to what you have just witnessed or visualized and experienced. Some people are totally unable to picture any visual imagination, it is called Aphantasia,

what might they imagine the color or the scene to be? I can't even begin to fathom. But that's the beauty of it. There is such a vast space of knowing that it is okay to not know. To not know in the context of MIT where knowledge is refined to the precision of subatomic scales on one hand while utterly clueless on the other.

To explore the ideas of knowing and how truth and ideas are constructed I have been making work that questions knowledge systems via looking at scientists in their lab spaces, by documenting scientific processes, and also more recently via creating audio journeys that use visual triggers to guide someone through a mental journey. Moving forward I would like to further refine the form of creating a trance-like space in which certain modalities of knowing and identifying can shapeshift into new and more unknown forms of being.

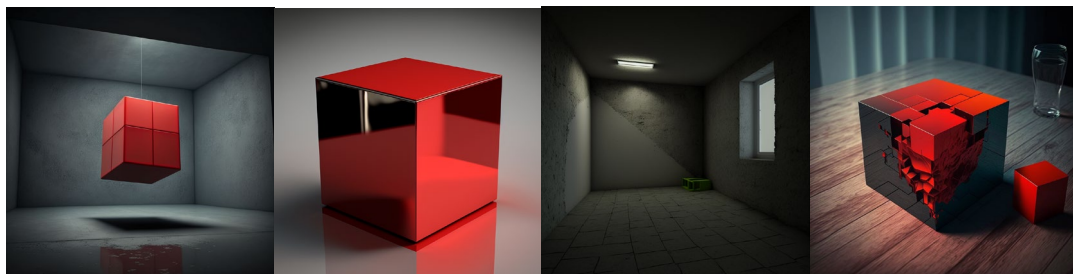


Figure 40: A series of 4 images generated using MidJourney, a text to image AI interface. Image courtesy of the author.

The images above were created by an AI image generation platform in response to the 4 prompts I asked you to imagine in our little experiment. I think running the prompt through an AI image generation software is interesting because it tries to imagine through a meta-human lens and secondly

if you look at the 4th image when I asked you to imagine the color of the cube change to something else, other than red, the algorithm is unable to go beyond red. It is unable to imagine something else as long as the color red is included in the prompt. It associates color keywords as strict references to what it needs to represent. Thus, this goes to hint at the limitations of the tools of perception we create. Our language, science, and technologies are similarly limited and restricted by its own internal logic and its own internal mechanisms. How can we derive truth when the tools through which we investigate truth are constructed by limitations of our own design?

During my first semester at ACT, I created a work titled dear other which questioned the limitations of technology in accessing the consciousness of another. Primarily the consciousness of a cell or a bacterium. I found a paper that suggests; consciousness occurs at the level of a cell since a cell senses its environment through the plasma membrane (its skin) and needs to make decisions about what to do based on ever-changing environmental factors. The tool available for us to observe the activity at that scale is an SEM (scanning electron microscope) however to image anything under an SEM, it needs to be killed. The SEM operates inside a vacuum where no living thing can and thus the cell is killed to get an image of its shell. How can we understand the consciousness of an organism from its dead body?

Second semester, I went into a synthetic biology course to better understand how to relate and communicate at the scale of cells and microbes. And in the process, I developed a project that questions the idea of consent in the genetic modification of a bacteria for human utility, curiosity, and novelty. And now I have been collaborating with a biologist in a cancer research lab which led me to

question the killing of a cell. This may not have come through in my work but the cell I am talking about is abstract, but I would like to think of it as a cancer cell.

A cancer cell is treated as a plague, a cell that has gone mad, something to be destroyed and obliterated. However, our current techniques of radiation therapy or even immunotherapy don't seem to be a clear solution to the problem of cancer. So, I wonder what would happen if we stopped looking at cancer as a problem and imagine relating to it. I understand that this is an arguably problematic proposition because as a human race, we have decided cancer is bad and it needs to be killed or it kills us. For me, this is interesting because I use cancer as an analogy to how we have historically treated others. Even other people who one group has deemed necessary to obliterate for reasons unknown to me. As a society and as people more broadly, we have targeted those who we consider to be our enemy, or at least those who we consider as being "other". How can we empathize with those that seem so distant and so horrible that our gut response is to kill and destroy? It may seem extreme but as an exercise in empathy, I challenge us to imagine relating to the thing that might destroy us. Can we get beyond our fear, our fear of selfhood being taken away for the sake of relating to something or someone that seems so incredibly different and maybe even harmful to us?

I don't have an answer, it is a question I ask with an open mind.

Fragment 7: On Biology

4/24/2023 9:25PM

I have been feeling a bit ill since I got back from NYC, a trip in which I slept very little as it felt like a farewell to a city in a way. I will be moving to China soon and I have lived in NY for over 8 years and this last weekend trip felt like a bittersweet farewell. It is a city I will love indefinitely, the people it attracts, the people it shapes, the ever-changing stories overlaid on top of space over time⁷⁷... this train of thought is for a later moment to share... to ←-backstep me feeling ill, I was just taking a covid test to check and had a moment of realization...an appreciation, a moment of clarification, where knowledge you learned elsewhere, in school or an educational context, becomes situated in real life⁷⁸, that sort of moment. I realized some of the elements of how functionally a particular rapid at home covid test works. I would not be able to explain the exact technical details of how it works but having taken the How to Grow Almost Anything⁷⁹ class gave me a slightly more detailed and experiential understanding of some of the processes going on to make the test possible.

The visual experience in my mind went something like this.

First it started with the instructions, beautiful visual and textual instructions of what actions to

⁷⁷ Janet Cardiff's 2004 sound walk "Her Long Black Hair" central park as a reference to layering stories over time in a space.

⁷⁸ To create an educational experience where the lessons taught becomes realized and experienced in everyday life.

⁷⁹ *A class with David Kong, and a team of leading experts in synthetic biology including George Church, Manu Prakash, Drew Endy, John Glass, Joe Jacobson, and many more creative minds.*

perform, the timing, the details of processes going through, it could be the score for a live Laurie Anderson-esque audio visual performance. Love Laurie Anderson’s work, I really like the use of sound in creating the experience of sound and visual content that is also filled with poetry. It will be great to collaborate with Cristobal Garcia for the sound and Weihan Jiang to create the live experience.

← Backstep

First the instructions:

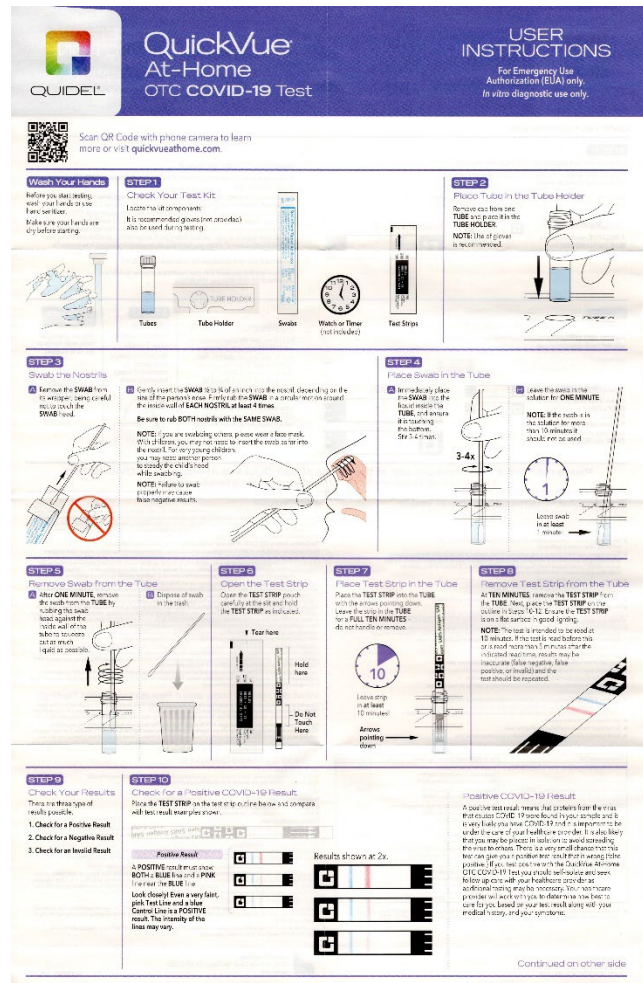


Figure 41: Instruction from Quickvue At-Home OTC Covid-19 test, LOT F41323 2023-03-24 to 22-04-08 an expired covid test at the time of documentation. Scanned documentation courtesy of the author.

First, I appreciated the details and clarity of the form, It could be done differently to target different audiences, but a nice and fairly straightforward and clear set of visualized instructions, the only criticism being a bit too much text which causes a little bit of anxiety about the required time investment but overall being quick to navigate through visual information on the page⁸⁰.

Step (←1): Wash your hands.

To fight against the invisible world, to protect, to create barriers, to separate us and them, something that is harmful and undesirable, something that is contagious, something that could be transmitted from one person to the community that surrounds them, i.e., a disease of public concern.

What thought about the disease of the one who is detached from society for a multitude of possible reasons, homeless, in prison, cast off, the psychologically ill, Foucault's writing and sentiments come to mind, I do not know his work intimately, just took a seminar in my undergrad on a fraction of his work.. would be good to do a reread of his work. The reason I bring him up here is because of his interest in those who are prisoned, mentally ill, othered bodies. Thinking of otherness within the context of biology, its history, and layers of social constructs would be an interesting topic for research

⁸⁰ An interesting study would be to test the correlation between perceived anxiety in English as a second language person, a reading avoidant person, towards instructions that contain more words vs less words. The hypothesis would be that people would feel more anxiety when encountering information on a page for instructions, to be tested/researched.

material. The question however is, when does research become lived experience from that of an academic understanding?

Artistic research as research into lived experiences:

Hah, this would be a good title for this writing document “Artistic research as research into lived experiences.”

The deadline is over, but I’ve heard it is still possible to change with a late penalty fee. To be considered.

Step 1: Gather your materials, straightforward but I ignored it and later needed to search for things (←false memory, memory from lived experience but with imprecise data→). In my middle school science class with Ms. Cox at Crabapple Middle School she gave us a lesson where we were asked to follow the instructions, the instructions being an experiment in performance, she gave us an at home quiz where the first instruction was to wait until the teacher gives instructions to get started and then gave us some time at the end of class and observed. She did not say anything but just sat back and observed as a performance of an experiment. Most of the students in the class started filling out the answers in the assignment but a few just decided to sit there and let time pass. KM, a student, along with a few others did not fill out the assignment. I was one who remained stable for some time before feeling the pressure of others to join in and try to fill out the assignment, afraid that I would do

something with adverse consequences. The first instruction reads “do not start the assignment until you are verbally instructed by the teacher” or something along those lines.

The assignment was to not write anything.

Most failed. But by failing they won. The teacher designed the study unfairly, the ones who did not complete the assignment now had to do the assignment at home, which can seem like a punishment who wouldn't have preferred getting the work done while there was time allotted in class for it.

Needless to say, I and many others forget to look at, or pay attention to the first step in a set of instructions. To pay attention is an important step to prepare for future unperceived moments in time.

Step 2 through Step 8 visually and with highlighted texts guide one through the steps to perform the 10 min to 15-minute performance. Duration of the work

10 to 15 min is quite quick and a good consumable bite size experience. If it is done well and with care, it can lead to a memorable experience. A memory, what types of memories do I create in the world for those who engage with me and my artistic practices? Tattooing gives me a lot of time interacting with people while I create custom designed art for them, something that I am being commissioned to create as a product and experience that a person can carry on with them for a long time. What I try to offer along with a tattoo is an experience. I am in a sense an experience designer for those who get tattooed

by me. It will be good to create experiences that are meaningful in memorable ways with positive associations, or at least experiences of overcoming hardship. A tattoo is a moment of transformation. By definition, the tattoo, by cultural history is a mark and conscious body modification for life. (only in recent years have tattoo removal become a possible, affordable, reasonable option for working with the body as a canvas) but not the less, tattooing is a long, long, thousands of years old art form and practice and marks made in skin for tattoos were for a lifetime. To mark oneself for life is a big decision for the vast majority of my clients, it is not one that is taken lightly, and a lot of internal self-thought goes into making that decision.

There are other forms of skin marking techniques but various cultures that do not permanently pigment the body with designs but rather color the skin with pigments such as jagua ink or other forms of colorant and natural dyes, minerals, nutrition. Thinking of the Himba people of Namibia,

the Kayapo people of Brazil, embodying and connecting with the environment through the porosity of skin.

The porosity of skin, a hole in time.

4/27/2023 6:36 AM

Fragment 8: 24-Hour Performance

*The notes below are presented in their unedited form, apart from the added image captions.

Scheduled 4:00 pm
Performance ends 5:07pm
Date 3/29/1992

24 hour performance scheduled 5:07pm to 5:07pm.

The time has shifted to respond to the opportunities that arose.

Im already gone. Deeply embeded within the cavities of space.

Here I rest for 24 hours plus a bit more. The time required to adjust

Food with me: 1 bottle of kombucha. 1 onigiri (flavor unknown) 1 orange

Objects with me: phone on airplane mode. Keys. A fake leather jacket. Shoes. Socks. Pants and long sleeve tshirt. A cable for charging phone. A portable charger. Phone will remain on airplane mode until the end of the performance.

The light outside is in day mode. A marker of time. It is now 5:02 pm

5:02 did i just see a shadow? Feels like there is movement in space.

I'm here.

The curious I.
Unknown. "Ishraki" it says.

Well hi ishraki. Welcome.

Thanks!

I'd like to know if you've found out the flavor of your onigiri yet.

Ah not quite yet.

Im fasting until 7ish pm.

Then fasting again tomorrow. So i need to ration my food well. Thank you for asking tho

Ok I understand!

:)

Did the performance begin in 1992? Is it ending in 1992?

Hmm. I feel begining and ending are fuzzy. Edges are hard to define something however arbitrarily became relevant on this day 31 years ago

It's 5:08. This seems important

Ah yes thanks for asking /reminding

5:09

20 days ago i was contemplating on death. What would I want to be after I am dead.. one thing led to another and I thought it would be curious to end the performance precisely "now" now 3 mins in the past. 20 days later on my birthday today. A sort of collapse of time. Meditating on existence here and now. Past and future. Idk i guess my timing was off. Here I am.

I am glad you are here!

Heh dont worry. It is nothing to be concerned with. As a practitioner of meditation and altered states of consiousness, death and I are good old friends. Nothing to be foreign to.

Hope I didnt spook you.

Most people dont think of death. Though its quite present

Just thinking thats all.

Thanks :) I appreciate the reassurance
And happy birthday!

Lol! Thanks! Birth. Hah the threshold at which one takes a breath..

Did you know that some children come out into this world and take a breath in.. while others come out into this world and exhale a breath.

Do you think you took a breath in or exhaled a breath when you arrived?

I think I probably yawned, so I guess that's an inhale. I was a very sleepy newborn. Haha

Great! I was the opposite

I never slept! Kept my parents up alllllllll night. Was born premature.. guess I was in a hurry to experience the world? Idk. But surely I did not want to sleep

I heard I cried a lot as a kid. So i suppose a cry is an exhale..

Some cries are exhales, but some are inhales, I would think.

It seems some of that hurry and curiosity to experience the world have stayed with you after 31 years. Do you feel they have?

Interesting you ask.. i feel sometimes yes! Othetimes I feel it fade. As the world becomes more constructed into forms and systems, into roles and identities, it feels less curious. The dreamlike state of wonder is something I miss at times.

A psychedelic state of mind. One in which so much unknown feels so true and the only thing that can be while also being so many possibilities.

Its a bit hard to explain in words

How about you?

Do you experience the world with a curiosity ? What are you curious about?

I do. Every day. I think there is beauty in the mundane, and everywhere I go there is something new or interesting to learn and marvel at. Last week the light was reflecting off of building 68 onto building 66 and it made these beautiful abstract shapes that I just stood and stared at in wonder.

That sounds like a lovely memory. Makes me think of the time when i was crossing the charles and I saw the most magbigiscent sight of this circular rainbow with 3 points of light. One in the middle, the sun, and then two more at the points in the horizon. And then then whole image reflected itself in mirror form up into the sky.

Wait 1 second. Let me see if I can find a photo

Ah sad. Im unable to add photo from this interface



Figure 42: Image of an highly unusual rainbow/sunlight artefact that I witnessed over the charles river.

Nvm here got it

Wow!!! That's amazing.

It looked so much better in real life! I have polarized lenses on my glasses. Oh yes I wear glasses. But ya the image was so clear. It felt like a true priviledge to witness and be present in that precise moment in time. I imagine similar to your experience of watching the light bounce off from one building to the next

Yes! It's like a gift from the universe. Sometimes I forget to look for it but when I find it I'm filled with wonder.

Thank you for sharing! :) its a lovely memory to bring back and share

5:29 (just noting down the time) it becomes an archive, an experiment.

Kind of like your lab notebook?

Yes. Kind of. Such an interesting artifact. The lab notebook of an artist lol

I think some lab notebooks are beautiful works of art. I made one in college with diagrams of dissected mice, kind of like the mice here in this gallery, though more precisely cut open

Woah! Cool! I didn't know you were a lab researcher. It's so fascinating to be working with science in that form.

I find precision to be so fascinating! Our desire for control. For replicability. For mastering the unknowns. Or at least for methodically charting out our paths in the unknown so that someone else can follow it. Or at least that's the hope I suppose while it's also well known how difficult it is to truly ever replicate the exact conditions for something to recreate itself.

Can you imagine trying to recreate the conditions for your light encounter to take place again precisely the same way it did... what would it do to your experience if you tried to recreate it, I wonder?

Hmm that's an interesting question. I think I would have to wait a year! Because the angle of the sun changes slightly every day. Then if I waited a year, it's possible that it would be cloudy on that day, and the reflection wouldn't happen in the same way. But I think one of the beautiful things about it is the fact that it can't be replicated. Like ice crystals, which are so beautiful and so ephemeral, something you can't hold onto.

:) ya

As an artist I sometimes try to control the conditions for experiences of beauty to take place. Of meaning. Of wonder. Of connection. But at the end of the day. Life itself is just full of magic and wonder and to try and artificially recreate it feels stifling.

How do real experiences take place in time and I guess in art it's more common for such variables to be accepted.. I wonder what is the role of such magical realism in science

I think science and magic aren't so distinct :)

I'm not actually a lab researcher, but I studied some biology and physics in college, and my physics class really changed my views on religion and spirituality. Or not really changed, but just helped me think deeply about what religion and spirituality are, when we can never really know exactly how space and time work.

There's this little layman's book on time called *The Order of Time* by Carlo Rovelli. Definitely helped open up a lot of unknowns about time and how it functions within our current understanding of it.

I agree! Religion and spirituality is.. well. I relate to the two words slightly differently. Do me religion is more defined than spirituality I suppose. Spirituality invites more inquiry into the unknown while religion seems to try and offer answers for the unknown. So in that regard spirituality feels more scientific perhaps lol

Anyhow. I'm curious to hear more about how your physics class changed your perspective on time.. and space. And how it relates to your sense of being in space and time

It was introductory level physics, but basically it showed me that everything that I understand about space and time as someone who experiences them here on earth, is only a very small part of space and time as a whole. Outside of earth, space and time can be compressed, and extended, and affect each other in ways that we can

never experience. But it helped me understand that there's so much more out there that I don't understand, and it helped me feel more comfortable about embracing the unknown and being ok with the unknowable.

:) the unknowable that's interesting as something that is never knowable as opposed to currently unknown.. this also makes me think of Thomas Nagel's essay on what it's like to be a bat. Not sure if you are familiar with the short essay.. but it just feels interesting to also consider the countless other conscious perspectives of other organisms and their experiences that as humans we can never truly know..

I think I actually did read that, though it was a while ago and I've forgotten most of it. It was in a reading group about the concept of consciousness :) I'll have to revisit it.

A part of me however questions this unknowable.. not because I think humans can know everything. Not at all. But rather as a way to expand our capacity for empathy and capacity for relating.

Is empathy and knowing similar or are they wholly different concepts?

Oh, that's tough. I'm not sure! I think it's possible to have sympathy without knowing/understanding, but empathy is based on being able to understand the experience of the other, so I think there is some degree of knowing that is required. What do you think?

I think I agree with the idea that some degree of knowing is needed for being able to empathize. And by that measure, I am curious about the degree to which and the types of "knowledge" or rather the types of lived experiences and conscious experiential realities we can access through our ability to empathize. I guess the question is how do we empathize with that which we deem impossible to empathize with

What is something that you feel is impossible to empathize with?

Hmm. I think humans are pretty good at empathizing. But it can be difficult to empathize with someone else's struggles, if you're struggling in a different way and can only focus on your own challenges and difficulties. If your struggles are so important to you, and so large, that there's no space to open yourself up to trying to experience someone else's.

That is an interesting perspective. The limitation of our ability to empathize based on the amount that's already on our plate makes total sense

Sometimes I wonder how we define self. I. Us. And them.. I have a very fuzzy definition of self and constantly try to blur out my boundaries of self.. however you are totally right. During times of crisis and struggle this expanded self has a tendency to collapse and become very localized.

6:00 I am so sorry, but I need to go now. It has been really great to have this conversation with you! Thank you.

My pleasure. Nice chatting with you ishraqi.

Thank you for this journey and truly no need to apologize :)

6:01

6:02 holding a fixed body position to not make sounds have been difficult in this small space.

6:06 the light outside has shifted to night mode. Marking time

6:09 gentle sounds of piano trickling in through the concrete walls

6:12 phone battery on 88% partly concerned about whether and how long the energy will last both of my phone and of myself. Hunger is a curious beast

6:17 felt like I heard someone in the space. Probably not.

6:21 time moves slowly if I pay attention to it repeatedly so in this performance time will likely move rather slowly as I constantly need to check if someone is present or not to see the text change while in reality its probably unlikely for anyone to actually stumble upon it since there was no official invite that was sent out

7:13 I think I dozed off for a few minutes. Light is purple outside day mode.

7:14 breaking fast

7:28 the space is a bit cold. The concrete walls draining heat from my body

7:53 traveling through time in a haze. Dreamed that my friend victor was here

7:55 alarm on phone accidentally went off

7:57 there is a slight shake, i cannot tell if it is the floor the walls or my body?

8:20 piano sounds of someone testing out sounds

8:27 surely the screen on the projector is stuck further back in time, i see no cursor point. I wonder what happened.

8:31 I wonder if the computer turned off or if it got stolen

8:34 Ive asked a friend to check

8:36 friend is here. Thanks for checking in on the computer

8:40 maybe friend left or is reading the text...

8:44 the gentle piano music continues outside

8:50 phone battery at 82% probably going to last the duration of the performance if I dont over use it. I think having it on airplane mode helps.

The person earlier made a comment about this archive of text being a sort of lab notebook for me. I like that idea. The lab notebook of an artist. What is it that I pay attention to? What does it say about the research I am interested in doing? What is the focus? Does a lab notebook need to have a focus? In a scientific context one would assume so. But what if it is full of poetry? Musings? Mundane anxieties? Temporal notations. Marked points of reflection. Data. Data points. Points that may or may not get analyzed. We all produce so much data, how this data is analyzed is a curious point. The data reveals what the question asks. How then is the question phrased?

8:55 night mode turned on outside

8:59 peed in a bucket. This is the first time I peed inside a durational performance without stepping out of it

9:00 got a random message from mm gilbert on linked in, reminding me that it is my birthday. The light in the room flashes, maybe its my eyes adapting and creating artifacts in the darkness.

I still havent figured out if the subtle shakes are from the floor or from my own body being tired?

9:08 being housed inside this small hole in non ideal conditions makes me feel like a lab creature. Housed inside facilities with un natural lighting, sound, vibrations. My nature now is the hvac and the waste water trickling through the pipes next to my head. The hum and buzz and hiss of constant mechanical noise within the walls. It reminds me of my fish and the time when I changed one of their water filters to one that was loud and buzzing. All the fish became so tense and immobile with fear. I had to immediately change back to the quieter model

9:12 my sister is calling. Im surprised the call made it through even though I am in airplane mode. I let it go to voicemail. I will thank her later. She just left a voicemail.

Back to the topic of caged animal and fish and organism housed in mechanical lab conditions. How might it feel to live out ones lives inside the hum of machines and lab noises. Inside the cacophony of sounds that humans have forgotten to pay attention to as they only visit the labs momentarily and not live inside 24/7
What does this sound do to the psyche of an organism?

9:21 phone on 79% charge

9:28 whats the point?

9:41 feels like im in a long flight

9:51 I could be at a fancy restuarant having a lovely dinner with my wife but instead i sit in a concrete cage with a plate on the floor, a pee bucket, a cot and a bottle of kombucha. Why did I choose to do this on my birthday? Why did I choose to do this at all?

Make discomfort your friend

Meditate



Figure 43: Me trying to meditate within the gallery walls

10:09 kombucha is running low. My mind wanders. Body aches. Im in a haze. Distracted. Find it hard to meditate.

Stay with the trouble.

10:15 edited the instructions to emphasize the liveness of the performance so that if someone peeks in, they know that the performance is ongoing.

Who is this performance for? Arguably the document. The artifact that it generates, the record, the process.

Given that nobody can ever really witness durational performances in full, the performance becomes the document. The contract. The archive. The notes. The thoughts. The processes. A performance without an audience. Unlike a performance for 1. This is a performance for the sake of performance. A performance for self. Using this form to enter into unknowns within myself as a practice of self inquiry. Recorded in time. Archived. Attended. Attended by none. Making life into a performance. Like the borgesian map that covers the entire land. 1 to 1. And thus rendering it useless. This performance too is useless. For it has become life. Ie. The performance ended when it began. It entered into life.

So if this is not a performance as I have just established. What does it mean to embed oneself into a concrete hole within the gallery of ones exhibition. Within the gallery of my temporary lab. Why? To gain an understanding of the space? The trickle of waste stream, the incessant pulse of wind rushing through the valves. The countless sisyphian rattle of the metal door attached to its hinge keeping time from the rooms winds. What of these rhythms? If this is my reality then what deductions will I make of the universe I inhabit? Based on the

limitation of my knowledge, making sense of only this space and its rhythms. The sounds become my celestial bodies that I use to make grand predictions about the universe and its order. Construct my understanding of time based on rhythms of changes. Calculating each variable precisely over time. Categorizing the various different components so that I can isolate them and attend to them one at a time. Not because it is separate and disconnected from the rest but because of my limited capacity to attend to so many moving parts at once. I fragment the soundscape into the rattle, the hiss, the rumble, the squeaks and the squaks, the trickle. I separate myself from the environment and try to observe that which exists independent of me and my involvement. To make predictions of its inherent logic. The drops of liquid against the sound of metal plates. The start of a flow of water like a faucet running in the distance, a valve being opened leading to a trickle of water that rushes through the pipes. The sound of the valve closing with a metallic clank. Predictable, repeated, creating narratives of order in time. A sequence of patterns - activations and deactivations. Suspended endlessly unchanging and constant. In what time though. Did this very space sound the same a year ago. Most likely. What about 10? What about 100? This exact location in space what did it sound like a 100 years ago before the walls were constructed before this building existed, what logic of time and space would I have constructed listening in at that time? What about 500? A 1000? Or 10.. 10 thousand years back, what did it sound like back then? Who inhabited these lands? What rivers flowed here? The Charles was probably still there.. what life congregated near the water? So close barely a stone's throw away.. what about a million? A million years back? A billion? The river probably didn't exist. The land was probably vastly different as too were the creatures that roamed this land.. what ideas of time and the universe would I have constructed from this exact same location in space from a billion years back? Are space and time intrinsically entangled? What is here a million years from now? What is here a few billion light years from now? We watch the stars and make predictions and claims as this trickle of water repeats its cycle. Marking time. Marking space. Here and now.

10:43 an arbitrary measure of time

10:54 I feel as though I am going through a kombucha cleanse. I've peed 3 times so far and given that I have not drunk any water since 5 am yesterday and will not drink any water till 5pm tomorrow so a total of 36 hours. The only liquid passing through my body at this point is likely kombucha.

10:57 the shakes are very weird. I am assuming they are most likely coming through the hvac system my pillow is resting on but the way they travel through my body and shake me almost makes it feel as though the shake is coming from my body itself. It's quite an unusual sensation and a bit hard to explain

11:35 not sure if I will sleep tonight. Maybe. Maybe not. Battery at 67%

12:21 it has been a little under 8 hrs since I've entered.

12:50 saying goodnight to Kaijie

1:28 I've been watching youtube videos. Eyes sore. Brain in a hazy fog.

Kombucha is almost out

1:46 Perhaps I should write my thesis based on my exhibition. Create a catalog of sorts. Bring in different perspectives and angles. Transcribe segments of conversations. The exhibition can be the anchor point that can

then branch into various prior works and ideas of how they are all connected. Situate the work within a discourse and dialogue with other artists, writers, and thinkers. The show has different bodies of work that I have taken on and completed while at MIT. So this would be a great case study to write about.

All I need to do is situate each project into its corresponding spheres of conversations and make an argument an argument for thinking beyond the human perspective and into an expanded field of inquiry

How it is woven together will be an interesting challenge. I need to figure out the form and the template for my thesis and then build it out from the base foundation. A branching, hyperlinked text

2:10 am finished kombucha. No fluids until 7 pm in the evening. 15 hrs to go. Its going to be tough.

I still have an orange that im going to eat in a bit. And then will try to get some sleep

3:50 having orange, peed, back to sleep

8:15 awake

8:45 alarm went off awake again

10:17 kept falling in and out of sleep many fragmented dreams

10:19 it would be nice to freshen up, brush teeth, wash my face, take a shower

10:33 just read an article on nature geoscience that proposes water found in impact glass spheres all throughout moons surface amassing to an estimated 2.7×10^{14} kg of water on moon.

10:39 Someone has entered the space, I feel like I'm a spider. Waiting in quiet trying to detect any movement in my web

Separating the noise from the sound of human subjects similar to how the spider detects an insect from the noise of the wind on its web. The vibrational signature would have to be very different. Similar to how a venus fly trap decides when it has an insect, you touch one of its hair and it doesnt close, you touch two of its hairs in a matter of few seconds and shut, it closes in capturing the bug.

10:44 I have about 6 more hours to go. Battery at 38%

11:17 a reminder that this is not a performance. But rather life.

11:25 mini workout - 13 pushups - battery 31%

11:56 was looking at residency options on Artenda and realized I need more press. More write up about my work and practice so that when the jury looks me up or when anybody looks me up they can get a clear sense of my practice. Right now there is a mixed identity, a true one, but a mixed one none the less that shows up. One that jumps between art, science, and tattoos.

How do these things relate with one another? When I had asked chat gpt about how my tattooing relates to my art practice it generated some responses around how my tattoo practice is related to my art practice in the realm of empathy and relating and creating intimacy of sorts. Not exactly intimacy but rather the idea that the way I attend to someone getting the tattoo, my philosophy and approach, is similar to how I attend to non humans in my work or at least how I try to attend to non humans in my work. Kinmaking. Questioning how we relate, expanding our limitations of humanness to encompass those who we deem as others. Each person I tattoo is an other. But to offer them a tattoo that truly fits them like skin, i need to let go of my identity and truly empathize with their needs and desires to create something that makes sense for the individual wearing the tattoo.

12:04 battery on 25%

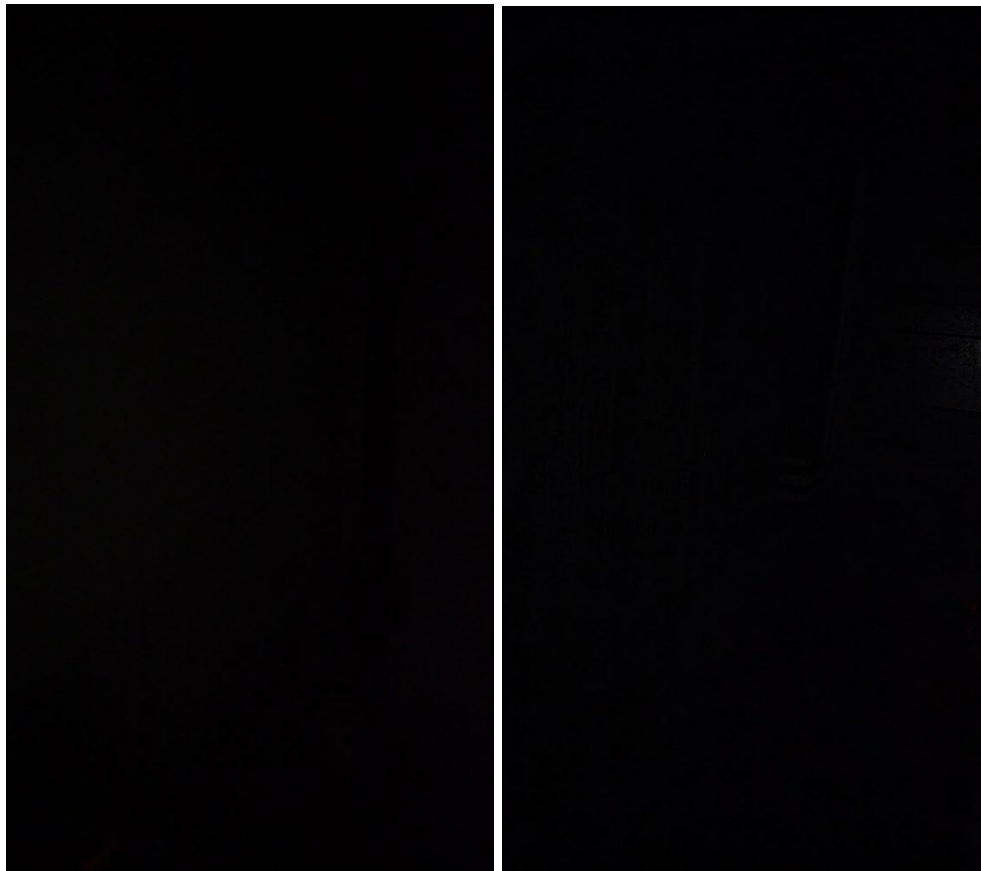


Figure 44: Two photos that I took to show the interior of the space I was in but due to lack of light, the images are highly underexposed

12:11 took a couple of photos of the interior.

12:28 discovered david sylvester through a video on instagram where he talks about how artists must be allowed to go through bad periods, how they must be allowed to have dud experiments. Too much attention in the public eye and excitement is inherently anti creative.

Is this a bad experiment? Perhaps. But that's okay. All are part of the process. Of growth. Of inquiry and curiosity

1:06 looking at food because im hungry

1:20 should charge my phone. Its at 13%

1:31 asked weihan to document me coming out of the hole. Does the document become the performance? If this is not a performance then what purpose does the document serve?

Tania talks about the iconic image. How every performance has or needs an iconic image. What will be the iconic image for this? Image.. she is from an older generation. Maybe instead of image it could be a scan? And iconic digital artifact. A 3d model? A video print? A hologram? An AR memory? A sound byte. An iconic press?

1:56 head feels heavy from laying down for so long, battery charging 29%

2:05 i hear photographs being taken.
Someone is in the space. Most likely Gearoid.

I was reading about what happens to a body after it dies. The natural decomposition process in soil.. for another performance I had considered to burry myself neck or waist deep in soil with other plants around. Would need to consult with health experts to understand what would happen to the body under those conditions. What sort of IV or food intake I would need to sustain the duration, what type of protection from heat and the sun I would need to not get a heat stroke.. would my body go into shock? How would my microbiome interact with that of the soil? Would it start to decay? Would a fungal infection take place? How long would it take? Another concern is waste management. If im peeing and pooping where I stand, would that cause waste bacteria to fester on my skin? What happens if you have shit resting on your skin for a week? And another consideration is weigh. Would the soil support my wieght? Or would the weight be on my bones? Would I feel suspended on air or would I be standing.

2:11 there is a conversation taking place between Gearoid and someone else. Not sure who.. maybe chuck?
I can barely hear what they are talking about.

2:15 is there a 3rd person present? Battery at 41%

2:20 someone has sat down. Welcome.

2:22 This is really cool... I'm glad I stopped by. You knocked this gallery exhibit out of the park.

Thank you! That's very kind :)

2:25 sound of coughs

2:31 The use of I is interesting. In retrospect, one could look back at this archive and question the truth of the whole text. The entire thing could be fabricated.

Someone else has entered?

2:34 the cursor has traveled back in time, someone is scrolling / reading

2:34 light shift. Another night started.

2:37 it is night outside. I must be mindful of my light.

2:53 sound of someone else in the space. They said something that I couldn't quite make out. Thought i heard my name. Hearing footsteps

3:18 arms are numb. Should do some more pushups

20 pushups

3:44 hi, it's really humid in here

3:46 Hi that's good. I suppose the plants and the moss would be happy?

I'm surprised to hear that the space is humid tho.. since the doors are open

3:48 There is a 3rd cursor that showed up.

3:50 I did not hear this person come in.

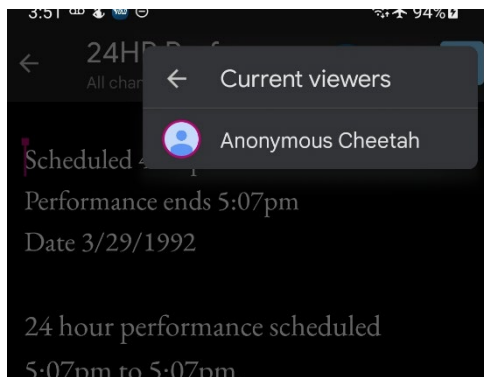


Figure 45: A screenshot taken from my phone showing the anonymous visitor who came to the show

Anonymous cheetah. Hmm someone joining in from elsewhere?

3:54 perhaps the person left. People have fairly short attention span so a 3 min delay in response time would be too long in live context.

3:57 cheetah is gone

Now its anonymous ibex.

So confused by this safari

4:13 unknown who commented on the humidity in the gallery space

4:24 the doc interface glitched for a bit and I couldnt get back in. Many glitches. Why and why at the time that they do. 4:24 pm. Hmm

4:28 light switched to day mode

4:42 time continues. A day almost complete 24hrs in the walls.. battery charge 100%

Continue on as though nothing happened. Or answer the 3 questions ive been asking others at the end of study.

4:44

Cannot copy paste the questions, another glitch.

But i know the questions ive been asking

Are humans the only conscious organisms in the known universe?

No

Do other organisms have the agency to make their own choices

Yes

Killing is a common occurrence in natural and artificial settings, what does it mean for one to kill another and to do so consiously.

First its worth considering what it means to be conscious? Conscious in the spiritual sense or conscious in the attention sense? If spiritual then i question .. what is death. If attentional then its more doable. To kill consiously. Can one kill oneself? A consciousness choosing to be non consious? Would that be the only way to kill consiously? As one can only be conscious of oneself. I dont know. Like most things. I dont know.

Having a yes or no answer choice is easy because one does not need to consider the variables and their complexities.

Can one kill another consiously?

No.

4:53 sound of people in the room. Part of me wants to just stay. While another part of me is obliged to return as I have promised. Why 5:07? It is truly arbitrary and also it is what it is.

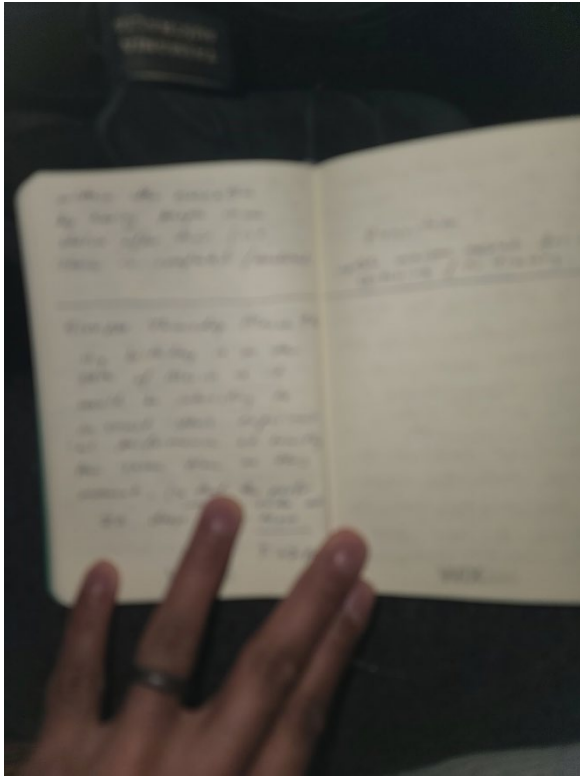


Figure 46: A blurry photograph showing a sketchbook entry, it was supposed to show the thought process behind the time decision for ending the performance at 5:07 PM

Glitch upon glitch. Time out of predicted order. A day late. The performance ended march 29 5:07 pm

Time to get ready. The day goes on.

Time is now 5:03 the moment i started writing what would I want to be after I am dead. A sketchbook entry that led to this moment. On going.

5:06 i cant seem to find the key

5:07 the time is past

5:09 no key perhaps im to remain, a new reality?

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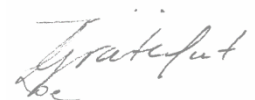
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A handwritten signature in cursive script, appearing to read "Gratified" with a small mark below it.