Inscrutability: An Epistemological Experiment

by

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ABSTRACT

Through four different projects, this thesis explores the idea of dimensions of representation, a concept introduced by 20th century French philosopher Michel Foucault in his book The Order of Things. Foucault argues that the Classical episteme, which Foucault defines as the discourse surrounding knowledge-making that lasted from the 17th century to the 19th century, was determined by the idea of dimensions of representations. Dimensions of representations states that during the Classical episteme, knowledge was formulated by representations of the external world, such as through systems of classification, ordering, and relations, rather than through resemblance. The first project, Holes in the Sieve (2023) will address the problematics of classification through a infamous case in the history of paleoanthropology: the Piltdown Man. The second project, Contrapposto in Space (2024) addresses how representation has been instrumentalized in technoscience through space research. Finally, the last two projects, the Poem Box (2024) and Micropoetry (2025) posit a way forward at the limits of representation by engaging with semiotic theory. By engaging with language games, poetry opens up the possibility to deny the position of being knowable, allowing one to disappear into inscrutability.

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1. Introduction: The Tragedy of the Pearl

Pearls are unique among the precious stones: rather than being formed from a geological process, they are instead produced by living organisms, the mollusk. Though the common example is a grain of sand which somehow haphazardly slipped through the hard outer shell into the fleshy insides, it is usually an irritant like a parasite or worm that forms the center of a pearl. When such an irritant enters a mollusk, the organism beings to secrete nacre, a material made of calcium carbonate. When the layers of nacre have built up enough, the pearl is harvested by humans, often killing the mollusk in the process. This nacre is the quality that imbues value to the pearl for humans: the iridescent sheen of nacre reflects light into a rainbow of colors, although I always found it to resemble the surface of an oil slick. However, it is not just the iridescence that is valued by humans, but also the physical form of the pearl: the size of the pearl, the uniformity of the surface, and the very shape (perfectly round vs irregular (also known as "baroque pearls")).

The tragedy of the pearl is a conflict between the interior and the exterior. Can we define the pearl as a successive iteration of its interior, or as that which must expose its interior to construct an exterior? The beauty of nacre can only be witnessed when hit by light: the colors of iridescence is not necessarily an inherent quality to nacre, but is rather a byproduct of the way the nacre's successively layering nanostructure bends light. The only way a human may appreciate the interior layers of a pearl is if they chip away at the outer layer, exposing the structure to the outside world. Of course, if one were to do this, one would end up destroying the very thing that makes a pearl, a pearl.

The artist is the pearl, the pearl-maker (mollusk), and the harvester. This thesis presents four projects that track the journey of knowledge-making and its un-making. I will first deal with knowledge-making through a close reading of 20th century French philosopher Michel Foucault's book, *The Order of Things*, where he introduces the concept of "dimensions of representation." Dimensions of representations states that during the Classical episteme, knowledge was formulated by representations of the external world, such as through systems of classification, ordering, and relations, rather than through resemblance. In sections 3 and 4, I present two projects, *Holes in the Sieve* (2023) and *Contrapposto in Space* (2024), that unravel the layers of dimensions of representations inherent in the disciplines of the human sciences and technoscience. *Holes in the Sieve* (2023) will deal directly with the inconsistency between empirical observation and classification, leading to the requirement of a dimension of representation. *Contrapposto in Space* (2024) imagines an alternative futurity where dimensions of representation are made apparent in humanity's exploration of space. In sections 5 and 6, I present two projects, *The Poem Box* (2024) and *Micropoetry* (2025), that pave a way forward to the un-making of meaning through the qualities of poetry. In the act of un-making, the artist is no longer subjected to this regime of dimensions of representation.

2. Methodology: What is Aesthetics?

"What is aesthetics?" is an unfortunate question that art must deal with. If aesthetics were merely to be described as the quality of being beautiful, as certain laypeople would assume, then we would all disagree on a universal aesthetics; what is considered beautiful is often determined by the context of the culture in which the object under scrutiny exists in. Franz Boas articulated this when he introduced the idea of cultural relativism to anthropology, which posits that there is no universal hierarchy of beliefs, practices, and norms, but rather such beliefs, practices, and norms must be judged by the context of culture they are formed in. What is beauty? That is a question I do not find all that interesting. One should exercise a healthy suspicion of what one finds beautiful, for within it contains all the hidden biases of the culture poured into our being, casting a shadow one only notice when brought to light. Nothing is more nefarious and insidious than beauty, being a thing which only consists of the exterior, it becomes an apparatus with which evil can pour their intentions inside.

We cannot begin to conceive of understanding what aesthetics is without first talking about Heidegger. *Dasein*, or "being-in-the-world," reorients the interior towards the exterior; curse the navel-gazing of Freud, his insistence in the significance of the refractive optical apparatus of the interior mind. Aesthetics is not the that which can be found within the solidarity of the self, but rather requires the tendrils of the interior to reach out and test the various contours of the exterior. One could call the "sensibilities." Do not mistake sensibility for the "senses"; the senses, as Bertrand Russell would say, only serve to collect the data of the exterior. The sensibilities are, thus, the heuristic apparatus that imbibes such data into that which makes up itself.

Consider "sensibilities" the modality one should operate while thinking through the projects in this thesis. The projects are split into 4 sections with the titles: Classification, Representation, Transliteration, and Obfuscation. In Classification, I present the project *Holes in the Sieve* (2023), which deals with a fraudulent paleontological discovery called the Piltdown Man. Here, the reader will engage with the modality of classification through a work that asks the viewer to engage with their empirical observation skills through the digital environment. In Representation, I present the project *Contrapposto in Space* (2024), which considers how representations of violence on the human body are parallel to the extractive nature of space research. In Transliteration, I present the project *Poem Box* (2024), which looks at the complexities of meaning making by translating confessional speech acts into poetry with artificial intelligence. Finally, in Obfuscation, I present the project *Micropoetry* (2025), which reappropriates tools for clarification and observation for obfuscation.

3. Classification

There is a certain equivocation to the "human sciences:" when academic disciplines such as biology, anthropology, sociology, psychology, etc. began its differentiating process from natural history, they still maintained tendrils on each other's pulses, leaving an "invincible impression of haziness, inexactitude, and imprecision." [1] What is the cause of this equivocation? One can say that it is due to the nature of such disciplines that turn the empirical lens of science inwards onto the human subject, each searching for some form of structure in the human experience utilizing contesting methodologies. In order to demystify the "nature of us," we had to externalize the aspects of us that are measurable and comparable. The consequences of turning the empirical lens inwards is that "the subject and the object are bound together in a reciprocal questioning of one another."[2] This oscillation operates in a liminal space wherein the structure of what is accepted as truth has not been established, giving rise for the opportunity for contesting possibilities. However, unlike the natural sciences, establishing the structure within the human sciences is bound to the discursive consequences of what is to be established, and thus is itself a process affected by political and cultural influences. In such process, establishing the truth is not always equated to establishing the natural law, as exemplified in the case of the Piltdown Man.

Legitimized by Charles Darwin's publication of *On the Origin of Species*, the concept that humans are a species that emerged from a biological evolution process entered the human

[1] Michel Foucault, *The Order of Things: Archaeology of the Human Sciences* (London: Routledge, 2005), 387.
[2] Foucault, *The Order of Things*, 406.

sciences in the 19th century. Thus began the search for the so called "missing link" that would connect modern humans to the "organic structures" of nature, a search that stretched into as late as the 20th century.[3] It is during this search that the curious case of the Piltdown Man appeared: in 1912, amateur antiquarian and solicitor Charles Dawson announced that he found "an ape-like mandible… and parts of a human-like braincase… recovered from a gravel deposit near the village of Piltdown, Sussex, UK."[4] With the support of paleontologist Arthur Smith Woodward, the then Keeper of Geology at the now Natural History Museum in London, Dawson presented the discovery to the Geological Society of London. It was christened as the new species *Eoanthropus dawsoni*, and established "Britian as a key nation in the story of human evolution."[5]

Further ancient hominin fossils were later discovered in China, Indonesia, and Africa throughout the 1920s and 1930s, "none of which showed the peculiar combination of an ape-like jaw and human-like braincase" found in Dawson's fossils. Despite these discoveries, the Piltdown Man fossils were not proven a paleoanthropological fraud until 1953.[6] However, the authenticity of the Piltdown man is perhaps not the most interesting part of this case, but rather the fact that it was accepted as possibly legitimate in truth-making institutions. This was possible due to the fact that within that space of humans as subject/object, their exists a lacuna in which the act of knowledge-making goes through a heuristic process, where the truth is not yet established but rather in a state of superposition of truth and untruth.

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[3] Foucault, 236.
[4] Isabelle De Groote et al., "New Genetic and Morphological Evidence Suggests a Single Hoaxer Created 'Piltdown Man,'" *Royal Society Open Science* 3, no. 8 (2016): 2, https://doi.org/10.1098/rsos.160328.
[5] De Groote et al., "New Genetic and Morphological Evidence," 2.
[6] De Groote et al., 2.

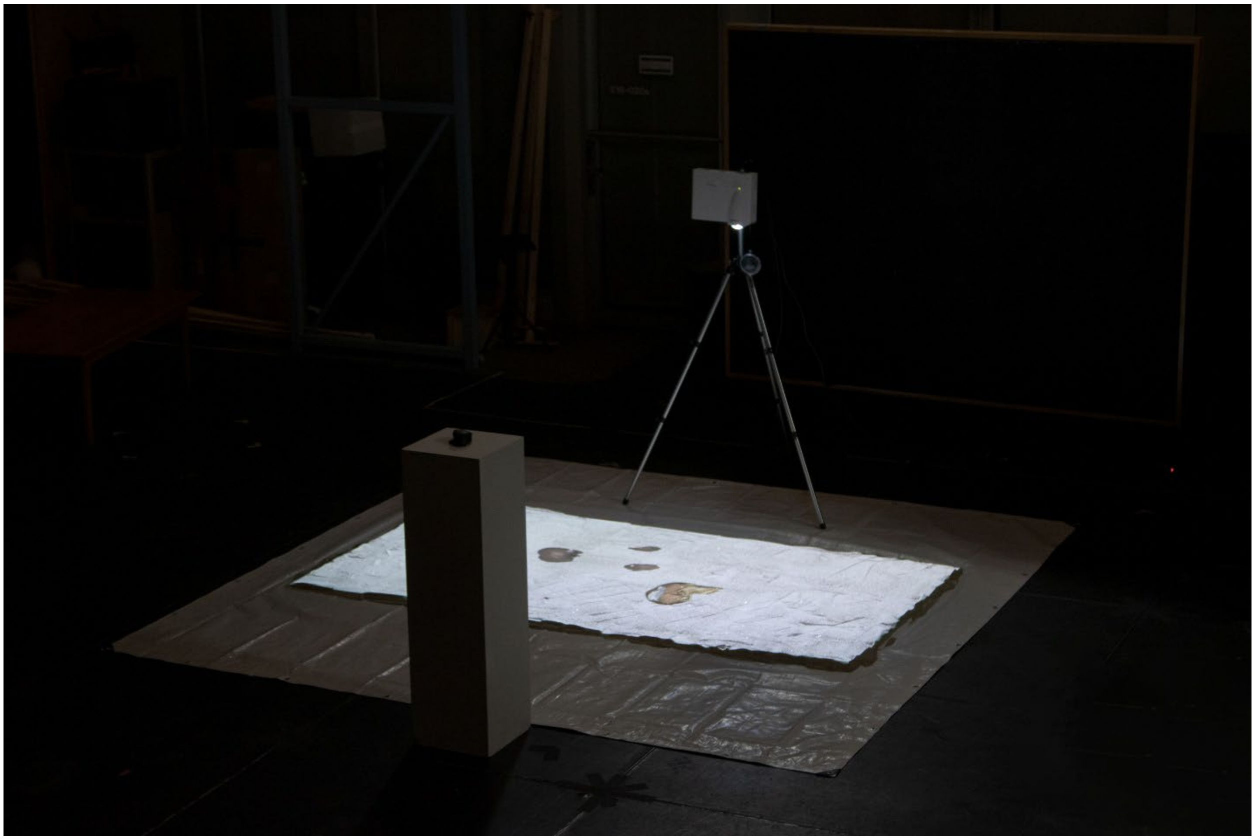

Figure 1. Brian Huang, Holes in the Sieve, 2023. Installation view. Photo by author.

Holes in the Sieve (fig. 1) was conceived as an exploration of the lacuna between the finitudes of (hu)mans as an object of study and as the subject of a nature. Viewers happen upon a bed of sand, carefully shaped into a 3-foot by 6-foot rectangle and tilled to an even, but not completely smooth, surface. The bed of sand is lit by a projection, forming a tableau vivant, or perhaps more accurately, a tableau *mort*, upon which five objects emerge from the depths. These objects are quite peculiar: they vary in color, from shades of dark to light brown, vary in proportion, in which the smallest object looks as if it had merely chipped off the largest object, and vary in shape, with irregular and biomorphic forms. Trained eyes might be able to discern that the objects resemble things of proper labels, like a mandible or an orbital plate. Regardless, even the layperson could recognize that the objects are discrete parts of a fossilized skull. As the viewer approaches the projection, they are presented with a plinth that reaches waist-height, atop of which is placed a computer mouse.

Enticed by the mouse, the viewer transforms from merely and observer into an interactor by moving the mousing, clicking the buttons, and testing the relationship between the mouse and the projection. This process begins to familiarize the interactor with how to navigate the digital space of the projection, where they slowly learn the rules of this internal world. They recognize that the real-life mouse controls the movement of the onscreen cursor, and that by clicking and holding the right mouse button while the cursor is on top of a fossil piece “grabs” it. Once a fossil has been grabbed, the fossil can be moved around the digital space by dragging the mouse while holding down the right mouse button. The interactor quickly learns that the digital space is bound to the borders of the bed of sand, and thus all interaction must happen within this bound space.

When the interactor brings one of the grabbed fossil pieces close to another fossil piece within the picture plane of the digital space, two effects may occur. The first and most apparent effect is that text appears across the picture plane of the projection. The text consists of indeterminate statements referencing information pertaining to the fossils, although without revealing the relevancy of the information directly. The second effect is that the fossil pieces will appear to interact with each other physically: fossils that collide into each other will exhibit a sense physicality, such as weight, mass, and movement. The interactor finds themselves in a curious predicament: in order to activate the parameters for displaying the text on the screen, they must provide precise movements with the mouse while bringing pieces of the fossils together, lest they accidentally use too much force and cause the fossils to ricochet into separate directions. Thus, the interactor must constantly negotiate between using different mental faculties: enacting the proper amount of dexterity while navigating through the digital space with the physical controller in order to receive information that must then be analyzed and interpreted.

Figure 2. Brian Huang, Holes in the Sieve, 2023. Detailed view of the installation. Photo by author.

The work engages the viewer on two stratums: the first is to ask viewers to engage in the task of searching for *characteristics*. While the viewer is presented with the fossils without context, they are naturally drawn to the mental process of figuring out what exactly it is that is in front of them. This mental process often requires the empirical approach of observing “the form of the elements, the quantity of those elements, the manner in which they are distributed in space in relation to each other, and the relative magnitude of each element" of the object of study.[7] We as humans tend to place uncritical trust in our empirical senses to render the information observed from the world as our reality. When our senses collect a threshold of patterns and similarities, in essence *characteristics*, from the world, we start forming a version of the world that is representative of reality, which does not falter unless we receive information counter to what we have previously encountered. When the viewer studies the fossils presented in *Holes in the Sieve*, they are asked to utilize their empirical senses to understand what they are observing by searching for characteristics of the fossils that are pertinent to identifying the object, a kind of forensics. The problem then becomes whether or not the viewer can trust their empirical senses: can the layperson, studying these fossils, tell the difference between an "ape-like" mandible and a hominin mandible? What is the difference between the hominin brain-case of our last common ancestor and the brain-case of a modern human? Despite the total physical control that viewer is capable of enforcing on the fossils in the digital landscape, this control cannot answer these questions about characteristics.

[7] Foucault, *The Order of Things*, 146.

Figure 3. Brian Huang, Holes in the Sieve, 2023. Example of text overlaying fossils on the picture plane. Image by author.

The second stratum that the work engages with is the concept of *classification*, in which "natural entities" are situated "within the system of identities and differences that unites them to and distinguishes them from all the others."[8] While the viewer is able to gather observations of the characteristics through interacting with the fossils in the digital environment, the text that appears on the picture plane during the collision of the fossils asks the viewer to consider the purpose of gathering the observations. The text appears overlayed on top of the digital environment (fig. 2), an act of illumination through obfuscation, that suggests the information gained by revealing the text is on a higher order of significance than the information gained by empirical observation.

[8] Foucault, 151.

The text can generally be split into two flavors. The first flavor attempts to influence the viewer on how to interpret the characteristics that can be observed, or contextualize the significance of a certain characteristic: “symmetry is a sign of perfection,” “is it too heavy to rest on the spinal column?” “a high forehead, a larger brain,” “a brain that grew before the mouth,” “the flattened sagittal crest indicates a weak bite,” and “only two-thirds the size of a human brain.” Observable characteristics from the visible structures are no longer merely about their “presence or absence,” but are markers that force one to think about the “relations of importance that are no longer merely a matter of description,” but rather the “existence of functions essential to the living being” that the fossils once were.[9] By considering the functions of the observed characteristics, the viewer starts to consider the place in which the presented fossil fits in the “continuous network of the species.”[10]

While the hominin brain-case points at the direction of the fossils fitting into the evolutionary lineage of modern humans, other flavor of text casts doubt on this: “they’ve been stained with iron solution and chromic acid,” “how can an Englishman be wrong?,” “how can being an Englishman be wrong?,” “the missing link was found in… Essex, England.” This is, of course, to point out the true nature of the fossils as a paleoanthropological fraud, a truth which could not possibly be extrapolated from solely empirical observation. Rather, the point of the disparate flavors text is to bring to attention to “the dimension of representation” in the human sciences, wherein we can question “those functions and mechanisms not in terms of what they are but in terms of what they cease to be when the space of representation is opened up.”[11] Thus, the work points at the possibility of knowledge-making on two dimensions of representations.

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[9] Foucault, 247.
[10] Foucault, 166.
[11] Foucault, 386

Empirical observation operates as one dimension of representation, as the process of identifying the fossils through characteristics is dependent on how those characteristics manifest as representations of itself as a whole. Conversely, to classify is to consider how the discreet fits within the whole system of representations: where does a species fit into the continuum of nature, “the vacant possibilities offered by the taxonomic table?”[12]

4. Representation

Figure 4. Brian Huang, Contrapposto in Space, 2024. Installation view. Photo by author.

[12] Foucault, 166.

We are faced downwards to the ground again, except this time, instead of a carefully circumscribed bed of sand, with its neat corners and even height, we are faced with a deluge of sand grains, unencumbered by any notion of borders. Scattered across the field of sand appears to be detritus of various kinds: red and white wires winding around, half buried shards of metal, and pieces of glass poking from the surface. Entrapped amongst the debris is a human figure in supine position (fig. 4). The figure is not static; there are slight movements, as if the figure is held up in mid-air by their torso while the rest of the body is subjected to gravity. There are some odd things about the figure: it is missing several limbs, like its head and arms, and the body appears to be an amalgamation of various parts, most notably its female breasts and male genitalia. Some noticeable larger pieces of metal embedded in the sand draw the viewer's eyes for closer inspection; they seem to have markings etched onto their surfaces. The markings are not completely unintelligible: one can make out shapes like circles in various sizes, rays of lines going in all directions, and most recognizable, dismembered parts of the nude human figure. Scanning across the sand, viewers will notice that there are four pieces of metal that contain these markings. These markings are not discrete images, but rather run contiguously across the four metal pieces, forming a complete diagram. Desiring to bring these pieces together physically to mend the seams, to make the image whole, the viewer tries picking up a piece. Yet in that moment of contact between the viewer and the piece of metal, the projected figure starts moving. As the viewer, now interactor, continues to hold onto that piece of metal, the central human figure's movement becomes more erratic, flailing about at increasingly rapid speeds, contorting into various anatomically impossible forms (fig. 5). Frightened by this, the viewer drops the piece of metal, and the body of the projected figure snaps back to its original form.

Figure 5. Brian Huang, Contrapposto in Space, 2024. Example of the central human figure contorting from viewer interacting with the installation. Image by author.

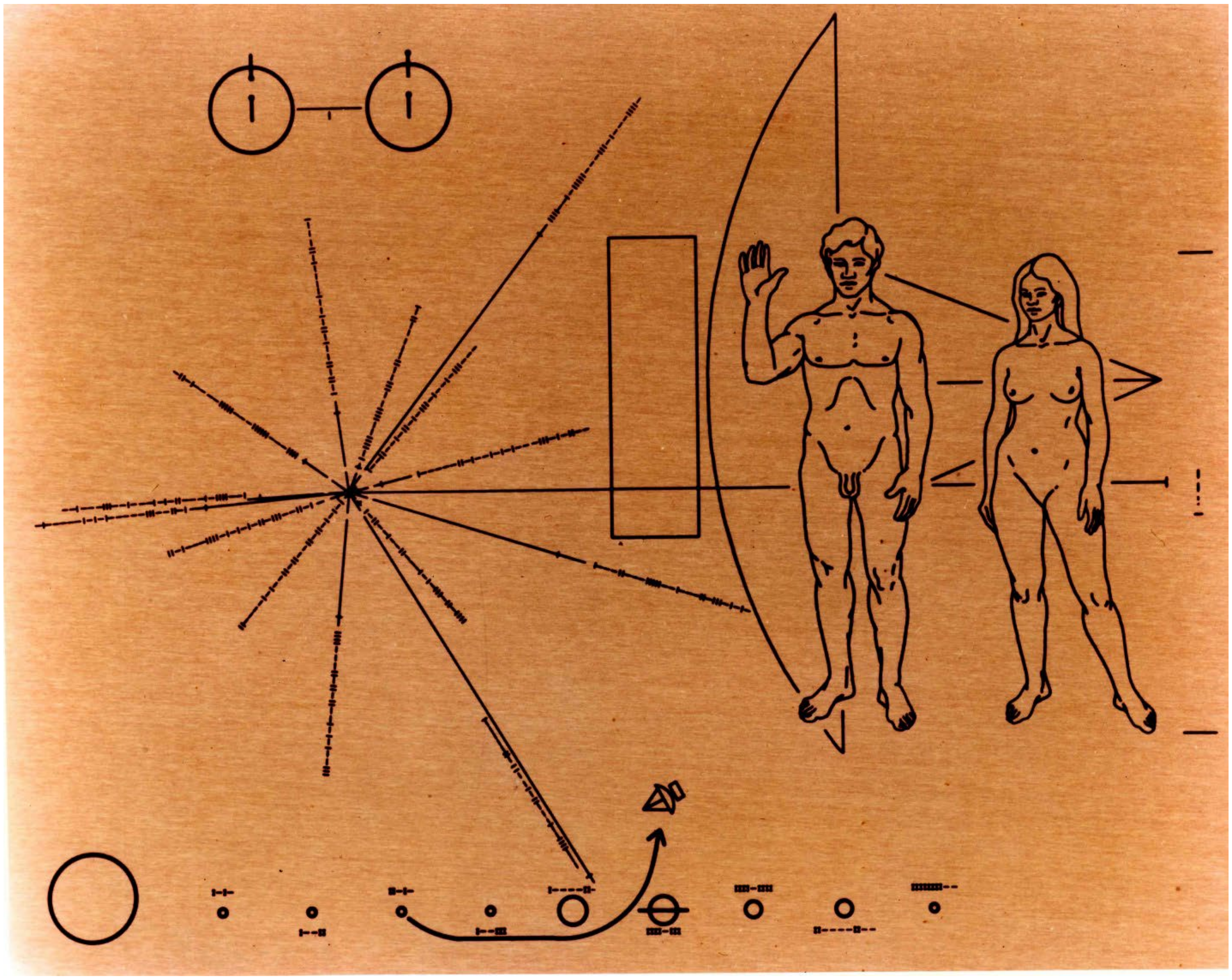

Figure 6. The complete diagram on the Pioneer Plaque placed aboard the Pioneer 10. Reproduced from “Pioneer Plaque,” National Aeronautics and Space Administration, https://science.nasa.gov/resource/pioneer-plaque/.

Unlike the pieces of hominin fossils in the previous project, which operate as of index of evolutionary history, the human figures found throughout *Contrapposto in Space* (2024) operate as an index of cultural history. If *Holes in the Sieve* (2023) asks how can the process of knowledge-making be understood as dimensions of representation, then this project asks how has dimensions of representation been instrumentalized in parallel with technoscientific activity. Let us first look at the four metal pieces containing the markings. They are a direct reference to the

Pioneer Plaque (fig. 6), a 6-inch by 9-inch gold-anodized aluminum plate that was mounted on the Pioneer 10, a spacecraft launched by NASA in 1972. While the Pioneer 10's main mission was to "perform preliminary reconnaissance in the asteroid belt" and "make the first close-up observations of Jupiter," it was also intended to become the first spacecraft to leave our solar system.[13] With its far-reaching travel ambitions, the Pioneer Plaque was placed aboard, with an informational diagram engraved on the surface, in case there were ever any "advanced technological societies capable of and interested in intercepting" the spacecraft.[14] While the circle shapes and rays of lines serve as an encoded message that, when decoded, reveals the origin of the spacecraft, the "sketch drawing" of a "man and woman" on the diagram was chosen to represent "all of mankind."[15]

[13] Carl Sagan et al., "A Message from Earth," *Science* 175, no. 4024 (1972): 881, https://doi.org/10.1126/science.175.4024.881.
[14] Sagan, "A Message from Earth," 881.
[15] Sagan, 883.

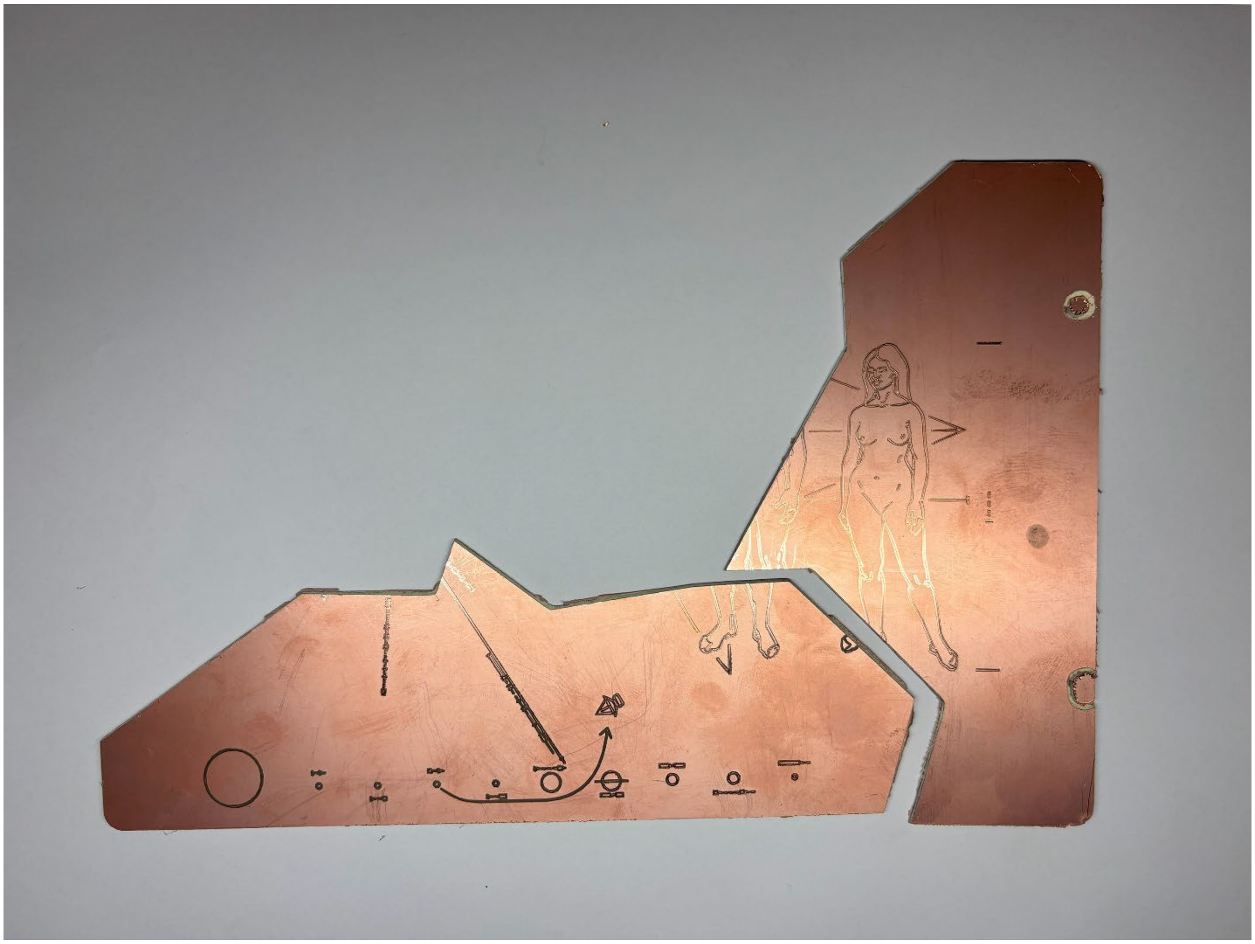

Figure 7. Metal pieces of the Pioneer Plaque recovered from the installation. Photo by author.

How did the Pioneer Plaque end up broken and buried in the sand then (fig. 7)? The original framing of the Pioneer 10 spacecraft tells an idealistic narrative of pushing humankind to the thresholds of the galaxy. This narrative operates both on a technoscientific level, since the spacecraft serves as a probe to gather more information about our solar system, and on a cultural level, since the plaque on the spacecraft serves as a way to introduce the existence of humans to extraterrestrial non-human intelligence if the spacecraft were to ever encounter any. The installation conceptualizes an alternative futurity of our relationship to space exploration, one where we imagine what would happen if the spacecraft had crash-landed instead of traveling through the infinite void of space. In this alternative futurity, both the structure of the physical craft and the integrity of the plaque have turned into debris in a violent explosion, leveling the significance of both onto the same dimension.

While the sketch drawing of the two human figures on the plaque has been violently split apart, the human figure at the center of the installation is still intact, but clearly altered. One could say that the action of violence had two effects: tearing apart, but also smashing back together. It is this sense of violence that the central human figure elicits: the momentum of the violence stitches together the two human figures back into one. While this action of stitching operates more on a metaphorical level, as the 3D model of the human figure is actually made up of 3D scans of classical Greco-Roman statues rather than having any direct relationship to the Pioneer Plaque diagram, the intention is that the human figure becomes a monstrous amalgamation of cultural representations of the idealized human form imported directly from the Western canon of art, a thread of thought that the creators of the Pioneer Plaque were trying to export into space.

While both this project and the previous project requires interaction between a physical object that affects a digital environment, in this project, the viewer is not asked to enter a mode of empirical observation of characteristics, but rather enter a mode of re-apprehending a reflection of their own representations, "a historicity linked essentially to man himself."[16]
The broken pieces of the Pioneer Plaque are not controllers; instead, they operate as props in the mise-en-scène. By interacting with the props, the viewer is implicated into the work itself, both through the action of trying to put the pieces back together, and through the actual physics of how the interaction works: the metal pieces are capacitive, and thus works because the human body conducts electricity. This tactile intervention connects the physical body of the viewer to

[16] Foucault, *The Order of Things*, 402.

the body of the projected human figure, telegraphing the effects on the human body when it is made susceptible to the harsh environment of outer space. Thus, the viewer is forced into a situation in which they reflect on the thin boundary between the optimism of space exploration, where the universe is still full of yet-to-be discovered knowledge, and space colonialism, where the universe is full of yet-to-be exploited resources.

5. Transliteration

The previous projects presented so far introduced the concept of dimensions of representation in knowledge-making. However, the projects so far have only dealt with this concept in terms of the discourse surrounding fields of technoscience: that of the human science of paleoanthropology and the technology of space research. Both projects pointed at the ways in which meaning is rendered intelligible from knowledge through the dimensions of representation rather than as an axiom of truth, where meaning and knowledge are directly correlated. I proceeded from these projects by next exploring "the opposition between the sensible and the intelligible" through the actual media that is used to carry meaning: language.[17] I use the term *language* here not to mean the literal rules of grammar, the various languages used by different cultures, nor the phonetics of speech, but rather language as "a social institution and a system of values" that make meaning through signs.[18]

[17] Jacques Derrida, *Writing and Difference*, trans. by Alan Bass (London: Routledge Classics, 2001), 355.
[18] Roland Barthes, *Elements of Semiology*, trans. by Annette Lavers and Colin Smith (New York, NY: Hill and Wang, 1977), 14.

Figure 8. Brian Huang, Poem Box, 2024. Photo by author.

The *Poem Box* (2024) is a project that explores language through the lens of poetry and AI generated content. In the project, the interactor is presented with a simple wooden box with a closed hinged lid (fig. 8). The box is free from any decorations except for two human-shaped ears located on the left and right side of the box. The interactor sticks their finger into the left ear and starts whispering a secret, confession, or regret into the right ear. This interaction is inspired by the idiom “in one ear and out the other.” When the user finishes whispering, they take their finger out of the left ear. The secret is “held” inside the box until the user decides to swing open the lid of the box. Like an act of release, the opened box beings to recite a poem out loud; the content of this poem is written based on the content that was just previously whispered into the ear of the box. With the "secret" released, although in a transformed state, the box is metaphorically "emptied," ready to hold and transform the whispers of another interactor.

Figure 9. Interactor activating and whispering into the Poem Box. Photo by author.

This project utilizes four different AI models from OpenAI: GPT-4 Turbo is used for text generation, text-to-speech, and speech-to-text, while a fork of the Whisper model called Faster Whisper is used for transcribing text. The interaction is activated by pressing a button switch located in the left ear of the box, which starts a python script that records audio onto a computer. The interactor must hold down the button switch while speaking into a small microphone hidden inside the right ear (fig. 9). When the interactor finishes speaking, they must take their finger out of the left ear, which releases the button switch. This signals the python script to temporarily save the audio recording as an mp3 file. The audio recording is then transcribed to text with

Faster Whisper. After the text has been transcribed, another python script sends the text as a prompt to GPT-4 Turbo through the OpenAI Assistant API. The OpenAI Assistant is given the following instructions: “Please write a very short poem about the secret the user submitted." After receiving the text as a prompt, the OpenAI Assistant uses GPT-4 Turbo to generate a poem based on the content of the prompt, and sends the poem back as text to the python script. OpenAI text-to-speech is then used to create an mp3 audio file of that poem with an AI generated voice. The audio file is kept indefinitely until the lid of the box is swung upon, activating a reed switch (fig. 10). When this reed switch is activated, the python script plays the mp3 audio file of the poem through a small speaker hidden inside the box. When the speaker finishes reciting the poem, the audio file of the poem is deleted. The lid of the box must then be swung closed in order for the python script to loop back to the beginning to start the process all over again.

Figure 10. Interactor swinging the lid of the Poem Box open. Photo by author.

The Poem Box project explores how meaning-making can be transformed through different dimensions of representation: that of direct communicative language and that of poetry. We should first look at how to classify the content of what the interactor whispered. The whispered content is considered a speech act of direct communication: whatever secret, confession, or regret was whispered by the interactor was done so with the intention of meaning exactly what the interactor meant to say. Consequently, the act of whispering gives the speech act a confessional aspect. This confessional aspect does two things. The first is that the interactor puts a level of trust in that whatever was spoken will maintain a secret. This is both due to the fact that the speech act was whispered, and that the content was only spoken into this box, an object that was built to keep something hidden until the person chooses to release it. The second is that, due to the obfuscation maintained by the process itself, a certain level of truth is imbued to the content of the speech act. Thus, the process itself maintains an integrity of secrecy that allows for the direct communication of confessions.

After the interactor has performed the speech act of whispering into the box, the box takes the content of that speech act and transforms it into a different dimension of representation. This dimension of representation is in the form of the poem, utilizing techniques of rhythm, rhyme, metaphor, abstraction, and imagery. These formal techniques is an integral part of utilizing language, as they allow for associations that form units which have something in common, are associated in memory, and thus form groups within which various relationships can be found.[19] When the lid of the box is swung open, there is an act of exposure: the poem is read aloud for all to hear. While this may externalize the content of the original speech act, it has also obfuscated it, as the content is no longer a direct transliteration of itself, but is rather a transformation through the formal qualities of a poem while maintaining the meaning of the content. However, since the original speech act is never revealed, the project erases "the difference between the signifier and the signified…submitting the sign to thought."[20] Rather than the original speech act being the signified and the resulting poem being the signifier, the relationship is negated through the act of withholding. The relationship between the original speech act of the whisper and the resulting poem spoken out loud results in a tension between what is knowable and what is unknowable, what is significant when making meaning, and what can occur that the thresholds of language.

[19] Barthes, *Elements of Semiology*, 58.
[20] Derrida, *Writing and Difference*, 355.

6. Obfuscation

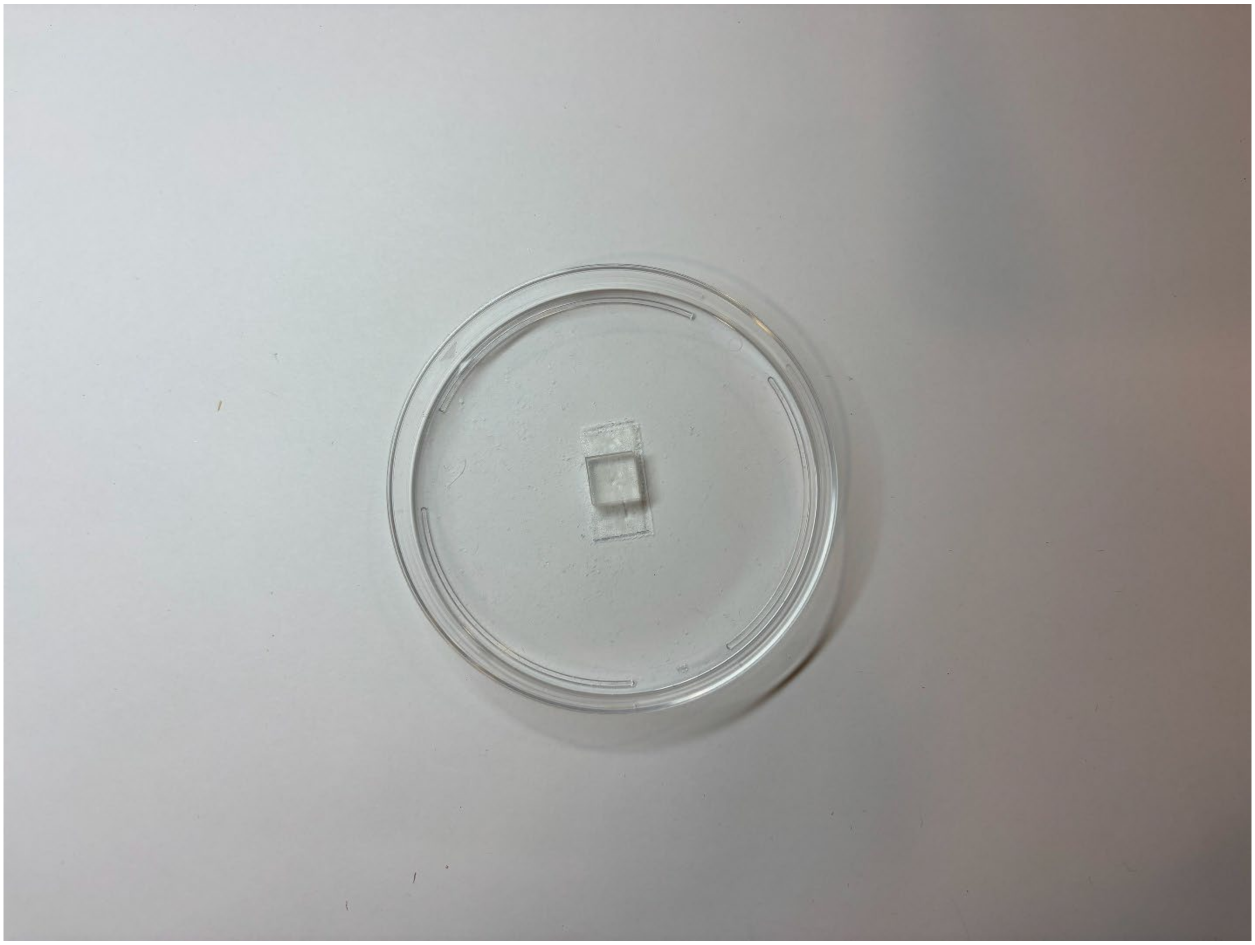

Figure 11. Nanoscale 3D print on resin substrate inside of a petri dish. Photo by author.

The *Micropoetry* (2025) project initially began as an exploration of the technology at the MIT.nano facilities, which include various equipment for fabricating and characterizing materials on the nanoscale. This resource was initially used to investigate the concept of the diffraction limit of the human eye, a physical threshold in optics where the human eye can longer resolve an image. Fabricating text on the nanoscale was the first step in this project, since text needs to be readable in order to gain meaning from it. While the main fabrication process at MIT.nano for fabricating on the nanoscale is a micro photolithographic process, it involved many steps with specialized machines that required specialized training. Instead, I settled on a 3D printing process that could print at the nanoscale. With the help of Ardalan SadeghiKivi, a staff member at MIT.nano, we made a print on an UpNano NanoOne 2-photon-based 3D printer, which uses a laser to cure resin at the nanoscale. The result was a 3D print of the words “technocrat utopia” printed in resin on top of a 10mm by 10mm by 5mm clear resin substrate base (fig. 11). This initial experiment produced the intended effect: the text is invisible to the unaided eye but was perfectly visible when viewed under a telescope. However, a glaring issue soon popped up: the print was too fragile to handle. With every attempt at handling the print, I had to be careful not to introduce too much movement, or accidentally swipe the surface where the text was printed. While I was able maintain the integrity of the print throughout successive attempts at characterization, the print deteriorated after each attempt, to the point that the print was completely destroyed (fig. 12).

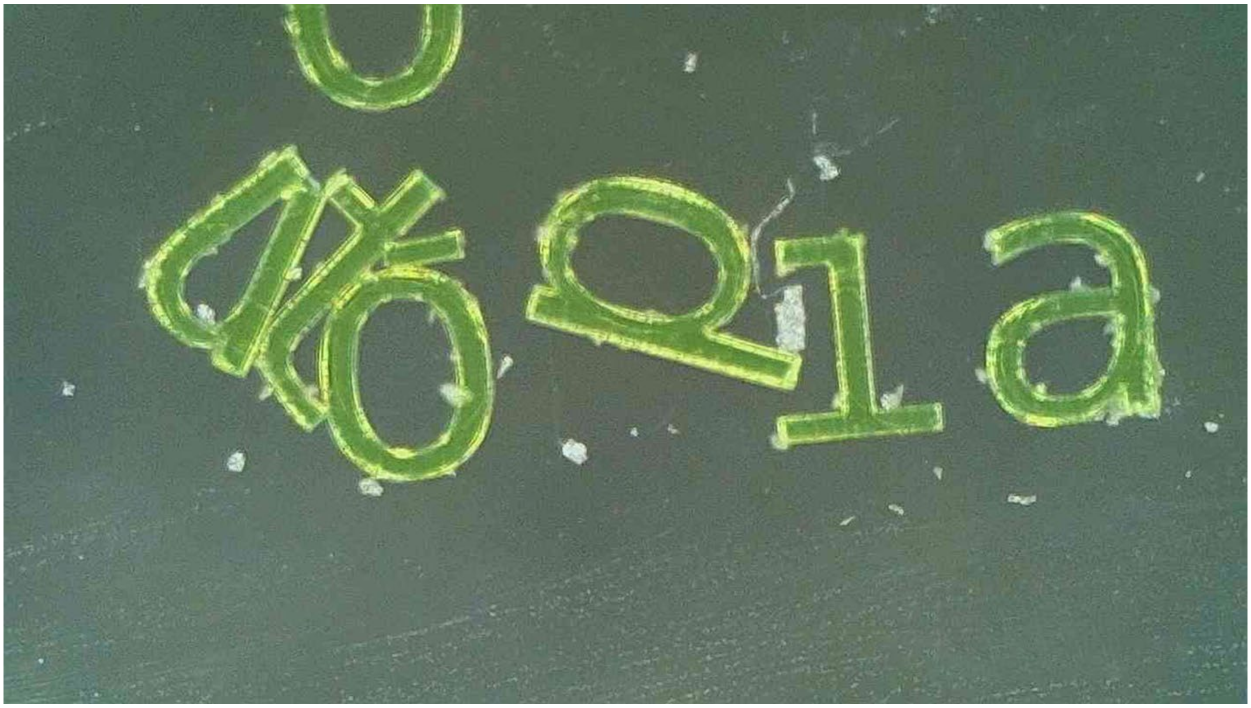

Figure 12. View of the nanoscale 3D print under microscope. Photo by author.

Figure 13. Laser engraved poem on aluminum. Photo by author.

After this experience, alternative processes were pursued for fabricating text on the nanoscale that could withstand being handled on the human scale. The first alternative process that was attempted was laser micromachining with the xTool F1 Ultra laser engraver tool located in the Center for Bits and Atoms lab. The tool uses a laser to machine an image on substrate from top to bottom in successive lines. This required a heuristic calibration process to determine the smallest resolution the machine could produce, which depended on the power and speed of the laser, as well as the composition of the substrate. The results were two pieces of aluminum with the overall dimension of 50 millimeters with a text resolution of just under one millimeter per line of text (fig. 13). The second alternative process that was pursued was going back to

MIT.nano and trying out the micro photolithography process. Unlike the laser micromachining, there was no calibration process to consistently test the smallest resolution the machine could produce; each test would require going through the entire photolithographic process over and over again. The result from this process was a 25 mm square silicon wafer with text the size of just under 1 millimeter per line of text (fig. 14).

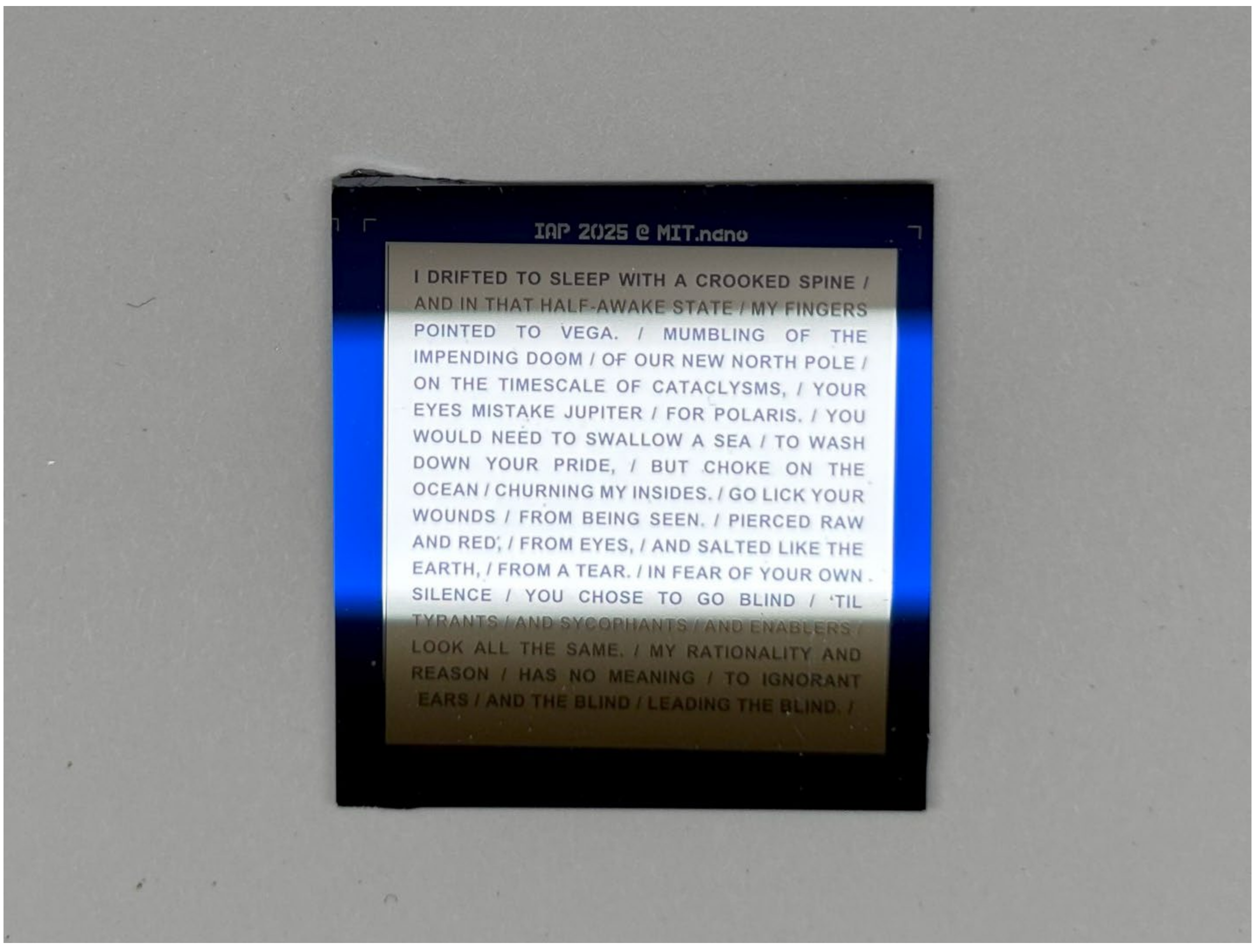

Figure 14. Silicon wafer with poem fabricated with nano photolithography. Photo by author.

Previous installation of this project utilized a commercially available microscope, which stirred interest in building a custom apparatus for magnifying and viewing the laser engraved text and the photolithography text. The design process for this apparatus began with the basic form of the pantograph, a mechanical device composed of two hinged arms that intersect at a connecting pivot point on each opposing side of the arm. When connected, the two hinged arms form a parallelogram, which contracts and expands with movement. The longer external side of the arm is used as a handle for controlling the movement of the pantograph, while the shorter external side of the arm is used as an anchor point where the pantograph is connected to a stable base. The mechanism is able to telegraph linear movement: by moving the handle, the corner of the parallelogram that is colinear to the end the handle and the end of anchor point will mirror the movement, but on a proportionally smaller scale. The reverse is also possible: by using the corner of the parallelogram as the handle and the longer external side of the arm as the focus point of the end effect, the pantograph can be used to telegraph movement on a proportionally larger scale.

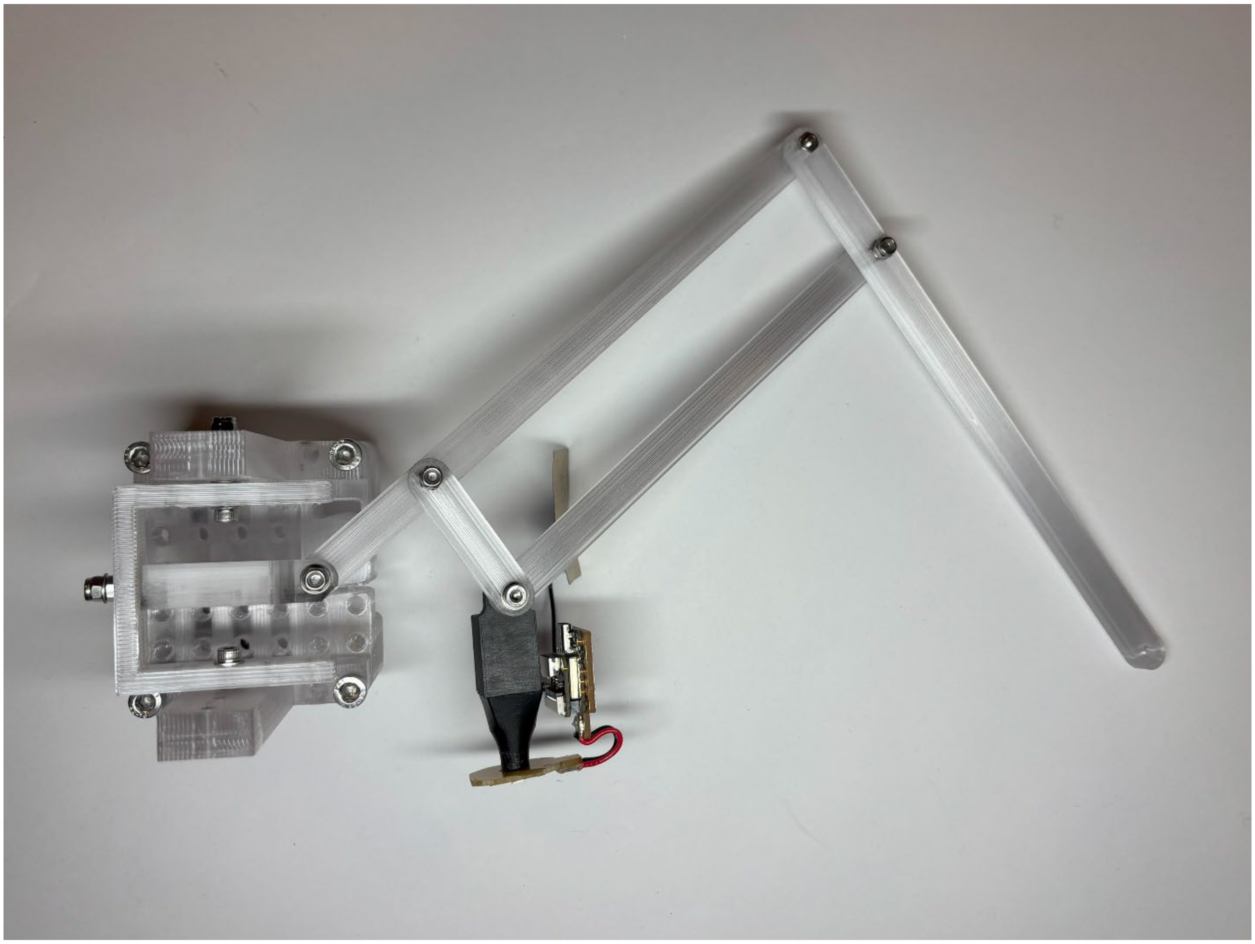

Figure 15. Custom designed pantograph mechanism. Photo by author.

The anchor point of the pantograph is connected to the center of a universal joint, allowing for rotational movement in three dimensions. This universal joint is then placed on a linear motion carriage piece so that the apparatus could move perpendicular to the linear motion of the pantograph. An optical apparatus for performing live imaging made from a modified XIAO ESP32S3 camera module is placed on the colinear corner of the parallelogram. The camera module is modified by first removing the original lens, exposing access to the onboard camera sensor. A custom designed and 3D printed lens barrel is installed on top of the camera sensor, while the original camera lens is inverted and installed on the other side of the lens barrel, turning the entire apparatus into a 20x microscope objective (fig. 15). The entire mechanism is then installed atop a piece of HDPE that serves as a base, where a sample for characterization can be placed (fig. 16).

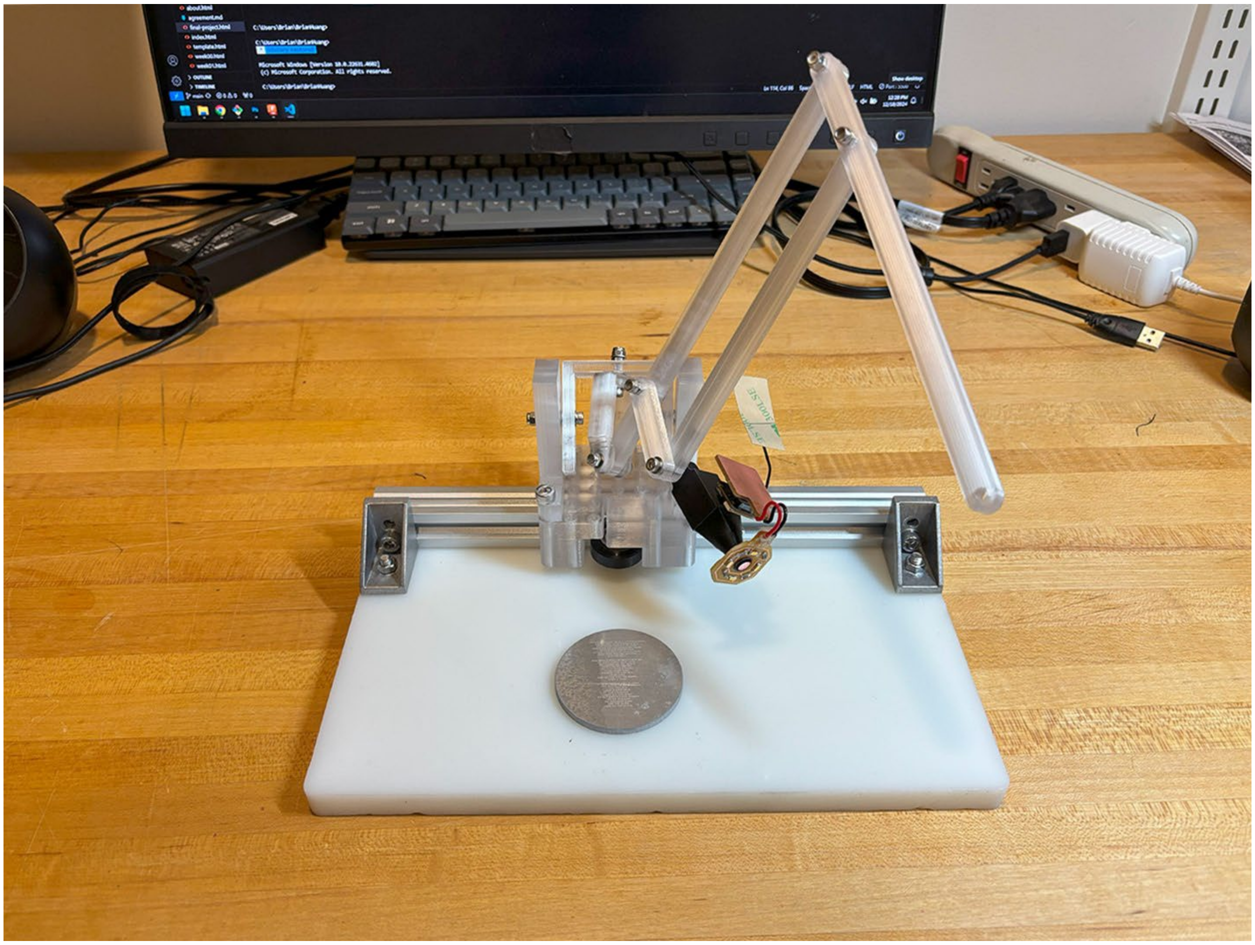

Figure 16. Custom designed microscope apparatus. Photo by author.

While the *Poem Box* project complicated the semiotics of representation, the intention behind the *Micropoetry* project is to explore the limits of representation and the consequences of such limits through the human senses. The fabrication processes available at MIT.nano promise an exactitude that was never truly reached; while the equipment is capable of producing things on the nanoscale, the text samples that were eventually fabricated never reached that level of the nanoscale. The reason for this is that precision and accuracy becomes much harder the more one strays away from the human scale: there was a constant heuristic process where you fabricated your sample, then characterized the sample to see what you made, and then fabricated the sample again based on what you learned from the characterization. Thus, the goal was no longer to fabricate text on the nanoscale, but rather on a "smaller-than-human-scale." This opened up the project so that its purpose was no longer an act of constant optimization to reach a certain goal, the goal of producing text on the nanoscale, but rather producing text that is effective for an experience on the human scale. The text no longer needs to be an exact size, but rather at a size that produces an experience with the human senses.

After the initial test with 3D printing on the nanoscale, I wrote the following poem as the intended text for further experiments in fabricating text on the nanoscale:

> I drifted to sleep with a crooked spine
> and in that half-awake state
> my fingers pointed to Vega.
> Mumbling of the impending doom
> of our new north pole
> on the timescale of cataclysms,
> your eyes mistake Jupiter
> for Polaris.
> You would need to swallow a sea
> to wash down your pride,
> but choke on the ocean
> churning my insides.
> Go lick your wounds
> from being seen.
> Pierced raw and red,
> from eyes,
> and salted like the earth,
> from a tear.
> In fear of your own silence
> you chose to go blind
> 'til tyrants
> and sycophants
> and enablers
> look all the same.
> My rationality and reason
> has no meaning

to ignorant ears
and the blind
leading the blind.

The poem delves into our reliance on visibility; how the instrumentalization of technology that is intended to reveal through the visible can just as easily obfuscate. Technology evolves by "a change of scale in the visual sphere," prioritizing the visual over "the correlations between various kinds of evidence that may be provided by one's impressions, one's readings, or learned compilations."[21] This "visuality" is not limited to the purely optical, but rather refers to visuality as a mode of observation: the equipment used to characterize at the nanoscale does not rely on capturing an image with light but rather by measuring other physical qualities of a material, yet often what is eventually produced is an image based on the data collected. The pantograph magnifying apparatus that I built for reading the poem challenges this prioritization of visuality by connecting the visual back to the body. The interactor is given complete freedom to move the lens objective attached to the apparatus, thus the ability to read the poem is completely dependent on the precision and accuracy of the interactor's bodily movements (fig. 17). Despite this freedom, the interactor finds themselves struggling with reading the poem due to this freedom; there is a disconnect between the limited movements of the hand and the immediacy of the eyes.

[21] Foucault, *The Order of Things*, 145.

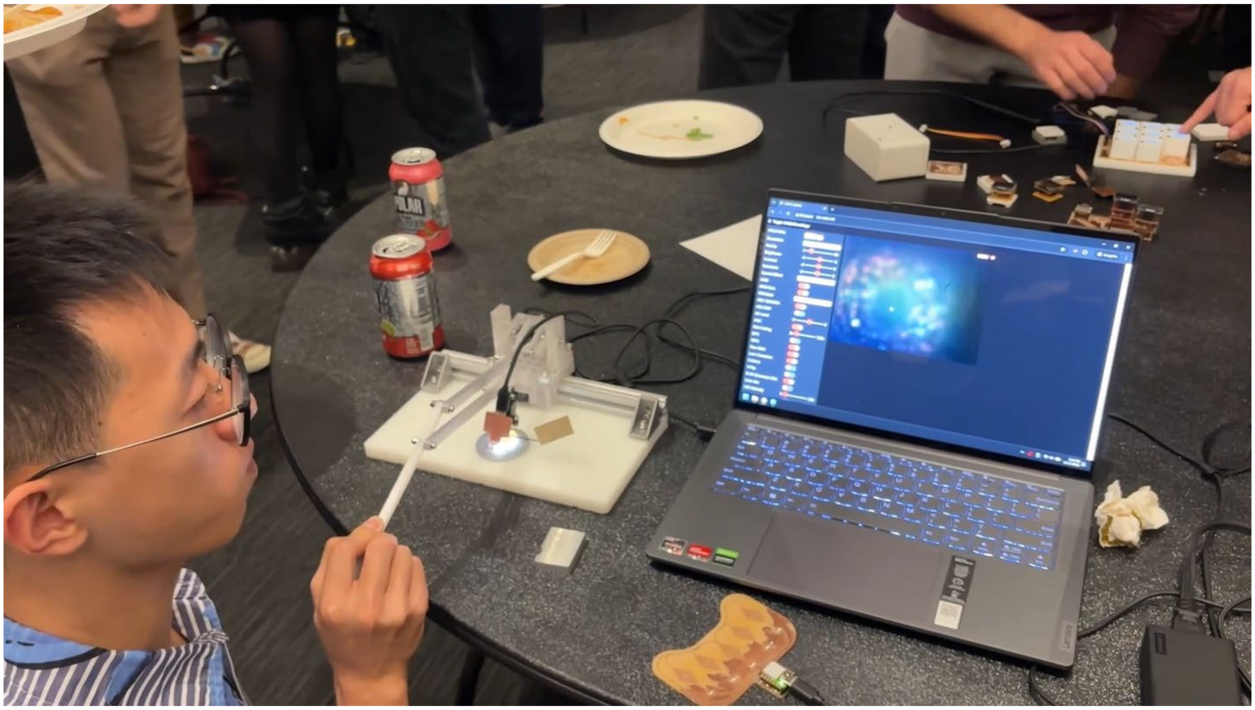

Figure 17. Person interacting with the Micropoetry apparatus. Photo by author.

7. Conclusion

We have explored four projects that track the journey from knowledge-making to knowledge un-making. In *Holes in the Sieve* (2023), we examine what it means for knowledge to be made through classification by acts of empirical observation. In *Contrapposto in Space* (2024), knowledge has been instrumentalized as dimensions of representation, taking on meaning beyond scientific knowledge. In the *Poem Box* (2024), the translation of meaning is complicated through poetry and artificial intelligence. Finally, in *Micropoetry* (2025) meaning is complete obfuscate through the very means that render meaning. What was the purpose of all this? Perhaps it is in response to a world where knowledge has become too available, and not just knowledge, but us as people too. Our being is laid bare for all the world to see, constantly circulated, disseminated, politicized, abused, appropriated. Institutions expect us to expose the most vulnerable parts of our interiority in the hopes of being seen, acknowledged, and validated. Perhaps I am tired of that and wish to no longer be understood, but to be inscrutable.

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