CART/OLOGY

Towards a Network Sensibility

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Jenny Filipetti

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ADVISOR: Timothy Weaver

"Bathed in light, submerged in sound and rapt in feeling, the sentient being rides the crest of the world's becoming, ever present and witness to that moment when the world is about to disclose itself for what it is. Thus in a sentient world, there are no objects and subjects of perception; rather, perception inheres in the creative movement of emergence, where 'things become things,' as Merleau-Ponty put it, and 'the world becomes world.'"

- Tim Ingold, "Lines and the Weather," in *Vital Beauty: Reclaiming Aesthetics in the Tangle of Technology and Nature*, ed. Joke Brouwer, Arjen Mulder, and Lars Spuybroek (Rotterdam: V2_Publishing, 2012), 24.

ABSTRACT

We live in a networked world to which we find ourselves entirely ill-adapted, clinging to outdated means of perceiving and understanding our environment. My thesis first proposes how network ontology may be understood through the concept of assemblages, and then explores ways in which participants in these processes might adopt a *network* (or ecological) *sensibility* and new modes of perception that render them better adapted to act within network ontologies.

The first half of my research is scholarly, tracing a non-human but still object-centric ontology of networks before shifting focus to process, flux, and *becoming* as alternative paradigms through which we may conceive networked existence.

I address the second, more activated premise of my project through the concept of a cart, at once vehicle, creature, museum, and incubator. My thesis project will involve the creation of a cart at human-scale, deci-scale, and centi-scale, to adopt a metric delineation. The first of these takes the form of a peripatetic cross between a street peddler's pushcart and a gypsy vardo. Onboard it will house the other two components: written inventory for the deci-scale and custom-made PCB boards in the latter case. Although the mechanisms of movement and sentience vary depending on the scale, all iterations are meant to exemplify the notions of object consciousness and networked relations, and all simulate the flux of any actor in any network. They are meant to explore new perceptive modes in myself as the artist as well as in viewers/participants.

INTRODUCTION

At its core my project seeks to engender an ecological (or network) sensibility in individuals, investigating alternative perceptive approaches for life as networked beings. The concept of anti-fragility, well-elaborated by Nassim Nicholas Taleb in his 2012 book *Antifragile*, is inextricably tied to my project, since for Taleb it is anti-fragile entities that benefit from the unpredictability and disorder inherent to complex systems. Accordingly, for Taleb it is in an anti-fragile way that we might best conceive living in an era comprised of networks and complex systems of vast scale.

As we currently stand, networks are in crisis. Despite decades of post-structuralist semiotics, we are uncomfortable with the privileging of process over object, and

networks have been co-opted from the notion of a mutable set of relations to nothing more than a large and interconnected but fundamentally stable structure. Christopher Kelty writes:

> *"At the time, the word network, like Deleuze and Guattari's term rhizome, clearly meant a series of transformations -- translations, transductions-- which could not be captured by any of the traditional terms of social theory. With the new popularization of the network it now means transport without deformation, an instantaneous, unmediated access to every piece of information. That is exactly the opposite of what we meant."*[1]

To restore a true notion of networks we must start with an engagement with the transformative. Here I do not intend something that changes but always within the bounds of narrative or a set of defined structures or expectations. I mean something that resists narrative and teology entirely.

The reason this resistance of teleology is so important stems from a very basic observation of complex systems: even deep knowledge about the workings of individual components is insufficient information to be able to predict the emergent properties of the system as a whole.

The privileging of man and his ability to impose his will on his environment is part of a distinct trajectory in western philosophy and philosophy of mind that has supported the individualistic ambition of the American sensibility among other effects. Yet now more than ever, man finds himself caught in the throes of enormous networks where it would be impossible to know all of the individual actors and nodes, in most cases, let alone the landscape of the entire system. As non-omniscient human beings moreoever with our own constellations of vested interests, we cannot effectively assess these systems, much less make predictions about their futures. And yet much of human society is dedicated directly to these efforts, whether through research studies, celebrity biographies, or stock market algorithms, all in the name of the cutting-edge but hopelessly bound in unspoken service to the status quo. David Spangler notes, "Progress (as our culture generally thinks of it)," which for him is to say as linear historical progress, "is only an image of the present projected into the future."[2] And yet, true novelty remains outside of this reach:

> *"Anything genuinely new, no matter how momentous, is literally unimaginable until after it is experienced directly, or secondhand, through words and images. We may not be as trapped in the present as ants or rabbits, but mostly we are, especially in times of rapid change and cultural fragmentation."*[3]

For Spangler it is explicitly because we are overwhelmed by the notion of the unknown that we engage in our much more linear attempts at logical explanation, constructing bulwarks of false teleologies to create narrative. "Transformation," he writes, "can be a

[1] Christopher Kelty, "Opening the Brown Box: Networks, Science, and Infrastructure," in F*eelings Are Always Local*, ed. Joke Brouwer et al. (Rotterdam: V2_Publishing / NAi Publishers, 2004), 89.
[2] David Spangler, *Emergence: The Rebirth of the Sacred* (New York: Delta / Merloyd Lawrence, 1984), 10.
[3] George Gessert, *Green Light: Towards an Art of Evolution* (Cambridge, Massachusetts: The MIT Press, 2010), 145.

frightening notion; to avoid it, we can hide behind a safer image of linear progress in which change seems predictable and controllable."[4]

My thesis work aims to break down these bulwarks, find *jouissance* in the perpetual flows and fluxes of a networked world, electrify bodies with the immense possibility of the unknown. This is to say: reform our consciousness into a more ecological sensibility.

LITERATURE REVIEW

My thesis work hinges upon a two-part framework: first I will defend a specific notion of how network ontology may be understood in contemporary society, and suggest a means of characterizing a *network* (or ecological) *sensibility* in which objects, non-human life forms, and processes and relations are given a status as actors equivalent to that typically attributed to humans.[5] From this foundation I will propose that the existent modes of perception, categorization, and thought are ill-adapted for the networked world in which we now live. The concepts of *antifragility* and *fragiliency* (working term only, suggesting fragility / resiliency) provide alternate ways of thinking and existing within a systems-level ecological or network consciousness.

The first half of my project is most comprehensively structured by the notion of assemblages, outlined by Gilles Deleuze and Felix Guattari and expanded by Manuel DeLanda.[6] I too seek to elaborate upon this concept, and elucidate the ways in which it may be well-suited to characterize contemporary network society.

As observed by Manual Castells and other contemporary thinkers, the 21st century western world is marked by the presence of vast networks of individuals and infrastructure. These networks diminish the importance of geographic borders and physical constraints, permitting point-to-point communications across the globe. Yet as addressed earlier, our contemporary understanding of networks has altered from an emphasis on process and mutability to instead a sense of networks as a kind of data structure permitting the visualization of fundamentally stable relationships.[7]

In an assemblage, instability and mutability rule. "Unlike organic totalities," DeLanda writes, "the parts of an assemblage do not form a seamless whole,"[8] rather via Deleuze's conceptualization, assemblages are composed of heterogeneous parts, each "only

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[4] Spangler, *Emergence*, 11.
[5] I do recognize a tension in my research as it currently stands between object and process -oriented ontology. As I continue my work, I anticipate that this tension will be better understood and resolved. For example, perhaps the concept of a "political ecology of objects," to adopt Bennett's phrasing, functions in my thesis as a deconstructivist first step in an argument that ultimately rejects the notion of a node-centric understanding of networks. Or perhaps there is an element to human engagement with non-human entities that highlights the importance of relations and flux within networks. The ultimate emphasis on *becoming* for both nodes and relations seems to also be at stake. For the purposes of this proposal I will address both the object and process -oriented streams of literature, and propose one possible flow of logic between the two.
[6] Manuel DeLanda, A New Philosophy of Society: Assemblage Theory and Social Complexity (New York: Continuum, 2006), 3.
[7] Kelty, "Opening the Brown Box: Networks, Science, and Infrastructure," 89.
[8] DeLanda, *A New Philosophy of Society, 4.*

contingently obligatory" not "*logically necessary*."[9] DeLanda elaborates:

> "*The reason why the properties of a whole cannot be reduced to those of its parts is that they are the result not of an aggregation of the components' own properties but of the actual exercise of their capacities.*"[10]

Here then we also see the emphasis on an active nature to the "nodes" in assemblages which is part of my theoretical focus. It is for this reason that as an intermediate step towards my proposal of a process-oriented ontology, I trace the ways in which networked society may be understood through an object-centric rather than strictly human-centric ontology, granting a level of activeness to entities which are often considered the passive recipients of human action. This aspect lies outside the scope of DeLanda's work, which in keeping with his own research interests emphasizes individuals as the base unit of larger sociohistorical assemblages.[11]

Such a bestowal of an active, even sentient quality unto nodes in networks is a rhetorical move traced by Jane Bennett in the book *Vibrant Matter*, as she proposes examples of objects like potato chips, the electrical grid, iron,[12] and worms with which humans enter into assemblages "in which the I is not necessarily the most decisive operator."[13] She describes these assemblages and relationships as being characterized by "an emergent causality."[14] Indeed I borrow the terminology from Bennett when I refer to this aspect of my proposal as an "object vitalism," extending the 19th century notion of dynamic vitalism unto all entities-in-networks (rather than unto exclusively living organisms as in vitalism's historical scope).

In addition to these writers, my understanding of networks and my proposal of a network sensibility has further roots in Deleuze and Guattari's figure of the rhizome and Bruno Latour's material semiotics, documented in more detail in SCHOLARLY METHODS OF INQUIRY.

The Dutch collaborative duo of Erwin Driessens & Maria Verstappen provide an artistic foil for the conceptual notion of an object-centric rather than human-centric existence. Works like their Vegetable *Collections* and *Herbarium Vivum* highlight the human misuse of nonhuman life forms, and the ways in which human will via desire or perception shapes our sense of what other organisms are, do, or should be. This notion speaks directly to the work of my intermediary step of bestowing a level of activeness to non-human actors or nodes within networks, although these examples are limited to non-human life forms and do not include non-sentient objects. Approaching this subject from the opposite direction which does, the artists have created installations like that of *Factory*, where a machine system has been developed exclusively to generate unique

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[9] DeLanda, *A New Philosophy of Society, 11.*
[10] DeLanda, *A New Philosophy of Society, 11.*
[11] DeLanda, *A New Philosophy of Society, 6.*
[12] Thinking of the turn-of-the-century "man of iron" or "electric man" popular in Soviet Russian political myth as well as among the Italian Futurists, I wonder whether there is a way in which object-oriented ontology may be more intertwined with notions of the new and technological than is typically documented, even historically.
[13] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (United States: Duke University Press, 2010), 40.
[14] Bennett, *Vibrant Matter, 41.*

small blobs of wax, a largely useless "product."[15] Although this project may be read as a critique on commercial consumerism, I suggest that an alternate reading situates these machines as operating in a non-human-centric ontology, where tools, products, or processes are developed for reasons other than human desire or need. Their work *Top-down Bottom-up* functions similarly, as four "dripping machines" suspended from the ceiling drip down stalagmites of wax over the course of the exhibition.[16]

Although as evidenced by the above thinkers and artists, I do not limit my consideration of non-human actors to biologically living organisms, there is an important stream of research around bioart and evolution which informs my arguments. In his book *Green Light: Toward an Art of Evolution*, George Gessert suggests that genetic art is important as a reminder that non-human life forms are "not simply raw materials but entities that do not need us for validation or improvement."[17] Contemporary artist Haseeb Ahmed's *Fish Bone Chapel* testifies to this in an unusual way. Ahmed induces mutations in zebra fish so as to generate new skeletal forms. These then become the literal building blocks for a small chapel, drawing parallels back to the traditional bone chapels and Christian ossuaries scattered through Europe.[18] Although Ahmed's own act is in direct opposition to Gessert's thinking, I would suggest that audience reception to this work-- as well as Ahmed's reliance for the project on a scientific loophole which does not consider zebra fish to be animals for their first five days of life-- instead raises a discomfort that forces us to realize we grant some level of autonomy to other living creatures.

The next step within the first half of my framework privilege relations, process, flux, and becoming over objects and actors of any kind. To reiterate, this proposal of a process-oriented ontology is not necessarily meant as a progression from that of object vitalism; most fundamentally it serves merely as an alternative approach in my survey of network ontologies, although the notion of *becoming* does seem that it may be implicated in my later investigation of what it would mean to perceive in ways uniquely adapted to life within complex networked systems. The theoretical underpinnings to this aspect were more fully addressed in the INTRODUCTION. I would also like to cite Anna Munster's book *An Aesthesia of Networks*, in which Munster suggests *experience* may serve as a possible means of restoring our sense of networks as spheres of transformation and relativity. Rather than focusing on the ways in which humans engage with networks, she questions through what processes might networks themselves be said to experience, by virtue of the ways in which the relations that compose them may change.[19]

While theoretically interesting, this emphasis on *becoming* as the dominant process within networks is not without significant practical implications for humans in our current historical moment as well. It is for this reason that the second half of my project, to be conducted foremost through my material methodology rather than scholarly research, proposes and encourages alternative modes of thought and perception that would reorient human individuals to a more systems-level modality of existence. To

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[15] Erwin Driessens and Maria Verstappen, *Factory*, 1995.

[16] Erwin Driessens and Maria Verstappen, *Top-down Bottom-Up*, 2012.

[17] Gessert, *Green Light, 139.*

[18] Haseeb Ahmed, *Fish Bone Chapel*, 2013, http://fishbonechapel.tumblr.com/.

[19] Anna Munster, *An Aesthesia of Networks* (Cambridge, Massachusetts: MIT Press, 2013), 6.

briefly mention a few such practical implications:

Science writer Ed Yong documents the recent lifestyle obsession with intestinal microbes, which has led millions of individuals to ingest probiotics daily but some to adopt more extreme measures, such as obtaining potentially dangerous fecal transplants. "The microbiome is complex, varied, ever changing and context-dependent — qualities that are the enemies of easy categorization," Yong reminds readers in a *New York Times* editorial.[20] Much like David Spangler's earlier observation that the human notion of linear progress may actually hinder truly novel development, the mistaken belief that we can live best when we emphasize objects, endpoints, and causal teleology propagates at the expense of a more ecologically minded existence that would render us more truly adept at navigating the complex systems prominent in contemporary society.

Former financial risk analyst Nassim Nicholas Taleb addresses this same point in his own work in both finance and more recently social phenomena. "To me," Taleb wrote over a decade ago, "[the finance concept of value-at-risk] is charlatanism because it tries to estimate something that is not scientifically possible to estimate, namely the risks of rare events. It gives people misleading precision that could lead to the buildup of positions by hedgers. *It lulls people to sleep.* [emphasis added]."[21] His 2012 book *Antifragile* extends this notion from finance to the everyday lives of individuals who are bound, as the majority of living humans are, within complex networked systems. He proposes the notion of *antifragility* as an alternative that would better adapt human life and consciousness to the reality of contemporary existence:

> *"Some things benefit from shocks; they thrive and grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty. [...] Antifragility is beyond resilience or robustness. The resilient resists shocks and stays the same; the antifragile gets better. [...] Antifragility has a singular property of allowing us to deal with the unknown, to do things without understanding them-- and do them well."*[22]

My thesis makes one critical divergence from Taleb's antifragility, which is otherwise an apt proposal of the new way-of-being-in-the-world which I propose is necessary in today's networked society. I suggest a metaphysics perhaps better described by the term *fragiliency*, wherein a level of fragility, vulnerability, or receptiveness is in fact an important quality to an overall antifragile existence. My abstraction for this aspect of my research is although may perhaps not be limited to moss, largely as documented by bryologist Robin Wall Kimmerer. She observes a "resilience rooted in flexibility, where stability comes from diversity."[23] Bryum moss shoots, for example, are extremely fragile at their tips but this is actually beneficial: they easily break off and are spread by the footsteps of pedestrians. Easy to harm at only one cell thick, moss can also be desiccated

[20] Ed Yong, "There Is No 'Healthy' Microbiome," *The New York Times*, November 2, 2014, New York edition.
[21] "The World According to Nassim Taleb," *Derivatives Strategy*, January 1997, http://www.derivativesstrategy.com/magazine/archive/1997/1296qa.asp.
[22] Nassim Nicholas Taleb, *Antifragile: Things That Gain from Disorder* (New York: Random House, 2012), 3-4.
[23] Robin Wall Kimmerer, *Gathering Moss: A Natural and Cultural History of Mosses* (USA: Oregan State University Press, 2003), 80.

for days to decades and revive within minutes in the presence of water.

To return to the theoretical foundations of my approach, the work and writing of the New Haven-based 1960's collective Pulsa provides a point of historical reference within the art world to notions of systems and the importance of inducting individuals into a different perceptive mode. The art critic Lucy Lippard once wrote that Pulsa's large-scale immersive sound and light installations "were so abstract that they seemed to exist at some new perceptual threshold."[24] Pulsa's members considered their work important to the extent that it may raise citizens' awareness of and sense of immersion within the "life-supporting infrastructures" of cities which they felt were all too often inaccessible and far-removed. To Pulsa, "art is both a way to relate to life and a way to improve it."[25]

Among more contemporary artists, the audiovisual performance group Noisefold is carrying on the work of introducing individuals to a system-level awareness, constantly in flux.[26]

This notion of art as a kind of evolutionary striving towards new modes of sensory perception is not limited to electronic media, either. Ad Reinhardt's series of *Abstract Paintings*, known more colloquially as "the black paintings," provides a historical example of traditional media that nonetheless engenders alternative ways of perceiving in its viewers. The subtle tone variations require viewers to engage with the works for longer periods of time than they may normally be accustomed, as their eyes literally adjust to the colorspace as they would to a darkened room.

PROJECT SCOPE

I intend to defend my thesis in the autumn of 2015. I anticipate having many of the objects that compose the cart completed by spring of 2015, as well as the final designs for the cart, which will itself be built over the course of that spring and early summer if not before. Alongside some earlier exhibition "beta-testing", I will exhibit the cart in August and September of 2015 and assess the ways with which individuals interact with and seem to understand it, all "field research" that will prove helpful in steering my aesthetic decisions for future iterations.

SCHOLARLY METHODS OF INQUIRY

My research hinges upon several central concepts as its methodological toolset. Among the most central of this is the notion of assemblages, as proposed by Gilles Deleuze and Felix Guattari and extended by Manuel DeLanda. Additional methodologies which may play a role in supporting my work are Deleuze and Guattari's concept of the rhizome, Bruno Latour's Actor-Network Theory and material semiotics, and complex systems studies, all of which serve to contextualize my understanding of networks and the notion

[24] Lucy Lippard, "Pulsa," *Arts Canada*, December 1968, 59–60.
[25] Pulsa Group, "The City as an Artwork" (1968).
[26] David Stout and Cory Metcalf, *David Stout and Cory Metcalf: The Art of Noisefold*, Burning Books, 2014. Special edition book on the occasion of *4X3: Data, Flux & Strange Objects: Video Pioneers and New Media Explorers*, Cornish College of the Arts, Seattle, Washington, 29 October - 20 December 2014.

of a "network/ecological sensibility" which I am proposing.

Two very contemporary thinkers mentioned earlier whose works are deeply resonant with my own are Jane Bennett, whose book *Vibrant Matter* rethinks and extends the now-antiquated notion of vitalism to propose an active character to not only non-human life forms but also inanimate objects; and Nassim Nicholas Taleb, who proposes through his concept of *antifragility* something akin to what I call for with the term "network sensibility." In some ways Bennett provides support for my framing of how actors function within a network as well as the vast effects that non-human actors may have even within human systems. Taleb then begins to generate a framework for how we might use this knowledge to improve our individual and human conditions. Taleb's perspective is largely restricted to the human sphere, which I would like to extend to a broader notion of actors and systems more in the way that Bennett does.

To tackle the theoretical topics that are involved, I feel that my work must also address the philosophical notion of "becoming" in contrast to being, an approach which feminist philosopher Elizabeth Grosz attributes to Bergson, Derrida, and Merleau-Ponty, and to which I am also inclined to add Alfred Whitehead and Walter Benjamin. My interest is not in the ways the process of becoming works on the individual or identity formation, but rather how it may work on the level of social systems and historical developments. More fundamentally, to examine networks as assemblages and restore an emphasis on the mutability of network relations is a rhetorical position which seems to demand a consideration of temporality, spaces-in-between, and relations in contrast to a focus on objects as theoretically static and fully present.

MATERIAL METHODS

With my thesis I am proposing a *cart ontology*: what it means to be a cart. In every instantiation my carts also take on a multi-faceted existence that we could think through as vehicle, creature, museum, and incubator. For example, the human-scale version of my cart can be aptly described as a (mobile) museum of speculative realism. It also functions as an incubator of objects (the onboard projects) which only take on their "adult" forms qua objects-in-networks when transported out into the world, amidst relationships with visitors to the cart.

However at its core, I have selected a cart as my abstraction for two primary reasons. One, they exist in-the-world as a site of contact among entities, in a way that we might describe as already open-ended. For example, if one thinks of carts as encountered in everyday existence, it is clear that although carts may be made or used for specific roles, the relations in which they are implicated are mutable. A backyard garden cart might hold dirt while the owner is gardening, leaves in the fall, and toys, pets, or even lounging children at any other moment. The customers at a food cart are likely to vary each day, and when loaded with the right ingredients the cart could as easily serve hot dogs as pretzels as salads as bags of candy. All of these differing sets of relations require minimal to no changes in the actual structure of the cart.

The second reason for my use of carts as an abstraction is that they are by nature mobile. This means they are meant to move through space and time, and thus in my terminology, easily enter into and out of different assemblages and relations.

Given the nature of my thesis topic, I think it is also important to emphasize the notion of scalability. Many networks-- and all self-organized critical systems-- have the mathematical property of being scale-free, following a power law irrespective of their size or accretion. My act of highlighting the size and scale of phenomena by creating three scales of carts is thus primarily a playful, associative one, creating a rhetorical link to notions of complex systems rather than an argument about them.

To arbitrarily adopt the metric system s a means of illustration, entities that I would argue function like a cart at different scales might include:

KILO	HECTA	DECA	BASE	DECI	CENTI	MILLI
spaceship	urban plan / platform for city product supply chains	caravan circus ? market	*cart*	*inventory*	*printed circuit boards*	altered genes

My material exploration of my thesis topic will take the form of three carts, a human-scale "cabinet of curiosities" akin to a street peddler's pushcart or nomadic gypsy vardo, a collection of onboard inventory-as-cart, and custom-designed PCBs-as-cart.

These works involve primarily the use of opensource programming languages, including Arduino, and Processing, as well as potentially Java and Python[27]. Arduino provides an interface between software and hardware for standalone microelectronics projects[28], while Processing[29] and the Java language upon which it is based offer more intensive processor-situated computational abilities, which I may use to generate some of the cart's works. The hardware I intend to use is also largely opensource, ranging from boards like and potentially including the Arduino through those like and potentially including the Linux-based Raspberry Pi processor. The PCB board design will be largely undertaken in Fritzing.[30] I also plan to use a range of sensors in both these onboard projects as well as to equip the cart itself with sensory capacities.

PRELIMINARY / BACKGROUND STUDIES

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[27] Python Software Foundation, Python.
[28] Arduino, Arduino, 1.0.6 and 1.5.8.
[29] Processing Foundation, Processing, 2.2.1
[30] Friends-of-Fritzing Foundation and IXDS, Fritzing.

I have already developed a modular platform for electronic sensors which may serve as a prototype towards the cart's sensory system. *Pinned*, a data-logging backpack, is a wearable designed for citizen science. It also draws parallels to patch and button culture, where people sew or pin icons onto their bags and garments to represent their values and issues or entities of importance. A GPS sensor, SD card logger, and solar charging circuit are built into the bag, and when turned on, the date/time and GPS location are continually logged onto the SD card in XML format. In addition, special pins can be placed onto the bag, not only adding visual interest but actually serving as sensors for variables like the levels of LPG gas, light, temperature. When pinned in place, the values of these sensors are also continually logged into the XML file.

I have also developed two projects, alongside one research process, that I categorize as "fragile robots" not in the sense of material fragility but rather for the ways in which they highlight within electromechanical objects a sense of emotions, aliveness, vulnerability, or striving. This is a concept stream which I would like to continue to explore through some of the objects housed in the cart. The first of these, *Scurone*, is a small wheeled BEAM robot with an LED photophore which resembles the glowing lures of anglerfish. The lights are constantly but dimly illuminated, and *Scurone* seeks out darkness, ostensibly because its dim light can only be appreciated in dark areas, although an alternate reading may be that it is seeking to provide a social benefit using the resources it has available to it (ie., providing light in darkness).

The second work, with the working title *Negative Use-Value Networked Objects (A Machine Love Story)*, is comprised of two small machines. One perpetually uploads files onto a local server listing the time and its location as well as a short poem. The second ceaselessly searches through the files of this server, attempting to locate the other machine by stumbling upon the page with the current timestamp, signifying that the two robots are sharing both digital space and time. If this happens successfully, the machines glow for a short time together. If the second machine comes across a timestamped page but too late, it leaves a comment. This project is currently in development, with anticipated date of completion 15 November 2014.

A former set designer and technical director for theatre, I also have building experience in both wood and metal that will provide an adequate background for the construction of the actual human-scale cart.

Intended outcomes

The outcome of my research will be a peripatetic cart, akin to a street peddler's pushcart or to a limited extent an early gypsy vardo, itself endowed with some sensorial capacities but also serving to house a number of small but interrelated projects. Onboard inventory, assembled as a collection of writings akin to Walter Benjamin's *The Arcades Project,* and a series of custom designed PCB boards, both function as versions of the cart on alternate scales.

I anticipate a related outcome of my work being my own understanding of how people

understand and interact with the cart(s), their ideological basis, and the works onboard. As noted earlier, this "field research" will prove helpful in steering my aesthetic decisions for future iterations of the project. All of my perceptions will be obtained via the normal operations of the cart, in which I interact with visitors in my performance as the cart's owner/partner, rather than through interviews or studies. This serves to grant me a better understanding of what ideas, opinions, and modes of perception exist in contemporary society and-- over time-- across different populaces and geographies. Insofar as my scholarly research proposes that individuals are currently ill-adapted for a network-level consciousness, and my material methodology seeks to engender alternative modes of being, it is important to have direct observation and experience of the existent modes of *being-in-the-world*, rather than only theoretical inklings about what this looks like in our current historical moment.

DISSEMINATION

I intend to display the cart in various public settings, ranging from urban areas such as Denver's 16th Street Mall to the rural sides of highways. There is some site-specificity required for this mode of dissemination-- for example, along highways I would also serve coffee and tea and leave signs in advance of my location indicating this, and I could conceive of festivals or locations for which I would want to develop a particular conceptual platform of works or design a new iteration of the cart-- but site-specificity is not a central element of the project. I imagine the level of site-specificity of the cart to be much like that of a human individual, where one may don different attire or act in slightly different ways in response to different social settings, without fundamentally altering what we would call the character of that person. This approach seems like a suitable and easily understood parallel for the notion of assemblages and how they function. Thus while site-specificity is not conceptually central, it does become practically necessary.

Another element of the dissemination of my work is through the release of custom PCB boards and some reference code online that reproduce either the cart as a whole or particular projects onboard. For my project to be more fully situated within a rhizomatic or network ecology as a kind of life form unto itself, it should be able to self-replicate and mutate or change, and I think the release of hardware and code for opensource systems helps permit these ideas and materials to spawn new iterations in the hands of others.

As for the theoretical component of my thesis work, I intend to already submit work that addresses aspects of my research to several conferences and publications, including Media Art History 2015 and ISEA 2015. The conceptual basis of my inclusion of inventory within cart ontology is discussed further in a paper proposed for submission to an "Archives on Fire" edition of the journal *Reconstruction*. In addition, my notion of art as a means of inducting individuals into a system-level consciousness is explored in relation to the contemporary audiovisual performance group Noisefold in a special edition book to be published concurrent to the exhibition *Data, Flux & Strange Objects* that runs through December 2014.

As I conduct my thesis research I am also outlining the points of intersection across my

scholarly interests as a roadmap for future development and potentially a collection of papers or a book.

Likewise in my material methodology, I anticipate that even the physical human-scale cart serves as a platform for my future work. Since the interior structure and objects can themselves be easily changed and replaced, I can use the "medium" of the cart as a means of dissemination for other ideas and future works. This approach highlights the notion popular in contemporary criticism of art as a vector for the transmission of ideas and cultural values. Here, the literal vehicle of the cart also serves as a conceptual vehicle for my ideas and expression.

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