THE PHENOMENOLOGY OF TECHNOLOGY: A Search into the Experience of Technology and Machines

By

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1. Abstract

This paper discusses strategies for breaking conventional semiotic systems of signs and symbols towards machines and technologies, and considers alternative modes for interactive technologies and common technological objects. My research explores the use of semiotic analysis conventionally applied to machines, and questions whether this system of signs adequately describes the engagements and interactions between biological and mechanical beings. This body of work brings focus to these relationships by highlighting my works that use digital and interactive technologies to explore modes of relational feedback. The primary focus is to create an interaction with the materiality of an ever increasing digitalizing, mechanizing and animating[1] of our modern landscape. This research is driven by the premise that recognizing and exposing the modes and areas of interactivity breaks existing conditioned semiotics towards objects by allowing the agency of objects, their ability to effect change in the world based on input, to be made visible.

My inquiry into the relationships between humans and objects focuses on interactive artworks as modes for recognizing a social exchange, one that is less about the qualities of the object or subject, and instead how both contribute to an event or exchange between each other. With virtually all the technologies we will encounter on any given day being designed to interact with a human at some level, this is a point of discussion I feel we should have with our creations, both technological and artistic.

[1] Here I am using the definition of *animating* to imply a giving life to, to enliven, and to impart motion or activity onto.

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4. Glossary

Agency – I am using agency in this paper to describe an ability of beings, biological or mechanical acting by themselves in and with their environment and with other beings in a shared environment. Agency herein refers to the ability, whether active or passive, to change or make change in an environment.

Hacking - Hacking is the intellectual challenge of creatively finding or overcoming and\or circumventing limitations in systems in the pursuit of an informed familiarity and openness towards hidden processes and inner workings. I describe hacking as a process of 'getting our hands dirty', in both creatively exploring the limitations of machines and also in repurposing them in ways that are meaningful to the person engaged in hacking.

Interactivity - I am using the word interactivity to describe a process and\or facilitation, which allows a flow of information between two or more subjects, objects or beings, both who are responding to input of the other parties. Throughout this paper I describe interactivity as a process which determines our knowledge of objects and how they becoming meaningful.

Machine – I use the word machine to refer to any apparatus, object or device consisting of interrelated parts with separate functions that modifies mechanical or electrical energy, commonly though not exclusively made by human beings. I refer to machines as the object in question.

Technology - A collection of techniques, methods or processes used in the accomplishment of objectives. I use technology as the knowledge of techniques, processes, etc. or this knowledge can be embedded in machines, computers, devices, which can be operated by individuals without any detailed knowledge of the inner workings, or they can be left to act autonomously.[2]

Semiotics – Throughout this paper Semiotics refers to properties, usually referred to though not exclusively as signs and symbols, used in a process of meaning making; what or how something can be said to be informing or communicative toward another thing. The semiotics I discuss are the relevant conventional signs and symbols applied to machines, and I place these in contrast to new socialized roles of contemporary interactive objects which include the socializing behavior of humans. I present the resulting signs and symbols of this interactive relationship, between the human and the machine, as a social relationship, one requiring social semiotics to describe the relationship accurately.

[2] In the contemporary vernacular, technology and machine can and often are used synonymously. For myself I see the word technology as referring to knowledge of a process or functioning, and the machine as the embodiment of that same process or functioning. Throughout this paper the words Machine and Technology can be considered synonymous.

5. From Aesthetics

5.1. Contextualization

> "In the process of living, attainment of a period of equilibrium, is at the same time the initiation of a new relation to the environment, one that brings with it potency of new adjustments to be made through struggle" - John Dewey (16)

My practice is fueled by a fascination with machines and technology. This fascination is twofold: in how we engage with machines and technologies, and how we regard what both are. Even in my own lifetime I have come to use and rely on machines in my daily routine more with every passing year. As a child I could remember dozens of phone numbers, addresses and calendar dates. Now the memory of these is out-sourced to a small handheld device, thousands of times more powerful than the computers used to land on the moon. I use a home computer, a hundred times more powerful than my phone, to find entertainment, contact friends, find and store information and on which I rely upon for various primary stages in my non-digital art practice. I use various wheeled machines to transport my physical self from place to place, the range and speed of which is determined by its capacity and functionality without regard to my physical self. There are countless machines and technologies in the banal and routine activities of my life. I am entrenched, surrounded by, and utterly dependent on the presence and the functioning of these machines to survive and function adequately amongst the other humans in my contemporary life. Philosopher of technology Lewis Mumford expressed this same observation, claiming 'no one can hope to achieve any kind of personal integrity in the modern world who is not at home with the machine' (Art, 54).. I am fascinated, not worried, by technology's abundance because of how much more there is to know of it, and of the many possibilities to experience it.

A television appears as a glowing rectangle in a black plastic case, with different buttons causing different sounds and lights to emit; it is infinitely more complex than this. The notion that it is a complex composite of parts concealed behind what is actually seen or experienced is known and accepted. I find, however that I know very little about how such machines work and what it is they really are. When appreciated for the functionality that a television has within its current arrangement, there is apparently little cause for wonder or awe. It was designed to appear simple and to do a very limited range of functions, and to do them well. But when the casings are taken off, and the actual working components are exposed, the visual and technical depth, as well as the overall complexity, the common TV can induce a curiosity about its details: the mechanics behind each part, what they are, the potentials and possibilities of what a television or other appliance can do and not just what it was made for and sold to do in its current form. The common objects in our daily routines are so complex that to pursue a study of them and their relationship with us appears both as an intimidating challenge and an inviting opportunity. This is the starting point for my research, the 'what' it is and the 'how' to engage with the complexity of contemporary machines and technology. I am focused primarily on creating an interaction with the materiality of the ever increasing digitalizing, mechanizing and animating of our modern landscape. Within this landscape "we all live machine centered lives: everyone's life is full of automated tellers, portable phones…keyboards, mice" (Ullman 146). Here, I am interested in this landscape that is populated and defined by both human and non-human participants, and the space that is created between how and where the two interact. I investigate this interactive space through a disassembling of contemporary technological objects, such as televisions and printers. This allows me to acquire a working technical knowledge of how they operate and to create new interactive assemblages that allow others to explore a direct relationship with technology.

5.2. Mechtech rhythms and breaking into the Electrotech Boogaloo

> "To dance in a ballet invokes one kind of aesthetic linked to but distinct from watching the ballet as an object…The object experience distances the aesthetic object of action. It becomes something to be regarded, to be interacted with, perhaps opposed and rejected, perhaps accepted, but always as something 'out there' – Barry Brummett (19)

My research into technology and mechanics comes from a background in painting and illustration. My paintings and drawings are explorations in the abundance, linkages and complexities of machines, and in the aesthetic qualities of the mechanical landscape. I cite an influence in exploring the landscapes of machines from the works of H.R. Giger.

H.R. Giger's painting series entitled *N.Y. City* explores an aspect of the aesthetics of machines by embellishing the complexity and intricacy that our mechanical environment has become. He uses a mechanical tool, the airbrush, designed primarily for technical drawings of machines, along with stencils, to create a seemingly endless and expansive series of repetitive forms. In Giger's work we can see what philosopher and Communications Studies expert Barry Brummett describes as a *mechtech* aesthetic. The *mechtech* aesthetic is symbolic of the well-oiled machine, the rhythmic patterned activity of the factory, and the blur of spinning parts in motion (Rhetoric, 29). The *mechtech* involves a dimensional awareness of both the "surface and depth of the outer hull of the machine and its inner workings" (32). It is the "machine in context", with the motion and workings of each part being framed within its housing, that allows a vision towards each part, and how it also functions within a relation to the whole machine; "an important part of the *mechtech's* … aesthetic is the revelation of how a machine works"(34). In the *mechtech* we can see how each piece of the machine functions, allowing us to deduce the total function

of the machine, provided we take the time to explore it enough. But more than being a didactic “means to knowledge” it is also a “means to order,” an approach to organizing a rhythmic order, pattern, and structure from the chaotic depths of experience (35). Giger’s paintings used a starkly colored palette but instead relying on richly built layers of repetitive mechanical forms, we can see in his work a perception of the constitution of machines, an expansive repetition to the point that it becomes a mechanical landscape that is almost visually impenetrable. This work and its use of repetitive forms also speak to the mass-produced abundance of machines. These are all perspectives I find useful for studying a mechanical environment, and I have attempted to develop this within my own work.

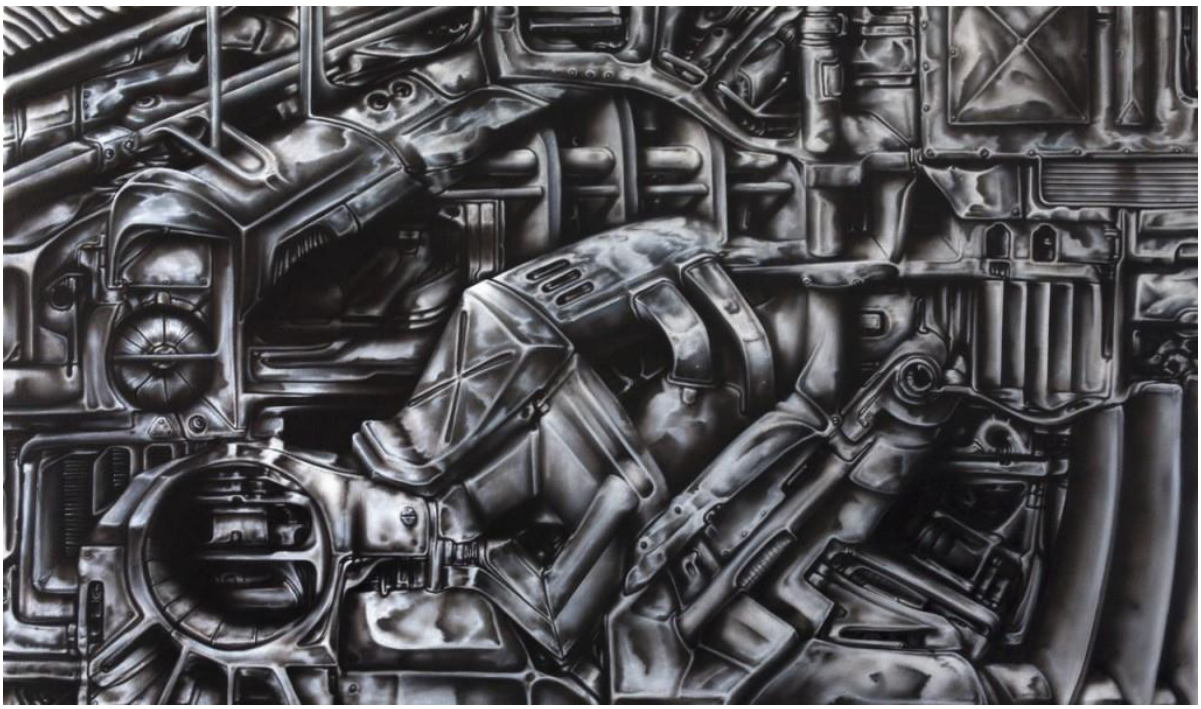

Fig. 1: Dallas V. Duobaitis. Mechtech #1. 2013. Acrylic on Canvas. 30”x48”. Photo: Dallas V. Duobaitis. Used by permission of the artist.

Figure 2 has been removed due to copyright restrictions. The information removed is *New York City III (Straight),* painted by H.R. Giger.

Fig. 2: H.R. Giger New York City III (Straight), 1980. Acrylic and Ink on paper. 100cm x 70cm.

Mechtech #1 is a visual construct of the *mechtech* aesthetic that Brummett describes. Using a constructive quality, the painting depicts a mechanical structure within which a clear purpose or function is obscured. This work was created from the mechanical components in my daily routine: bolts, casings, formed metals, conduits, vents, fasteners, anything physical and mechanical I would encounter while moving through my own routine rhythm. These forms are composed to create a disassociation and disorientation within the image, giving a viewer cause to wander constructively, building speculative relations between different parts of forms within the improbable visual space of the painting. I chose to arrange the composition this way to recreate the envelopment I felt in perceiving how mechanical elements populate my environment -- a relation of parts, separate though connected through my own patterned rhythm of motion. The composition creates a structure without either a clear purpose or function, but at the same time clearly made from mechanical metallic material such as girders, screws,

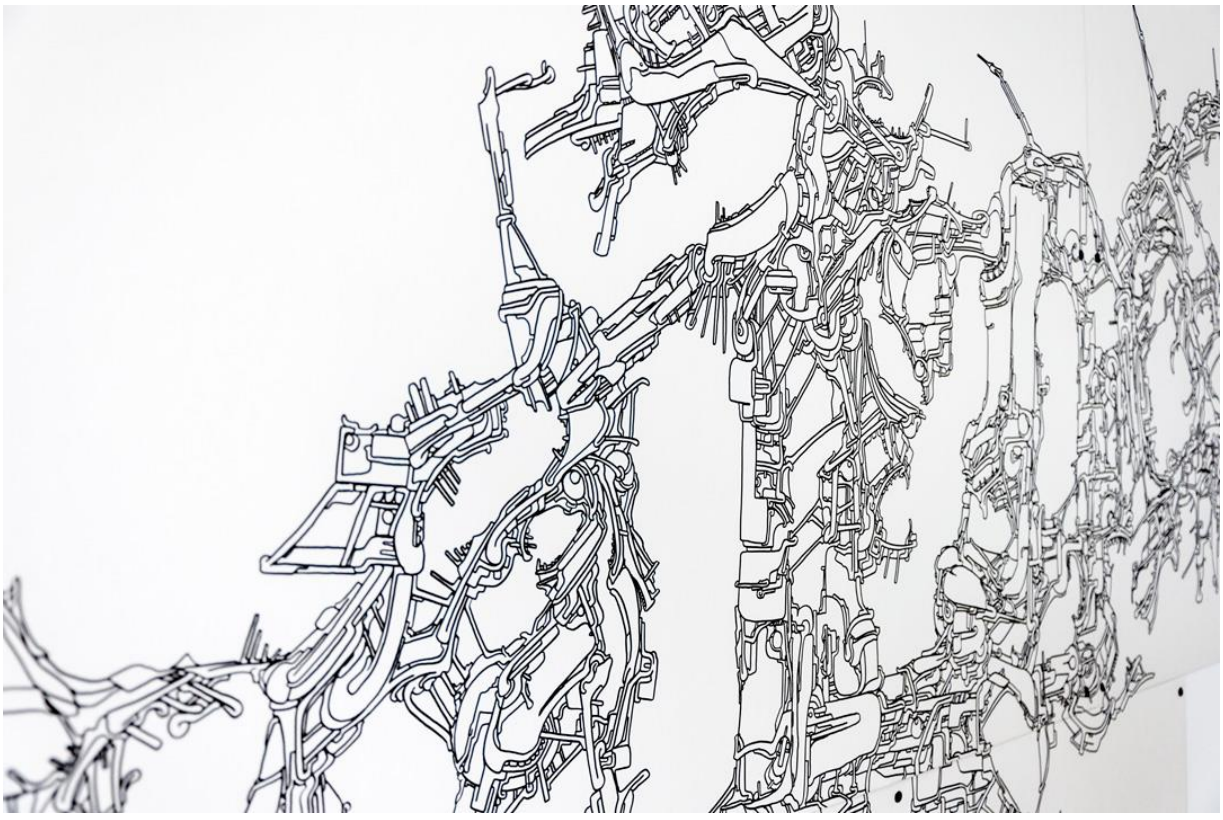

Fig. 3: Dallas V. Duobaitis.[RE]purposing, 2013. Ink on board, screws. 7'x9'. Photo: Dallas V. Duobaitis. Used by permission of the artist.

exhaust vents, form bent steel, seams in plate steel and glinting reflections. I am aware of these materials but find I am ignorant of the process of their construction and the role they play in the complex matrix of mechanical activity surrounding me. I lose a sense of place when appreciating the plethora of ways the parts intermingle, compiled into structures past the limits of vision, though within each part is a place to start to decode the functioning whirl of mechanical motion of amassing structures. I move through layers of accumulated technological infrastructures in my daily activities, though I am ignorant of the processes and 'goings on' in each layer of surrounding technology. To accept this ignorance and not become aware and informed of the 'goings on' of my environment is anathema for me. This ignorance gives us no claim to complain when a machine functions opposite to the way we expect or when it breaks. We can only operate appropriately or efficiently in an environment of which we are adequately informed. Telephone and electrical cables overhead, the whirl of exhaust fans, the maze of conduits crisscrossing for air, electricity, water, waste and more than I know of, surround and envelop me, layered and constructed around, and on top of, existing technologies and machines-- it usually being easy or cheaper to just leave infrastructure in place, and to bury it behind the new, than to completely remove it. From being lost in this tangled maze, where can we begin to discern, map and navigate this landscape that surrounds us?

Similarly my drawing *[RE]purposing* was drawn with a purely additive process, constructing another mechanical structure that has the capacity to expand outwards endlessly with a complexity of repeatable forms. By extending the image past the edge of a single panel, and by screwing each panel into the wall, the image expresses a constructed and additive quality in a mechanical image, whether considered as a landscape or as a map. This process of drawing produces more than a complexity; it is an image on a scale that becomes daunting or compelling to navigate. This depicts a visual quality as a response to both the complexity and to the network of linked mechanical and technological devices in my contemporary environment. The parts, though they may appear separate, are connected in a flowing

rhythm, and this rhythm is perceivable. Individual components can become lost in a tangled maze of pieces and forms, but each piece can also be an entry point to explore, to build, order, and identify this complicated and intricate network of parts that is, while complicated, discernible. Philosopher, psychologist and educator John Dewey spoke to this idea of an "aesthetic rhythm" claiming it "is a matter of perception and includes whatever is contributed by the self in the active process of perceiving" (Art, 169). I see this rhythm as the confusion and incorporation that results in a new or challenging experience, a rhythm that results from the fluctuation between confusion and clarity as we actively construct purposes or functions from what it is we perceive. For Dewey the work of art in its actuality was in the act of perceiving; the physical thing being perceived was only the art product (168). This aesthetic rhythm that Dewey described, that requires an aspect of the self-engaged in the act of perception, permeates my work.

Where the *mechtech* aesthetic depicts the physicality and rhythm of machines, Brummett also defined conversely the *electrotech* aesthetic, accounting for the intangible and hidden side of machines. But beyond the qualifier, *electrotech*, as the name implies, relies upon electricity to function--it creates a different kind of machine and from this a different aesthetic (58). We experience the surface of an *electrotech* machine, but are prevented from witnessing the electrical functions in the way we see them opening in the *mechtech* (62). Brummett admits that the development of the *electrotech* aesthetic is the result of communication media, leaving the mechanics of these machines intangible to the eye and frequently also to touch, until they influence the physicality of the *mechtech* (60). From the telephone to email, the *electrotech* is a signifier for the "power to send and receive messages vast distances", the act of which is reduced "to quiet movements of punching buttons or turning knobs". (60) We often perceive only a "skin" or protective case to the *electrotech* machine, creating a dual effect where "the skin, and the nature of the machine itself, also serves the purpose of making the interior of the machine a

mystery"(63). Truly, while the *electrotech* is a facilitation of communication it does "not allow easy understanding of [its] mechanical interiors" (64).

Fig. 4: Dallas V. Duobaitis. a conversation between a tv and a printer. 2014. Mixed media. 7'x12'. Installed at Mitchell Press Gallery. Photo: Dallas V. Duobaitis. Used by permission of the artist.

My work titled *a conversation between a tv and a printer,* expresses these hidden, mysterious and unknown qualities of the *electrotech*. Here a TV and a computer printer are dismantled, down to their smallest components. From these a new appliance, a hybrid from the two is created exposing all the hidden components. This hybrid of machines, having both *mechtech* and *electrotech* qualities, does not serve a human's need or even allow for input from a human. Instead of an exchange between a

human and a machine, here is created a literal conversation between these two devices at a material level. In line with Brummett's description, that the *electrotech* is a hidden or concealed quality of the mechanics of parts, the work is both an exposing of this concealment and a catalyst for communication. There is a facilitated information exchange between these two otherwise distinct and isolated machines whose functions are both based on electricity and are symbols of the *electrotech* aesthetic. This communication is made contrary to the intended design of the manufacturers and is achieved by finding what appears to be input and output cables from both machines. (Warranties were voided by this act.) By connecting their cables, they can each communicate with the other. What they communicate, and whether they communicate meaningfully or not, I do not know; but the fact that there is an exchange between them, we can know and see, through the changing distortion on the screen.

Where the *mechtech* is a signifier of the physicality of a machine, and the *electrotech* the intangible and hidden qualities as modes of communication, these two aesthetic signifiers operate only where we consider the machine as an object, something distinct and outside of a relation to ourselves. To have a concept of machines in either of these two semiotics is to appreciate the machine's qualities as an object, but this omits a huge contributing factor to our understanding and appreciation of machines. The *mechtech* and *electrotech* omit the participation of human interaction with a machine through the signifying process with the non-human object. Different methods of appreciation are needed when we consider the active participation of a human with the mechanical object. The point of intersection between human and non-human requires semiotics that include the socializing[3] nature of the human, and the mechanical nature of the machine. With the abundance of so called 'smart objects', which have an ability to discern things from their environment and to predict outcomes and interact with the world, we have to find new ways of relating to objects that have a capacity for agency. Cars

[3] Social refers to the interaction of beings, whether organic or inorganic, with other beings and to their collective co-existence, irrespective of whether they are aware of it or not, and irrespective of whether the interaction is voluntary or involuntary.

that drive themselves, TV's and music players that will tailor and suggest media based on our viewing habits, and courier drones that are now independent of human control delivering pizza and packages ordered online, are to name just a few ways one can expect to relate in a socialized way with a machine. When we consider our connection with machines as more than a subject-object relation, we are opening up a discussion to how there is not only reciprocity of interaction, but also how both us and machines are conditionally changed by the relationship. This discussion opens up new modes of understanding when audience participation is considered in the reading of object and artwork. The next line of inquiry for this research is whether it is appropriate to consider these as socialized modes of appreciation.

6. To Action

6.1. Seeing Darkly through the lens of a machine

> "New media at its best 'invest in bodily affectivity…it has the capacity to go beyond the aesthetic perception of the object' and have us encounter a 'non-representational experience'. Technologies affect what it means to be an embodied agent; they create spaces for experience and practice" – Nathanial Stern (82)

John Dewey's claim of the active self, engaged in an act of perception, is fastened here with Brummett's assertion that to engage with something is an 'investment of the self with the object … it becomes us, and we become part of it' (19). How true this is where the machines find a niche in our lives to fill. Wherever we might find a place to mechanize an aspect of our environment we shortly find it impossible to do without the advantage it brings. This expansive development and inclusion into our environment creates new possibilities for exploring the world via technical means. But Brummett continues by claiming that to engage with "an object or to participate in an action personally [with it] entails a special kind of aesthetic reaction that is distinct from seeing it [only] as an object" (18). This I find is especially true when it comes to technology. We are marketed and sold technological objects with only a specific role or function they are intended to serve. Designer and architectural writer Brent Brolin explains that in a capitalist culture that worships perpetual progress, machines become the visible signs of progress, and they captivate the mind, implicating that the shape, forms and semiotics of machines convey cultural and social values for more than just pragmatics (48). This makes me ask: In an environment where even a toothbrush can have a computer in it, have we accustomed ourselves so much to these as only symbols of progress, as Brolin describes, that we can only see them in a context of a personal advancement? We are introduced and presented with new technological objects and advancements that arise from the capitalist market place as 'products' to be sold to consumers primed for new conveyances or comforts by technological means. We are stuck relating the physicality of the

mechtech and intangibility of the *electrotech*, these signifiers used to convey advancements of "more access, more information, more speed, more power", but rarely new skill, knowledge or understanding in the user (Richards 30). But we are also, in engaging with these objects of speed, power and convenience, opening ourselves up to forces and agencies unknown to us, where "plugging in is an act of vulnerability" (Richards, 30). We can become mesmerized and pacified by what these new marketed advancements offer. Rarely however, do they allow open access to how they work, or to the full range of their functioning. Our perceptions become fixed on consumerist pacification, a result of seeing these things as products to be acquired or used, and not for what effect or function these objects are having on us until we are past a point of no return. If alternative modes can exist, do more socialized interactions allow a fuller and more immersive understanding of machines and our relations towards them? I assert that this starts when the designed functions are manipulated and altered and find a different application; here we begin to engage with the machine not just as integral thing, but as a current state of something dynamic, modular and not fixed and in doing so we begin to 'socialize' the object. This research and body of work endeavors to see if other more socialized modes of signification can exist which take into account the interaction of a human with a machine which has the ability to act within the world.

Really any machine or consumer appliance and its constitutive parts can be made to have a multitude of different functions, uses and applications. Not all the uses of machines need to signify advancement. A TV is more than a glowing sound emitting rectangle with buttons, more than an apparatus for display. We perceive only a fraction of the processes, functions and applications, from the prescriptive and minimalized consumerist design, leaving us only minimal modes of appreciation, perceptions and interaction of the possible applications of technology. The experience of technology is mediated, conditioned, marketed, and sold with only certain uses in mind. This creates a separation and isolation between the user and the processes within a machine, which becomes an abstracted

mysterious box which performs some function, but we've little to no idea how or why-- an *electrotech* aesthetic embraced to an extreme. This is not only a result of the *electrotech* nature of the machine as an object, but it is the result of how we are presented with, and have facilitated engagements with these objects as the product of human design, mass production and market forces.

Media artist Catherine Richards comments on the dangers of becoming changed by our technological environments. Participating in the system, "by logging in" or buying mysterious boxes of power "…means vulnerability. The more subtle the system [or minimal and mediated] we desire, the more intimate the relationship with it" (Richards 30).[4] From our intimate reliance, so grows proportionally our vulnerability to it (30). There is always a danger in ignorance, and the more impenetrable to our perceptions the technological landscape becomes, the greater our danger — resulting in fear towards the object of ignorance. We come to rely more and more on machines, but at the cost of not experiencing the depths of the machines because of a mediation and minimization that separates us from what is really going on. Does this mimic Philosopher Paul Virilio's claim that we are in a loop "in the science of speed" and there is a disorientation and loss of meaning and sense of direction from having technology only convey more progress, more speed, more power (Speed, 77).

It stands to reason that if technology's dominant conveyance of speed, power and progress results from a separation and mediation that minimizes our engagement with technology, to create the reverse would have the opposite effect. By a perversion of the designed function we open up and expand the modes of relating to machines, and our modes of understanding towards them. We can begin to unfold and investigate or if need be intervene in the tangled relationship between us and technology by exploring the materiality of machines, informing ourselves to their operations and from this create machines that break or go beyond the established interpretations. In exploring this

[4] I acknowledge that this idea describing our relationship with technology and media goes back further to Marshall McLuhan and Walter Benjamin.

interactive relationship, we must be actively involved in this exchange to see and experience its effects and how we are entwined together.

6.2. The Aquarious Mood Lounge

"Throughout American history, a common strategy for producing social change without debating it explicitly has been to delegate the change to technology. This strategy often remains inexplicit because popular theorizing in America imagines technology not as a social phenomenon but as a force external to society that impacts on it and to which society must adapt" – Barry Brummett (26)

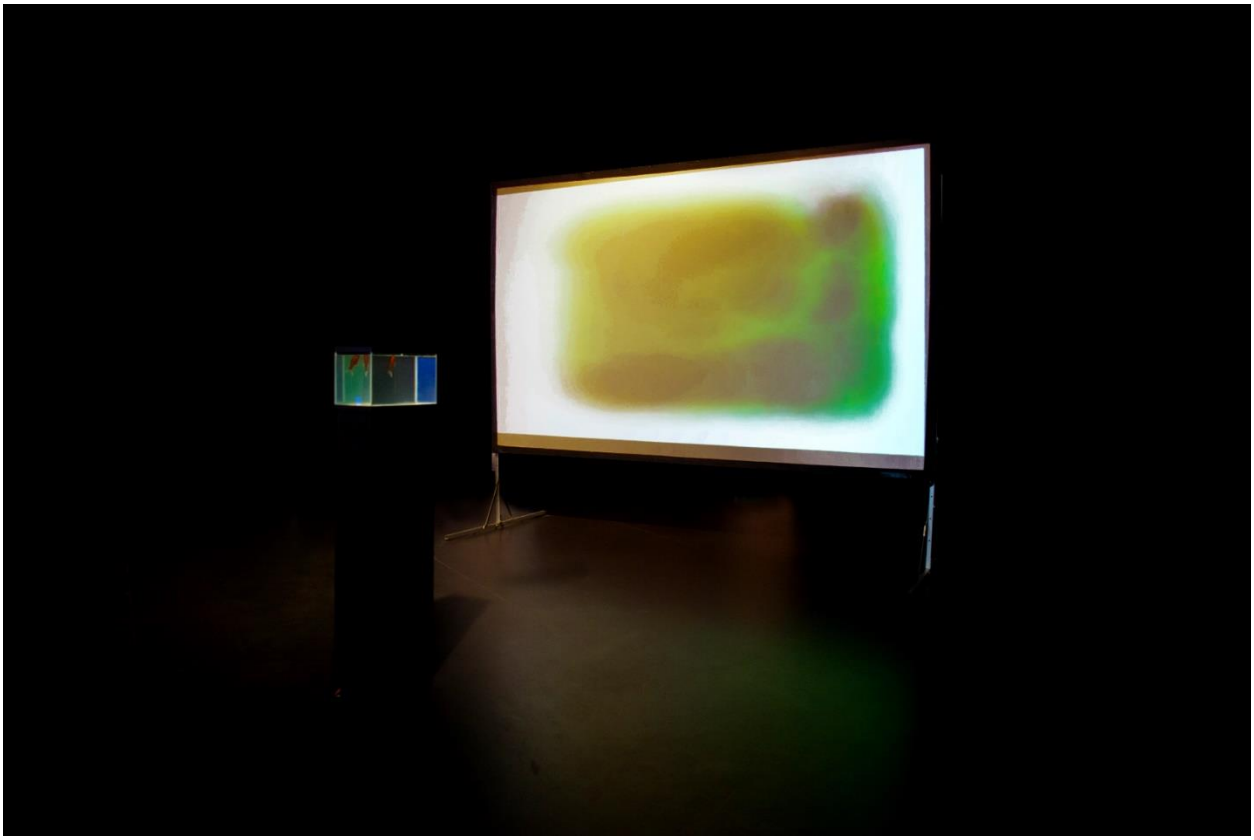

Fig. 5: Dallas V. Duobaitis. The Aquarious Mood Lounge. 2014. Mixed media. 15'x15'. Installed at the Center for Digital Media. Photo: Amanda Arcuri. Used by permission of the artist.

My piece *the Aquarious Mood Lounge* is addressing the anthropocentric and consumer nature of technology, by changing the attention of technology away from the human and towards a fish in an aquarium. This is done by using a hacked motion sensor, altered to perceive the fish and used to control an audio-visual installation. A goldfish is placed in an aquarium on top of a built to fit four-foot plinth.

The movements of the goldfish determine the visuals on a projector and compose a changing melody from speakers. The effect is of an environment dictated by the decisions of a non-human inhabitant with a displaced sensor intended and designed for human hands.[5] The fish 'paints' on the screen from its movements. The same position data is used to compose a melody that is changed every eight seconds with the new position replacing one note of a seven-note melody. It takes a minute for a complete change in the melody, and it is done one note at a time, resulting in a subtle changing of ambience. The installation is a subtle, minimal display, containing only a screen with the projected image, two speakers and a bare aquarium on top of a black plinth holding the fish. The minimal display, hiding the technical array of mismatched and jerry-rigged technologies to produce the work, comments on the 'mysterious black boxes of power' that are often presented as new technologies.

Framed within a description that this work is being marketed as the latest in biofeedback climate control[6]; this is a satirical work using the minimalist and mediated tropes of consumer product

[5] The sensor hacked in this piece was the then just released Leap Motion sensor, a small infrared sensor designed to detect hands and to recognized the tip and joint of each finger and the position of the palms. The intended applications for this sensor are to create a hands-on approach to interfacing with a computer by allowing the movements and position of the hand to control a computer and replace the mouse and key board. I hacked this by having the sensor only look for one point of reflected light, this allows the fish to control the piece, the rest of whatever it sees is just discarded. The location in XYZ space is then converted to Open Sound Control (OSC) protocol data, this protocol is a type of data normally used for digital and electronic music, but I used it here within the programming language MaxMSP, which can read the OSC data as well as send the same data back out to a digital synthesizer to produce the sound. MaxMSP is a graphic programming environment, normally intended for composing complicated electronic sound and music; it can read the data from the sensor when it is converted to OSC. MaxMSP also has a limited ability to produce visuals by creating matrixes of colour data for a screen. The XYZ data is process by MaxMSP in two ways: for generating the colour on the screen and the melody through the speakers. The position of the fish in the X axis, left and right, and Y axis, forward and back, across the aquarium determines the position of a circular gradient of colour in a corresponding position on the screen. The colour of the gradient is determined by the Z axis or height the fish swims. The notes are converted to digital keys for a synthesizer and sent out via OSC to a synth program running on the same computer which reads the data and plays the according keys producing a aquatic sounding effect.

[6] "The goldfish, that most ubiquitous, disposable and non-committable of bio entertainments is now available for the latest in Bio-feedback audio-visual ambiance. Have a soothing dynamic environment in your own living room, let the cultivated relationship between you and nature shine and ring through to harmonize your room. Utilizing the gentle relaxing subtleties of the goldfish's natural movements coordinated by the latest in evolved bio stabilizers, the Aquarius Mood Lounge integrates the goldfish's gentle responses and harmonizing calm nature into a living environment. No longer will you have to attune your living space manually. Let the Aquarius Mood Lounge

marketing as a means of challenging the anthropocentric nature of technology by asking the question: *when this is altered, how do we then view or relate to it?* The piece fosters a need for new modes of engagement with the machine containing a 'bio-sensor', which detects and responds to stimuli in the environment. Engagement with the fish becomes a requirement for the human to influence the installation: *the Aquarious Mood Lounge* receives input, but not from a human, unless they somehow learn to relate to and influence the fish. With this work there is an open-end dialogue for pursuing more lateral modes for the progression of technology by repositioning it both materially and semiotically. A nod to the steampunk genre is implied, with the suggestion that we might have to go backwards a few paces, or try outlandish or clumsy approaches to see our current state of technology more clearly.

This piece can also be categorized as a generative artwork, relying on the movements of the fish to generate the audio\visual qualities of the space. It is more complicated than that for me, as the fish responds to environmental conditions, much as we do, and it would frequently change its behavior depending on the proximity of people in the space. It is unknown how much the fish's behavior was affected by being in the installation, or how much it was aware of the power it had in its new habitat--power to affect the space more than the humans in the same space. The piece generated a predominantly green hue and low tone, due, I suspect, to the fish having no place to hide and preferring to linger at the bottom and less exposed area of the tank. By removing ourselves from the relationship, but still creating one between the fish and the machine, we can see the relational feedback that results between the machine and the fish. Is the fish controlling the machine, or is the fish simply a part of a new larger machine, acting as one unit within a complicated web of integrated and responding parts? To answer that question we are asking the same as when we drive a car or watch TV--when we activate them, we are plugging ourselves into the machine by turning it on and letting it engage a potential at

naturally stabilize the light sounds and mood of a room like no other climate control can. The Aquarius mood lounge is a green technology product."

the same time that we become vulnerable to its effect on us. We become as people-machine hybrids, a new whole capable of far more than the sum of its parts. When we are engaging with the machine, and not substituted by a fish, we are offering up a piece of ourselves--even if only our attention-- to the machine. To avoid being trapped in our own technological aquarium, we must be actively aware, and engage directly with our machines, to determine if we are being trapped in a semiotic bubble of more speed, power and convenience.

6.3. Oh, I see what you did there

"things wonder about one another without getting confirmation" –Ian Bogost (28)

With this research I am attempting to create what media philosopher Vera Buhlmann describes as 'expressive events', these are "events, involving the active participation of the interpreter in the process of signification in a semiotic sense" with mechanical and technological objects (Poetics 16). She describes the 'expressive event' as the initial moment of the signifying process, the moment that something becomes significant, yet still unmediated, still un-interpreted and without a position in relation to a fixed reality(13). This research creates works which give cause for re-evaluating and creating avenues for reconsidering both our relationship with our surrounding technologies, and our interdependencies with machines. This is performed from a non-fixed position, one that exists in a state of reflexivity towards possible processes of relating interactively-- this is to recognize our interactive relationship in the signification process. To achieve the 'expressive event', interactivity plays a crucial role in determining the works I am creating. In a sense, by being interactive with the technology, the viewer gains some ability to demystify or at least confront technology more directly.

These art "objects in a semiotic sense do not exist autonomously ... their meaning fundamentally depends on how the interpreter enters into a relation to what they perceive as significant…identity in a semiotic sense is procedural in that it comes into being through relations, relations between the interpreter and the materiality perceived by the her as significant"(13). From this, a subjective engagement and the interaction between a human participant and the machine becomes important for these 'expressive events' to occur. This is the very space in which I find the real body of my work exists, not in an objective quality of an art work as an object, but through creating the potential and capacity for direct interaction between the human and the machine. In this manner I can facilitate exchanges that result in 'expressive events'. Once we see the relationship with machines as one of

creating interactive hybrids between us and the machines, we can see that the *mechtech* and the *electrotech* semiotics are omitting the human, and in the process determining the semiotic. Buhlmann continues, explaining that:

> "the semiotic theory of signification is essentially relational and dynamic: it goes beyond an understanding of the signification as an ideally static representation of an object through the mediating sign…We are always interactively partaking. Interpretation … consequently is processual, referred to as the semiosis, of ongoing interpretation. Meaning in a semiotic sense is not there for us to detect, but comes into being through every act of interpretation. Meaning is being (inter)actively produced, rather than autonomously existing in a world surrounding us." (8)

How we interact with, and through, technology alters the modes of relation and the possibilities for assigning semiotic meaning to it. An example of this can be seen in artist Thijs Rijker's *Suicide Machines*. These machines are constructed from found and displaced mechanical devices, altered so that when turned on, they will engage in a slow self-destructive act that purposely ends with their eventual dysfunction. Aptly named "Suicide Machines," we can see these art works as applications of a re-signification process by the artist, interacting with the machine at the material and the semiotic level. This is only a starting point for the discussion of interaction and re-signification with machines, only taking into account the interactions of the artist. I am interested in the experience of interaction with a machine and the resulting affect and how this changes the semiotics towards it, not just for myself in the act of creating alone, but also the creation of works that facilitate interaction between the work and a viewer.

Figure 6 has been removed due to copyright restrictions. The information removed is *Suicide Machine Saw* by Thijs Rijker.

Fig. 6: Thijs Rijker. *Suicide Machine Saw.* Mixed media. 2014.

Philosopher and media theorist Nathaniel Stern asserts that through interacting with machines one facilitates ‘‘embodied engagements with technology [which can] dislocate habitual experience” (Interactive, 14). Stern continues in claiming that it is through interactivity that “both human and non-human continuity, affect, movement, and relationships are precisely what constitute and differentiate human and non-human matter” (57). I see this as discussing the problem of how to relate with the non-human agency of the machine, its ability to affect the world around it, and how we include it within our personal environment and abilities to affect the world. Through recognizing the mutual agency, the ways in which the machine informs us and we inform it, we can see as Stern points out: “an embodiment that is moving-thinking-feeling, a body more than its signs and significations, more than what we see or look at, more than skin, flesh, and bone” or cables, electronics or mechanics (54). This

notion compounds the issues for relating semantically to our technology, because it is a process that questions and re-defines our definitions for where the machine ends and the human begins. Can a machine be said to commit suicide, a biological and generally human activity, without any other intended function? The more complicated and dynamic the possibilities of machines become, the more complicated it becomes to identify with the machine, requiring new, more dynamic modes of relation to be developed. When machines do more than what we ask or expect them to, and when we know that there is more going on then we can perceive, alienation and a fear, born from an ignorance of the working and functioning of machines, may result. But again, the mediation of machines and of their functioning exacerbates this fear or intimidation by the unknown, and yet all-encompassing environment we now live in. It is through interacting with it, at a deep and personal level, that we become acquainted with the other, and the fear becomes replaced with understanding.

6.4. the Eye

"Experience is the result, the sign, and the reward of that interaction of the organism and environment which, when it is carried to the full, is a transformation of interaction into participation and communication" – John Dewey (22)

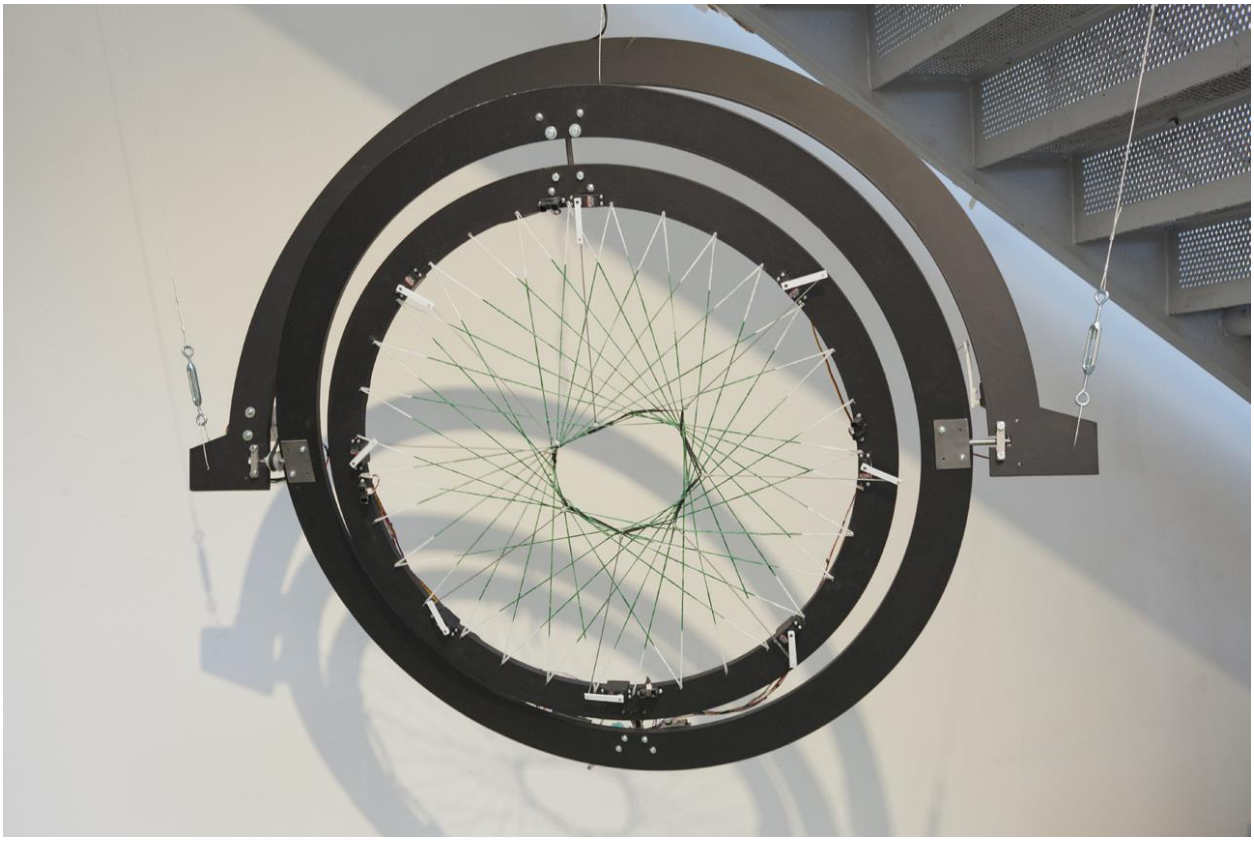

Fig. 7: Dallas V. Duobaitis. The EYE. 2014. Wood, metal, Servos, Infrared Sensors, Microcontroller, elastics. 5'x.5'x4'. Installed in Concourse Gallery at Emily Carr University of Art and Design. Photo: Amanda Arcuri. Used by permission of the artist.

My work *the EYE* is an exploration of the possibility of Vera Buhlmann's 'expressive event'-- the initial moment of the signifying process, before any mediation or position in a fixed reality. This work creates a form of social relation, a moment of mutual action and reaction between the work and the viewer, both who 'see' and are being 'seen'. This is a socialized moment, one I consider 'similar' to the experience of

stumbling upon a bear in the wild and that moment when you both have to determine the other's intentions and watch each other's movements. Here the socialized exchange exists in the form of the returned gaze of the machine with a human.

This work is constructed out of common and recognizable machine parts and materials, and uses Infrared sensors and small motors to track and follow the movements of a viewer standing in front of it.[7] *The EYE*, 'sees' a viewer by four Infrared sensors mounted in the top, bottom, left, and right edges of the inner most ring. The rotation of the gimbal is determined by the range that the pairs of sensors see, up and down, left and right. The eye will try to move to equal out this distance between the two when it perceives something in front. The result is a rotation to focus directly on the position of a viewer within five feet from the front. Congruently, the iris servos will open or close the iris to the degree that there is distance between the work and the viewer. When there is no one in proximity the EYE will explore the space, looking gently in a random pattern for someone. The iris responds with generated patterns of movement showing the inquisitive and contemplative mood of the piece.

It was my attempt to create a moment with the capacity for mutual agency in the work by granting the work the ability to 'see' and 'respond': *The EYE* does see, though by a limited and rather myopic means, it also responds to what it sees by trying to focus on what is in front of it, both by rotating and adjustments of its iris to follow the shape of what it sees. By juxtaposing this within the signifying form of an eye, it creates a semiotic 'hack', by allowing us to see it 'seeing' us. The recognizable materials were chosen instead of a more seamless contraption, to maintain a humble honesty to the work, by an easy recognition of materials, in what could otherwise be a threatening or

[7] Common ¾ inch plywood was cut into 2 concentric rings and one half ring for the exterior of a gimbal suspension system. This allows the whole piece to rotate in 360 degrees on two axis between the outer two rings. Using pillow block bearing the 3 wooding pieces rotate with the aid of small servo motors attached near the axis's of rotation. Within the inner most ring is an array of 8 servos, attached around the innermost edge. These servos are individually controlled, and manipulate the elastic iris of the symbolic eye. The elastics are made from hair tie elastics; the web of them expands and contracts with the movement of the servos which are attached to the middle of web via bicycle time spokes.

dominating presence on the part of the machine. Instead, the work was made to be large, but gentle in movements, a massive eye, but with a short range of sight. In order to encourage a reconsidering of the gaze of the machine this combining of opposite traits leaves the work with a sense of imperfection and contrariness, by exposing its limitations and in the animating of otherwise inert materials. The result is a social machine that responds eagerly to the presence or attention of a viewer. But more than this, in the interaction of the piece, it facilitates the exploration of its capacities, to let the viewer see what it cannot do, just as much as what it can and will do. It becomes more than just wood and wire, elastics and electronics, motors and mechanics, *the EYE* becomes an object of agency; one that, though composed of various separate parts, has the ability to act and engage with the world.

New media artist David Rokeby addresses the role of the interactive object. Relatable to my own work, he writes that "interactive artists are engaged in changing the relationship between artists and their media, and between artworks and their audience" (Rokeby). Further to this he says, "rather than creating finished works, the interactive artist creates relationships" (Rokeby). These relationships are "not intended to be an extension of the interactor" but "these automata survey and maneuver through their environment, of which the spectators are only one aspect" (Rokeby). Rokeby's own work, *Very Nervous System*, also explores the space of interaction and the relationship within the field of interaction between a human and a machine which are interacting with each other. In *Very Nervous System* a computer observes a participant via video camera, processing the image of the participant's movement through space into sounds and music, influenced by how the person moves through the space. Rokeby states that this work was the result of an impulse towards a contrariness of aspects, similarly to those I placed in *the EYE* (Rokeby). He states that using a computer as a medium is inherently biased, and with *Very Nervous System* he was using the computer to work purposely against these biases (Rokeby). I see Rokeby's approach in *Very Nervous System* as working in parallel to my own attempts at breaking existing semiotics and conventions towards machines. "Because the computer

removes you from your body, the body should be strongly engaged. Because the computer's activity takes place on the tiny playing fields of integrated circuits, the encounter with the computer should take place in human-scaled physical space. Because the computer is objective and disinterested, the experience should be intimate" (Rokeby). Both in Rokeby's *Very Nervous System* and in my own work *the Eye* there is a feedback loop, one that is "not simply 'negative' or 'positive'… the loop is subject to constant transformation as the elements, human and computer, change in response to each other" (Rokeby).

With regards to my own work that explores interactive engagements with machines, I focus on the machine's capacity for agency. By dissociating existing signifiers, the work gives us cause to reassess how we perceive and conceive the machine. This informs how we not only interact with it, but also how it becomes significant in a semiotic sense by requiring an active engagement of the viewer in the generation or determination of the semiotic implications of the piece. The existing signifiers begin to fall short of describing the full affect of the work; it becomes significant as something more dynamic and intimate than a mere object. A moment of mutual interactive engagement results from how and where the two, the human and the machine, meet in this moment as an 'expressive event' and here begins the socializing semiotic for the machine. Fear of what can be, at first sight, considered menacing or threatening, becomes replaced by curiosity to explore its functions, materials, movements and limitations. But even more than this, the relational exploration of how it responds to us, our movements and our contribution in the exploration, all relate back to the work, causing a feedback loop of action-action-action between us and the machine. This is facilitated by the returned and recognized gaze of the familiar but alien other. Rokeby addresses this in stating that within interactive artwork "the power of [the] expression is multiplied by the fact that the interactors themselves become referents of the work" (Rokeby). To account for this returned and referent gaze we need a signifier that allows for the social role now held by the machine.

6.5. Look Igor It's alive, sort of …

> "It is important to note that all of matter, not just the body, is active, continuously variable, and relational… Subjects and objects are inter-given; they only exist as in-process relations to other in-process subjects and objects, relaying nested movements and potentials across themselves and each other, as they continuously form" – Nathanial Stern (63)

In addressing the problem of relating socially with non-human things, game designer and philosopher Ian Bogost speaks of an Object Oriented Ontology as an alternative for how we can discuss issues of being in and with other things. The Object Oriented Ontology "puts things at the center of being… [it] contends that nothing has special status, but that everything exists equally – plumbers, cotton, bonobos, DVD players…" (Alien, 6). The Object Oriented Ontology is the dissolution of a subject-object relation--the implied hierarchy of a subject over an object is replaced with an equalized field of relation. To fully address the signification of technology and machines, we must see that "objects do not relate merely through human use but through any use, including all relations between one object and any other" (6). This then is a point to consider if we are to acknowledge our role in the signification process of things. That it is a socialization between the two, an event and a fluid point of relation, not a definitive or static one that can be accurately viewed from only one perspective. There is a reciprocal dynamism in an Object Oriented Ontology between us and machines which results in a signification from the contributions of both parties. The 'stuff' of our environment, doesn't just expand to include humans as things, but also the reverse; the things of our environment have a social status and become alive in how they are assembled from an association of parts, whether they are including us or not.

Bogost addresses this expansion and social status of things in what can be perceived as a separation between perceived unrelated and distinct objects by instead discussing them within the notion of a unit: "units are isolated entities trapped together inside other units … a unit is never an atom, but a set, a grouping of other units that act together as a system; the unit operation is always

fractal." (28) When we think of machines or technologies it is easy to create complexes of different units focusing on the macro result, such as the TV or car-- the total combination and arrangement. However we omit our own involvement or inclusion in the determining of the result. This is also at the expense of the layers of accumulation of different parts, and their individual relations. A TV or a car is hundreds to thousands of 'units' relating together; to see a TV as only a visual apparatus, or a car as a means of transportation, are both simplifications omitting the true range of what it means to be a TV or a car; "things are not merely what they do, but things do indeed do things" (128). This is also to exclude the human interaction in a further combination of units with the machine-- how we interact with the machine affects and changes both contributing units in the new grouping. Applying a semiotics toward an arrangement of 'units' does not necessarily reflect the ontology of the object, but it does convey "what it means that something in particular is for another thing that is"(30). Usually this is only within our own perspective and not resulting from a reciprocal perspective, one that reflects the relationship between the units, whether one of them is human or not (30). To ascribe meaning is to acknowledge the singular perspective of the perceiver in the act of perceiving, and not the totality of what it is that is perceived. This is something Bogost addresses, claiming that "when we ask what it means to be something, we pose a question that exceeds our grasp of the being of the world. These known unknowns characterize things about an object that may or may not be obvious – or even knowable...the problem of being…consists precisely in the ways those objects exceed what we know or ever can know about them" (30). This raises the issue of the hidden qualities of the mechanical processes and how we consider its Ontology through acts of relation, for "only some portion of the domain of being is obvious to any given object [or person] at a particular time. For the udon noodle, the being of the soup bowl does not intersect with the commercial transaction through which the noodle house sells it" (30). But, the more we are granted access to perceive and interact with the hidden 'units' within a car or TV the more closely we can comprehend its Ontology. Within the body of my work I am attempting to open up

glimpses into the hidden world of the machines and their composition, and to facilitate intimate engagements for a viewer to directly relate with the otherwise hidden units and their own relations.

Philosopher Bruno Latour addresses a position similar to Bogost, and in his assertion that *we have never been modern*, he also argues for a discussion of the role non-humans play in the shaping of Ontology. Latour argues that the imposing of indisputable facts towards a perceived separate and distinct nature is an assertion relying only on a human centered position; this creates an alienation of all the other known agencies and agents that perceive and participate in a common world (Modern). The alternative Latour argues for is the 'socialization of nonhumans' into a 'democracy of objects' and that we should include their ways of mediation in the world as fellow citizens (136). To engage with the socializing of non-humans is to acknowledge both the ways non-humans affect our capacity for perceiving ontologies, and also the signifiers that result from our interaction and inclusion with them into a new ontology. This entails seeing ourselves as only one force or agent amongst others, "in order to make room, today, for the nonhumans created by science and technology" (137). As we will no doubt only continue to mechanize our environment and see the world via technological means we had best recognize not only how the lens of the machine changes our view of the world, both also how the machine's existence effects and changes its surrounding environment.

The 'democratizing of objects', is to take into account the role that non-human agents have in affecting our notions of ontology and our semiotics resulting from them. Removing ourselves and our perceptions as the lone signifier opens the door to different and alien ontologies, but these ontologies are not imaginary, only alien to our own perspective, a result of seeing only through our own particular composition of 'units' of skin, flesh and bone. The body of work I am creating actively takes into account and relies on the machine's ability, an alien ability, to perceive and respond in a manner reflecting its mechanical ontology. To have these interactive socializing machines reflect human behaviors would just

be an exercise in mimicry of the human ontology through mechanical means. I am interested in what a machine's ontology is, and what it means to be a machine, through creating social engagements as meeting points with them and not having them only recreate human behavior in a mechanical context. Bogost asserts that when we break free of our own context we begin to see our relations with our machines as "something quite different: [they operate as] an alien probe that turns us into aliens, gathering data from a strange visual field, analyzing it … and reporting back its distorted impressions of our extraterrestrial world" (107). We begin to see the world through different eyes, eyes that see, but see through fluctuations in voltage, through infrared light or microwave radiation to name only a few. These are senses we humans do not possess, yet we are aware exist and we can have a vision of them through the aid of mechanical eyes. They show us alien worlds through alien eyes. Through the concept of the 'unit' asserts that at the core of unit operations is a process of accounting for the phenomenon of the other object, and "by which a unit attempts to make sense of another… it is a situation rather than the counting-for-one that establishes it" (28).

This appreciation for how other things make sense of the world entails that the semiotic meaning acquired from interaction is synonymous to "knowledge and labor not being opposites but two sides of the same coin"(Alien, 91). This implies the need to be actively engaged or embodied to both acquire and exercise what we know. When we consider an Object Oriented Ontology and the agencies and multiplicities of perspectives of being we can see that if "a physician is someone who practices medicine, perhaps a metaphysician [and with this research, an artist and viewer] ought to be someone who practices ontology" (91). This creative practice of Ontology is what Ian Bogost defined as an act of 'carpentry' (92). Carpentry is a "phrase to refer to how things fashion one another and the world at large" and it implies being present in the act of creation, both physically and semiotically, by using "one's own hands" and "like mechanics, philosophers [and artists] ought to get their hands dirty", if they want to get to the heart of the matter (92). To be a *carpenter* is to be more than just a fabricator, it

means being an actor who is engaged in the signification process, which requires a direct and personal engagement with the other. Through the self-engaged act we become phenomenologists who perform carpentry, perceiving within a machine the unit operation of the other's experience (100). As *carpenters* we must explore the tangible, or hands on, grasp of the unit operations of the other in order to knowingly interact, interpret and knowingly modify.

An important point to emphasize in the idea of *carpentry* is that it is not simply the will being expressed in an inert material, but it is a situation of awareness, that arises from the embodied activity between two agents; "the world of meaning and the world of being are one and the same world, that of translation" (Latour 129). We artists and viewers, as *carpenters*, act not from an imposition of will, but in a reciprocal dance of various forces amongst other forces, "humans are not the ones who arbitrarily add the 'symbolic dimension' to pure material forces. These forces are as transcendent, active, agitated, spiritual, as we are" (Latour, 128). Lastly, as we technologize our environment more and more, animating every device we imagine, and the depth of our '*carpendric*' knowledge increases, "we shift [our] focus more intensely toward hardware and software as actors" ones that are different, alien, but actors alongside us every day and in almost every way (Bogost 100). Perhaps this is the result of the present state of the post-information age where what were merely objects have now become mechanized *smart* objects, with senses and a recognizable effect upon the world such that "more than earlier generations, ours has digested, integrated, and perhaps socialized them"(Latour 127).

6.6. Pinocchioculi

"Engaging interactively with our surroundings means incorporating the encountered other, very much in the intimate sense…Interactive encounters are transformative: information is not passive and external, but always already contained, as an intensive potential" – Vera Buhlmann (22)

Fig. 8: Dallas V. Duobaitis. *Pinocchioculi*. 2014. Mixed media. 7'x8'. Installed in Mitchell Press Gallery. Photo: Amanda Arcuri. Used with permission of the artist.

Pinocchioculi is a work exploring the reversal of an audience of the artwork; here the human acts as a random generator[8], providing input for variables which determine the movements and the generative quality of the work. Here the role of the audience is put into question, by the creation of a community of wooden eyes that sense and respond to the movements of a human. This piece responds by opening each 'eye' to focus on the presence of a viewer standing in proximity to the work. This piece is similar to *the EYE,* where both are attempting to address the gaze present within a machine, here in *Pinocchioculi* the work is not a single figure, but a swarm, a community of 'eyes' which see and affect what they see.

Five repeated forms, functioning as mechanical irises, and made from laser cut wood, are held together by three bolts and inserted directly into the wall. In the middle of each iris is an ultrasonic sensor which is in control of the opening and controlling of the iris.[9] The closing parts of the eye are made from hand-cut and glued paper. A single servo attached to one gear opens or closes the iris in response to the presence of a viewer standing in front of the particular iris. The movement of the iris is very loud and sounds insect-like in the rotation movements of the servo, gear and iris. The array of irises are attached and coordinated via a microcontroller which is the 'nerve center' for the piece. This controller is also screwed directly into the wall and left visible, exposed and vulnerable. The irises work in isolation from each other, each responding by opening and closing itself based on the distance of a viewer. The array is positioned so the further away a viewer stands in relation to the work and sensing field, each sensor will begin to overlap and thus multiple ones will trigger, though at different distances. When idle, due to the irises not detecting someone, they will begin a 'sleeping' pattern by blinking and

[8] Normally a random generator would be written into the code to have the work produce more varied effects. Here I consider the variety and un-predictable contribution from the viewer as the component that 'randomly' determines the piece.

[9] This is the MaxBotic EZ LV-1 sensor, a small all-purpose indoor ultrasonic sensor that is most commonly found in vending machines and automated kiosks. This sensor operates by sending out a pulse of sound at a frequency beyond our range of hearing, and it then listens for an echo of the same sound. It then converts the time taken for the echo to return and converts it into a variable voltage or Pulse Width Modulation (PWM) on the microcontroller. All the sensors use the same frequency and will respond to the echoes intend for neighboring sensors, to get reliable readings I have to individually sequence the sensors, to pulse and listen.

engaging in random patterns of movements and lights, in times ranging from 20-40 seconds. This ensures the work is dynamic even if 'idle'.

Pinocchioculi and *the EYE* are both works which explore the idea of *carpentry* within an artwork. Using materials uncommonly associated with machines, and physically depicted electrical workings, *Pinocchioculi* is a humble creation of little wooden eyes which try to mimic the object they perceive. This work, along with *the EYE*, are explorations into the limits of both the *mechtech* and *electrotech* aesthetics, by using unconventional materials and approaches to utilize both aesthetics and find where they begin to dissolve into an aesthetic that is less about the object and more about the relation of parts and between it and the viewer. Here wood and paper are used to construct the moving parts of work, the exposed and mechanical parts being not only seen but identifiable in a mechanical object, creating discordance for the choice of materials and moving parts. The electrical circuitry is crafted, within each wooden eye, to take up a physical dimension and to present the physicality of electrical processes. Analog computing is created via integrated circuits that receive a pulse from the opening operations of the iris; this creates a clocking circuit which produces flashing lights with LED's of different colors. The closer the viewer stands the wider the iris opens, this allows and can encourage a viewer to intimately engage with the work. This analog circuit is created in a complex fashion using rigid uncoated steel wire to create a physical circuit that is exposed and open, with each component being shown along with its relation to the circuit and the wooden and paper iris. Even if the actual flow of electrical energy remains intangible, the physicality of the electrical machine is made physical and tangible.

The OOO and the democracy of objects are implied in this work from the irregularity of materials and from the creation of a responsive community of objects that respond to and influence a human viewer. The gaze of the machine is also implied-- we 'see' it 'seeing' us. This is often cause for alarm when made apparent, but this reflects our technological environment, which is full of little

machines, all connected together through wires, responding to input from our activities. We may be casually unaware of the huge array of machines sensing, collecting data and responding to our movements and activities, but how do we stand in relation to these machines, and their recognized agency once it is seen and known? A slick seamless exterior, or a minimalist design may and often does obscure what is really going on underneath, and just how and where we are being watched. What machines see and do are often hidden, but here they are open and vulnerable, with even their power supply--the force that gives them power and connecting to the networked technological environment--left out and exposed to the possible agency of a human. In *Pinocchioculi* we are required to get close to the cacophony of the machines, to both see the detail of their workings and also to engage with them, to let them be aware of us, should we so choose. But more than this the work also stands to remind us of our own ability and agency to affect the machines, by being closer or further, by finding the limits of their 'vision' or by simply being reminded that we can tamper with them if we so choose.

6.7. Better Living through Hacking

> "That things are is not a matter of debate. What it means that something in particular is for another thing that is: this is the question that interests me…things speculate and furthermore, one that speculates about how things speculate" - Ian Bogost (30)

When we are being Carpenters --where a hands on, applied knowledge is acquired and expressed in the semiotic process of meaning making from engaging with the units of our landscape-- a new way of working arises to break existing defined conventions. The emerging culture around the idea of the 'hack' and the hackerspace culture, reads as a reaction to artificial limitations, the grooming of technology for only specific ends and the separation from an informed familiarity and openness towards its processes and inner workings. This is possibly the result of a postindustrial Capitalism, where ideas--and from this it follows experiences-- can be owned, controlled, regulated and marketed. Regardless, Brummett asserts that 'how we think about experience is influenced by our machines and our ways of using them'(25) When we consider this alongside the concept of *carpentry* and the hackerspace, these read as the rejection of the limitations of prescribed or marketed notions of technical means. We must be hackers, both as viewers and artists, to appreciate the hidden workings of machines and technology. To hack implies a break; a break from convention or from prescribed design, and a willful exploration to acquire information regarding an unknown potential and, where possible, a re-purposing of it to suit different ends. There is a parallel here with Dewey's description of an aesthetic rhythm, the 'loss or falling out of integration' with our perceptions and the reintegration back with what is perceived as these perceptions form into purposes in the perceiver. To be a hacker is to play actively within Dewey's aesthetic rhythm, breaking apart and reintegrating in purposes meaningful to the perceiving hacking *carpenter*. The fact that a thing can be hacked into something new implies that what it is has not yet been fully explored, considered or applied. But more than that, to engage in a hack is to convey a break in an established or mediated semiotic to the object. To perform a 'hack' on a machine means to create

a link “between the signifying materiality and the accordingly signified objectivity, and also between the interpreter’s universe of known objectivity and her sense of curiosity towards the richness of the world” (Buhlmann 13). The semiotic meaning that is acquired from interaction, both for the viewer and the artist, is synonymous to the material or technical hack. But with semiotic hacking, this is where we all become *carpenters*, both forming and being informed towards the unit operations of the other, synonymous to Dewey’s description of ‘aesthetic rhythm’. To hack within an Object Oriented Ontology means appreciating the possibilities for unit arrangements, and a willingness to explore these permutations of their arrangement. As an artist, to cause or induce a ‘hack’ in a semiotic sense, is where we might ‘break’ and re-relate our symbolic uses, appreciations, and possibilities for objects, machines, and technology.

Through my own dabbling in hacking and *carpentry* I am both exploring the ontology of the machines and technologies surrounding me, and creating alternative meaningful modes for engaging with technology and consumer devices. By broadening our uses of technology through interacting with and displacing it, we create alternative modes for relating, interfacing and understanding what it actually is when we engage with it. Social theorist and philosopher Brian Massumi expands this notion and claims that interactivity “frame[s] and intensifies bodiliness, how bodies relate to and are through their incipient activities, giving us a space to experience and practice styles of being and becoming in and with our environment” (Semblance, 52). I see the ever-increasing technologizing of our contemporary environment, with everything now needing to be a ‘smart’ object, as an opportunity to find and to explore different modes for relating to objects. By expanding their capacity for agency, their ability to perceive and effect changes upon their environment, and our recognizing their own distinct kind of agency and ontology we begin to explore the mutual agency, the ways in which we both form, and are informed, by our machines.

6.8. A stroll through the Hacker-dashery

"The work is in the event that continues to occur in and with its space" – Nathanial Stern (82)

In discussing an abridged history of the idea of a hack as a form of expression, a clear point of entry to the discussion of the artistic hack is with Duchamp, particularly his piece *Prelude to a Broken Arm*. Like most of Duchamp's work, it involved the use of a readymade in an artwork. Here, however, in this work, we can see the complete object displayed without any alteration of combination of other objects. Instead we are shown only a displacement and resituating of the object, and the semiotic assertion towards it. Specifically, the installed work simply consists of a snow shovel, hung from the handle. Adding the title *in advance of a broken arm,* and resituating the object as an artwork, produces a hack in a semiotic sense-- the result is a reapplication of the conception of the object. Indeed, much of Duchamp's work can be seen as a process of 'hacking' through his repeated use of the readymade and the subsequent ways he would reapply it, not just by resituating it as an art object, but also by retaining a recognizable quality in the objects he used. This is similar to the modes of appreciation of the *mechtech*, where we can see the object as a part or unit, but also its relation in a new semiotic position, within a new whole.

Figure 9 has been removed due to copyright restrictions. The information removed is *In Advance of the Broken Arm* by Marcel Duchamp.

Fig. 9 Marcel Duchamp, *In Advance of the Broken Arm* 1964. Wood and galvanized-iron snow shovel, 52" (132 cm) high.

Proceeding from the work of Duchamp, both in time and in terms of materials, the work produced by Nam June Paik continues the process of displacement and material exploration, but with video and CRTC monitors. Nam June Paik's "impact on the art of video and television has been profound" and he is considered to be a founder of video art (HanHardt). Paik's works are explorations in both the physical qualities of the emerging forms of video media, and creative modes for the semiotics of the video image. He used the TV, not just an apparatus for an image, but as an object conveying cultural signifiers and used this to create hybrid objects, using the materials and the imagery to destabilize conceptions of both. Paik set about destabilizing these determined qualities at a time "when the electronic moving image and media technologies were [becoming] increasingly present in our daily lives" (HanHardt). His works are not only displacements of the consumer object and mass media, but

they also treat the medium of video as a flexible definition, which he pushed to the point that it reached new multi-textual forms and applications. Paik's work reflects the material exploration of the *electrotech*, creating modes of depicting and exploring the hidden flow of data in the information media age. To speak of specifics: *Electronic Superhighway: Continental U.S.,* uses dozens of TV monitors and colorful neon lights to create an installation depicting the continental United States in both a physical form and in video, with monitors in different states screening different themed video. Relying on performances using the object-hood qualities of the monitor and also creating installations constructed from multiple screens, his career pushed the "instrumentality of the video medium through a process that expressed his deep insights into electronic technology and his understanding of how to reconceive television, to 'turn it inside out' and render something entirely new"(HanHardt). Lastly, Paik's work stands as a challenge to the conventional notions of television, video as a defined medium, and also as a dismantling of the domain exclusively controlled by a monopoly of media broadcasters.

Figure 10 has been removed due to copyright restrictions. The information removed is *Electronic Superhighway: Continental U.S., Alaska, Hawaii*, by Nam June Paik.

Fig. 10 Nam June Paik. *Electronic Superhighway: Continental U.S., Alaska, Hawaii*, 1995. video installation, custom electronics, neon lighting, steel and wood, 15 x 40 x 4 ft.

Whereas Paik was exploring video and the semiotics of the screen, Norman White was working with electronic and robotic explorations. White engaged in expressive hacking, employed in both sculpture and installations. White's work is also important in this history for its focus on interactive engagements as an important aspect to the work. The pinnacle of this is the work *Them Fuckin' Robots*, a collaboration between White and Laura Kikauka. Both artists met only once to discuss dimensions for robotic sexual organs, the two then created two electro-mechanical sex machines in isolation, one male the other female. The two robots meet together in a robotic erotic performance. Both machines were constructed from an assembled cacophony of found and manufactured machines and electronics; they were designed to respond to the movements and electromagnetic fields of the other, resulting in a robotic exploration of sexual climax. This work, beyond the semiotic exploration of robotic intercourse,

used a material displacement and reapplication of capacitors, breathing machines, a boiling kettle, squirting oil pump, twitching sewing machine and much more, all on top of a symbolic electrified bed spring (White). Where *Them Fuckin Robots* was displacing objects and pushing the range of semiotics for the parts involved, *The Helpless Robot* is a work by White exploring processes of knowledge-building (White). The robot having no motors, made of wood and resting on a 'lazy susan', relies upon a generated and adaptive synthesized voice to encourage visitors to rotate it in a fashion it "likes" (White). Consisting of a small computer, steel frame and wood, the robot attempts to assess and predict human behavior, while also influencing that of the humans. White describes this as an essentially unfinishable work. White's work brings us almost to the present, but to bring us to the cutting edge of Art Hacking we must branch out from individual artist and towards collectives.

Figure 11 has been removed due to copyright restrictions. The information removed is *The Helpless Robot* by Norman T. White.

Fig. 11 Norman T. White. *The Helpless Robot.* 1987-96. Plywood, angle-iron, proximity sensors, modified computer and custom electronics.

Figure 12 has been removed due to copyright restrictions. The information removed is *Them Fuckin' Robots* by Norman T. White.

Fig. 12 Norman T. White. *Them Fuckin' Robots* (detail prior to performance). 1988. Metal, plastic, various electronic appliances, magnetic field sensor.

A large amount of contemporary art hacks are the result of the Maker culture and the resulting Maker or Hacker space centers. These centers function as communal work spaces, where large or expensive machines can be bought and the cost shared amongst a membership, allowing an affordable opportunity for an inventor or hacker to make complicated and precise parts from technical means. More than this, these centers also facilitate a skill sharing and DIY tutorial environment where technical skills can be acquired without a formal education or connection to industry. Whether made within these centers or forged from the collectives that originated within and organized around the decentralized nature of these centers, the collective has predominantly replaced the lone artist. Here I will talk about one group as a representative, the *Is This Good* collective. Based poetically in the town of Hackney, the collective operates under the legal distinction as tech startup company for the purposes of taking

commissions. They explore the abundance of technological materials and the new ways they can be combined, shifted, and hacked apart into new forms of creative expression. They have built a body of work creating digital birds from recycled smart phones, and then progressing, with the patronage of a major UK phone service provider, to produce a kaleidoscope of interactive butterflies that are activated by a viewer's own phone (isthis.gd). These two works take advantage of the existing infrastructure and availability of technological devices and services to construct benevolent artworks. The same collective has also used the same materials and subjects to create the work *I-Spy*, which questions the very same handheld gadgets that are so often used as escapism and to avoid thinking, while they quietly gather information on us and our behavior (isthis.gd). *I-Spy* is a system of small screens with different features of a face playing on each of them. Each screen moves independently, but the whole array of screens also rotates on a central armature and tracks the movements of a visitor standing in proximity to the array. This work hacks several components of the small screens and Kinect 3d video game controllers to create the reminder that, while we engage and include these objects in our daily routine, they are quietly always watching us. This is not necessarily cause for alarm, but an aspect to be reminded and aware of as we engage with the machines. Collectives like *Is This Good*, are engaging with the machines directly, but also generating works that remind us of the connections and dependencies we have acquired with machines.

Figure 13 has been removed due to copyright restrictions. The information removed is *Mobile Phone Birds* by Is this good collective.

Fig. 13 Is this good. *Mobile Phone Birds*, 2013. Recycled cellular phones.

Figure 14 has been removed due to copyright restrictions. The information removed is *I Spy* by Is this good collective.

Fig. 14 Is this good. *I Spy.* 2013. Kinect 3d camera, metal, screens.

In reading the works of the above artists, there is both an absence of the fear of technology, and the willful desire to engage and explore the materiality of mechanical and technological objects, as well as the willingness to reconsider and redefine the semiotics of them. Both the material and semiotic explorations are processes of creative hacking, done to engage with and understand the potentials of our technological lives and our relationships in and with technology.

7. So it has come to this

So here we are, both afraid from ignorance, and having our engaged experiences mediated and marketed, so as not to offend or complicate, compounding our aversion towards an embodied knowledge of technology. Left intimidated or overwhelmed, do we engage and explore or do we avoid and simplify? Do we wait for instruction, or do we test the possibility of our embodiment alongside what we are surrounding ourselves with, on our own? I choose to engage without fear or intimidation, without waiting for instruction, or under prescription regarding the properties of the mechanical and electrical objects of my contemporary environment. I came to have an embodied relationship first in ignorance, then with familiarity-- from engaging, interacting, communicating and recognizing the alien ontologies and agencies of the technological objects I engage with. The aforementioned research is presented as an example of what this exploration entails and as an invitation to do the same.

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