ABSTRACT

This thesis is about my relationship to technology through the medium of my body. By implication it is about how our culture and society view and interact with technology’s various manifestations. I use my voice as the medium of this exploration. *Boom* is a sound and video insertion embodying and re-presenting my vocal arguments and mergings with the machines of a cement pour at the Big Dig in Boston in the spring of the year 2000. *Boom* offers noise, physical auditive immersion, and hopefully a provocative and meaningful perspective on relating with machines. It creates temptations and in draughts of air around the metaphysical ideas it conjures with the humor and poetry of anarchy.

By merging and falling out, struggling and capturing, losing and regaining, the machines and I are negotiating our relationship, our take on each other, our roles, our positions relative to each other. Each machine becomes an extension of my body, as I am resonating within its cavities and it is resonating within me. There is a constant arbitration of who is driving whom, my voice driving the machine’s motor and/or the machine’s vibrations moving my body, feelings, and perceptions of self within space. As I follow a machine’s vibratory lead, try to keep up, to match, to catch, through matching vocalizations, I access previously unacknowledged places within myself. Something like the mantras of other cultures – magical brutal mysterious consonance expressed in broad daylight. Communication occurs through the correspondence of internal and external vibrations. Emanating and absorbing. The tones have an acupunctural precision, able to vibrate certain organs, interstitial tissues, cells, thereby accessing the body’s warehouses. The performances of myself with the construction machines in the city throw new perspectives on how we conceive of not only the gigantic machines in our environments, but of other elements of technology as well, such as the intimate integration with small electronic devices being cultivated everywhere within our reach.

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In the project *Boom*, I am exploring my relationship, and, by extension, society’s relationship with technology. This thesis is based on an interest in thinking past the instrumentality of technology to its underlying elements – machines not as scientific objects, but as phenomenological objects. It will therefore be useful to begin by discussing “technology” itself, and specifically to think about how Heidegger’s questioning technology relates to this work.

**Chapter One: TECHNOLOGY**
- from Greek *techne*, which refers to activities and skills of craftspeople and to the arts of the mind and the fine arts
- applied science
- the system by which a society provides its members with those things needed or desired

For Heidegger, *techne* belongs to bringing-forth, to *poiesis*: it is something poietic (poetic). “It is the name for knowing in the widest sense – it means to be entirely at home in something, to understand and be expert in it. Such knowing provides an opening up. As an opening up it is a revealing. *Techne* reveals whatever does not bring itself forth and does not yet lie here before us, whatever can look and turn out now one way and now another. What is decisive in *techne* does not lie at all in making and manipulating nor in the using of means, but rather in the aforementioned revealing. It is as revealing, and not as manufacturing, that *techne* is a bringing-forth.”

“Technology is a mode of revealing. Technology comes to presence in the realm where revealing and unconcealment take place, where *aletheia*, truth, happens.” “Once there was a time when the bringing-forth of the true into the beautiful was called *techne*.” “In Greece, the arts brought the presence of the gods, brought the dialogue of divine and human destinings, to radiance. And art was simply called *techne*.” In this project I am undertaking an exploration of technology as a form of revealing and establishing new relationships with technology as manifested between machines and myself/ourselves. Instead of viewing technology as a form of instrumentality, I am exploring how we can gain control and work with technology, rather than being controlled by it. The wider view of technology not as a tool for manipulation, but as a way of exploring ourselves and the world, discloses things not as fixed, but as having wider implications.

Machines sharing our social, imaginative, and personal spaces all influence our perceptions of our selves and of each other. Intimately integrating machines into one’s

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1 Heidegger, and Webster’s New World Dictionary
2 Heidegger, page 13
3 ibid
4 ibid, page 34
self as a process and as an approach to being is occurring at an all time high in our culture. Consider, for instance, our use of small portable machines such as cell phones, artificial organs, laptops, hearing aids, and personal organizers. Machines are becoming less and less simply control devices that we use to do something, and more and more part of us - part of what makes up our identities. Boundaries are breached. Though sometimes containing the word “personal” in their names, even the small portable computers produced for individuals are made by companies who can not know each person or our needs and wants. We consume the products as we are instructed to by society, in order to define our selves and our positions (class, cultural, intellectual, sexual, political), much like as with other items of fashion such as clothing. We also relate to machines not designed for personal incorporation by following implicit and explicit cultural instructions. When we pass a construction job, for example, we are supposed to, at best, ignore it, or otherwise experience it as a sore spot in the environment that hopefully will soon go away. Many sites even have temporary walls at their perimeters, painted with happy scenes of the good life forthcoming at that site, blocking the views and sounds of the construction. Insignificance has been assigned to these sounds for political reasons, social appeasement – “chaos is not really here”. Sound and fury are far from just nothing and certainly not simply bad. The enframing of these auditive states has been drowning out the social, poetical, personal, and creative aspects of the world in their sounds. The essence of the sounds themselves, and of human relations, through sound, with machines making sound, is what this thesis intends to reinstate. In the performances sounding with machines leading up to Boom, I reconceived how I may relate with and through technological elements. They became surrogate organs – parts of my body holding and transmitting experiences to me and pulling previously unrealized elements to awareness. Opportunities for revelatory experiences are all around us. We just need to notice them. If we allow ourselves to access machines on levels and in ways other than the ways we have been taught to approach the machines in our lives, we may remake or relationships with them. Imagining, perceiving, and acting are processes of making and remaking.

i. Ordering versus Essence

We tend to think of technology as merely a bunch of instruments made for specific purposes that we designed them to serve. As long as we simply push forward what we today call technology, put up with it, or evade it, we are missing the essence of technology. This is Heidegger’s concern in “The Question Concerning Technology”, in which he states that mankind orders what is perceived into “standing-reserve”, which is thereby always ready to be used by man, always perceived and conceptually controlled by man.

Circumscribing and ordering bounds a thing. The thing, however, does not stop at these bounds, but rather from out of them continues to be what it will be. Heidegger warns that the Greek word, “telos”, which means “that which gives bounds”, is often translated and misinterpreted as “aim” or “purpose”. He uses the example of the Rhine river damned

\footnote{Heidegger, page 8}
up in a hydroelectric power plant and thereby "enframed", "ordered", "revealed as standing-reserve", as a water power supplier, rather than as the river of poems past.

A ten-story crane is surely an object. But, until we code it, until we enframe it as "standing-reserve", this object as such is not signifying how and what it "is"(what it is imagined, accepted, to be). Since we have, in fact, ordered it as an instrument ready for use in lifting and moving heavy things, that is what it is. This is Heidegger's definition of "revealing" as "standing-reserve"- a force of nature, or an object, revealed as ordered to ensure possibility of use, in this case the action of lifting. The machine is not autonomous here because it's standing is only from the ordering of the orderable. Mankind has made this setting-upon to reveal the real as standing-reserve. We can imagine things in various ways and thus reveal them. I perceive the movements of a particular crane, its sound and the infrasound vibrations, as elements that I can access and merge with and communicate through. I can use this to be pulled into the machine vocally, pull the machine into myself, and begin to imagine and thereby allow the existence of a borderless voice.

"Man can indeed conceive, fashion, and carry through this or that in one way or another. But man does not have control over unconcealment itself, in which at any given time the real shows itself or withdraws."

I am interested in what characteristics and actions of machines are not yet revealed, not yet ordered. Most of what is there, true, aletheia, has not been presented and made real. However, on some levels we are aware of these peripheral elements of our machines. They do affect us. Perhaps we relate through these elements much more than we can be aware of. Perhaps our designs, challenging-forths into revealings, are strongly affected by these mostly unnoticed event makers. I will refer to this phenomenon of including these unrevealed elements unconsciously in our machine designs, as the parapraxis of machine design. Within my thesis project, Boom, I am particularly interested in sound and infrasound vibration.

If considering technology as means, as by Heidegger's "instrumental" definition of technology, people's desire to master technology, i.e. their tools, is predictable. It is understandable that the will to master all technological possibilities becomes more urgent the more we perceive technology as threatening to slip from human control. Mankind's ultimate fear associated with technology is perhaps not of the destructive powers of weapons and pollutants, but instead of the possibility of forgetting to imagine, of un-imagining, un-making, our own position of power as the one's who order, who enframe. However, technology is no mere means. The instrumental definition of technology does not point to the "essence" or "aletheia" of technology. If we can give heed to the notion of technology as a way of revealing, of active in the realm of truth, room for the essence of technology will open up. When it is not urgent that I control the machine, I can enter into a free relationship with it, explore inter-subjectivity, lose boundaries, and regain an extended sense of voice and self. We can learn through what we construct as seemingly outside of our bodies (i.e. our technologically advanced apparatuses) about how we are

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6 Heidegger, pages17-18
constructing our bodies and our selves. Today the will to merge becomes all the more pronounced as we recognize the falseness of categories and distinct entities and the possibilities of border crossings.

Today, the intimate integration of machines into one’s self as a process, and as an approach to being, is occurring at an all time high in our culture. Consider, for instance, not only our mergings in cyberspace, but also our use of machines such as cell phones, artificial organs, laptops, hearing aids, and personal organizers. Machines are recognized as separate from one’s self, and part of one’s self at the same time. This is not mad. It is our current reality.

Interfaces and infrastructures are facilitators of our social expressions. Among these facilitators are web architecture and design, architecture of all physical spaces, city planning, and the designs of all the multifarious things we may experience in one way or another, including gigantic machines in construction sites. Vocally resonating, struggling, entraining, toning, singing, and wrestling with the construction machines as I have been doing, can be thought of as an extrapolation and theatrical public expansion of some of the pressing issues of our increasingly prevalent machine-mediated worlds. Our bodies have throughout history been important participants in the vocabularies of information and communication through the body’s physical presence, gestures, fashions, and vocalizations. Speech and gesture include very subtle nuances, such as intonation and facial, hand and body motions, that are important in face to face communication, even if perceived subconsciously. Most of these subtleties are lost in machine-mediated communications. Lost also are the meanings and messages of physical contact and intimacy. From handshakes and high-fives, to intimate whispers and caresses, physical contact facilitates a vast wealth of subtle and not-so-subtle information not yet supported by mediated communication technologies. Modern machines add other elements, such as felt vibrations, sounds, electric and magnetic fields and pulses. Though these are often incidentals of the technologies rather than consciously designed elements, they nevertheless do affect people. Some of these side effects, the parapraxis of machine design, I believe will come to be utilized by us as new modalities for communication. (We already intuitively use our machines’ effects as expressive extensions, such as revving a car engine, even when stopped at a light and not moving, as an expression of intensity or aggression.)

ii. Transitional Phenomena

Perceiving something as part of one’s self and distinct from one’s self simultaneously, is the backbone of the psychoanalyst Derek W. Winnicott’s theory of transitional phenomena. Transitional objects and phenomena are considered absolutely necessary stepping stones in human development. Winnicott thought of these phenomena mainly in terms of infants. He explains that an infant first experiences an object as part of herself, as created by herself. Later, for the infant, the transitional object is simultaneously the hallucination of the infant and an objectively perceived part of external reality. Winnicott believed the first and ultimate transitional object in an infant’s life to be their mother’s breast. I believe our voice is our first and foremost transitional object throughout our
lives. The first thing we wait for a newborn to do, to let us know she is okay and successfully transitioned into this world, is let out a cry. A newborn baby enters the external world and, for the first time, suddenly breathes air in and screams it back out. As she screams this external world breath out it is transformed, extending the baby in the physical world. This simultaneously brings the world into the baby, as the voice of the baby is linked to her hearing for the first time, completing this circularity that underlies all experiences in life. We send ourselves out and observe ourselves back in. Our voice is the bridge we carry with us, able to extend into the world at any time.

Hearing one’s own voice is the most common private act performed in public space.

As voice is something each individual creates internally while projecting it out to external space, it can serve the individual's experiences by functioning as a bridge out of one's internal reality into objective external reality and the play space in between. The three areas of existence according to Winnicott, are the psychic (or inner) reality, the external (or outer) reality, and the cultural life of the individual - the cultural life being the "play" between the individual's inner and outer reality. This cultural life is composed of transitional phenomena, and when ego development has been ruptured in any area, play in that area is not facilitated by the ego. People in this predicament could make use of transitional objects, coaches, facilitators. I have been a shy person, often not comfortable in expressing myself in social situations. I often feel unable to vocalize freely even in my own city apartment for fear of what the neighbors will think. In some ways, sounding with construction machines facilitates the development of an underdeveloped area of my ego, training me to be aware of, in control of, and comfortable in expressing my own voice. I have noticed that when I have been spending time with the machines in my life, I am more likely to use my voice freely in other situations as a transitional bridge from my internal experiences to the external space of my interactions.

A vocalizing person is bridging between their inner experience and their environment, and also between their own psyche and soma, as the voice is experienced as vibration and bone resonance in one's own body. Winnicott discusses a patient who has lost the ability to allow herself to scream and of his offering "profound understanding" of absolutely every vocalization in order to lead the patient towards screaming again. He is essentially offering a safe place to vocalize, as are, I have found, the noisy machines on city streets. He writes of this woman that "the non-event or the not screaming is in itself a negation or a blotting out of one of the very important things which link the psyche and the soma; that is to say crying, screaming, yelling, angry protest. It is possible already to predict that this patient on becoming able to scream will have an immense strengthening of the psycho-somatic interrelationship and a lessening of the need to employ the somewhat artificial experience of psycho-somatic interplay as described above." (by "artificial experience described above" he refers to his "profound understanding") In the sense

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7 Winnicott
8 Winnicott, page 117
that I experience the machines I resonate with as offering safe places to vocalize, they too, like the psychoanalyst, have the effect of offering profound understanding. I am encouraged by the machines’ wild sounds and vibrations to sound and vocalize freely, and to challenge the sounds uninhibitedly. Winnicott’s patient later had a dream in which she screamed, and afterwards had been able to bring herself to sing in a community situation for the first time in years. The key being the experience of herself actually screaming, vocalizing, even if in a dream.

In Boom the machines are transitional objects. This is one aspect. They are expressive beasts I channel. This is another aspect. They are screaming in the city of the things they have witnessed and laughing and bellowing cries cut through streets, through buildings, through garage doors, apartment windows, into the earth, the thickest steel and stone, down in sewers, along power lines, gas lines, phone lines, lines of people, lines of traffic, screeching, hissing, whispering, vomiting, looking for something. Who sent them? Who takes them home? Why is nobody listening to us? What are we doing here? What are we doing?

Winnicott postulates three areas of existing for a person – their inner reality, the external world, and the area in between, the area of playing and the transitional phenomena forming the basis of cultural experience in general. The excitement is in the razor’s edge precariousness of what is subjective and what is objectively perceived. A transitional object is something we let in, then spit out when it gets too close to one’s self. When it is feeling too fused, too gooey. It is about getting embedded and emerging from embeddedness. It is about losing one’s self by emersion/getting lost, and about gaining identity by separation.

The motor singing, coupled with my vocalizations, allows me to hallucinate that I am actually driving the machine with my voice. To some extent, I am. This may be considered mad, but it is also true. And this is part of the third area of existing, creative play, cultural life. This intermediate area of living experience is neither dream nor object-relating, but both simultaneously - what Winnicott considers the “essential paradox”. This paradox is not to be resolved, but rather accepted. Transitional phenomena take place throughout life.

With creative play comes destruction - destruction of previous enframings now ousted. And the destructive elements of construction machines are not subtle. I, too, am destructive, so, I fight with the machines sometimes. I wrestle with the machines through our sound. In the end we both survive. Our survival of the destruction of the other establishes the other as outside of our individual controls but in the same shared reality. The machine, being outside of my control, is useful to me in that it is capable of transmitting other-than-me substance to me. I am likewise useful to the machine. My construction machines, as transitional objects, can become part of me, while I retain enough of a sense of myself to be able to reform, to be able to retreat to my distinct self
separate from the machine self. I enter negotiations with the machines. They have integrity, altruity.

iii. One

In ancient times the classicists separated our bodies from our souls. Marx constructed our subjective selves relative to production. Christianity missionaried itself all over the world, for a moment mixing, but ultimately annihilating, many cultures and ways of being with its own rules and regulations. Capitalism marketed its construction of us, by us, to us. From the end of the primordial horde to the present year 2000, control of nature, of people’s bodies and souls and perceptions, of local societies and of international communities, have been the bases of ideological structures that have risen and fell. The conflict caused by the discontinuity of ourselves with others is a unifying driving force behind all of these power regimes and their discontents and wars. It has been about control of things outside of one’s self. There are dangers, too, in the current utopian themes in the rhetorics of technoculture. Technocrats want to build their ideologies, our realities, their palaces, our global systems, our worlds. It is still all about control. Perhaps searching for an ideology is a hopeless cause. Perhaps a return to the non-structure, to the fluid mass of a primordial horde, to a perception of our bodies as events, our thoughts as events, our actions as events in a reality shared with other events from us and from others, and no longer distinctly from any place in particular, as it is all continuous, rhizomatic in Deleuze and Guattari’s words, is rapidly approaching. What will we chose to incorporate?

Like in the work of Stelarc, which I discuss a few paragraphs down, if a machinic extension element of myself, which is truly part of myself, extends into you, as a machinic extension of you, truly part of you, then I am part of you and vice versa. The machines in my performances extend into me via vibrations, hook up with me, become part of me. And I become machine. Boundaries have always been imagined into reality and now we can forget them. They are not needed anymore.

iv. Others

Because my project, *Boom*, pivots on the intersection of wild noises and social relations through them, it behooves me to mention the Italian Futurist Luigi Russolo, who, in 1913, celebrated sounds in the world with his *Art of Noises*. Noise was developed by him and other artists as the visual art of the time did not function satisfyingly for them in answering the raucousness of industrialization and military combat.

It is from out of a primary chaos that samples of self-expression form and rise. Antonin Artaud’s noise, preverbal vibrational language, vocalizations from the entire body and beyond, informs my approach to my own vocalizing. He locates voice throughout the phantasmic body parts and not pinned to a privileged organ or orifice. His *body without organs* inspired Gilles Deleuze and Felix Guattari. His own childhood pain of
meningitis, his resultant stuttering, his institutionalization and shock therapies, his dissatisfaction with the falseness of theater all gave rise to his screaming. The voice speaks the body, the extended, border collapsing, vibrating body. For theater he called for metaphysics of speech, gesture, and expression. In his *Theater of Cruelty* he writes, "this objective and concrete language of the theater can fascinate and ensnare the organs. It flows into the sensibility. Abandoning Occidental usage of speech, it turns words into incantations. It extends the voice. It utilizes the vibrations and qualities of the voice. It wildly tramples rhythms underfoot. It pile-drives sounds. It seeks to exalt, to benumb, to charm, to arrest the sensibility. It liberates a new lyricism of gesture which, by its precipitation or its amplitude in the air, ends by surpassing the lyricism of words. It ultimately breaks away from the intellectual subjugation of the language, by conveying the sense of a new and deeper intellectuality which hides itself beneath the gestures and signs, raised to the dignity of particular exorcisms." 

Artaud played out his screaming, his exchanges between bodies, theatrically, including metaphysical stagings of psychosis. Part way through a talk he was giving on *Theater and the Plague*, for example, he began embodying the plague, suffering and collapsing from the plague on stage.

Using one's whole body and machinic body extensions as voice accesses an array of embodied influences. Artaud provides, in his *affective athleticism*, a physicality and violence that is not acting as remembering, but as alive. *Boom* is like theater in its installation form. The physicality of the acts of catching and resonating with the machines portrayed in *Boom* certainly benefit from being uninhibited, honest, all-incorporating actions. Breath is physical. Screaming is a move away from gratuitous verbal dialogue into a vibrational exchange between bodies. Time in Artaud's theater is based on breath. I am reminded, just now, of Allen Ginsberg's poem, *Howl*, whose time is based on breath - each jagged beautiful anarchic section being a single breath. *Boom* may benefit in future edits by the editing itself being more structured on breath, on the physicality of the breath in the performances, than it is at this point.

Like Artaud, Stelarc has engaged in self-concentrated attempts to extend out of the fleshiness of his body by tormenting the flesh itself, the body becoming a locus of metaphysical engagement and manifestations of greater socio-critical pressures and pains. The recent work of the artist Stelarc is concerned with the influence of contemporary technology on embodiment. Contrary to the most common internet activities today which do not engage most of our physical bodies, Stelarc proposes that "instead of fulfilling out-moded metaphysical desires of disembodiment, the Internet allows powerful individual and collective strategies for projecting body presence and body awareness." 

"The Internet does not hasten the disappearance of the body and the dissolution of the

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9 Artaud, page 91
10 Stelarc, page 66
self - rather, it generates new collective physical couplings and a telematic scaling of subjectivity. What becomes important is not merely the body's identity, but its connectivity - not its mobility or location, but its interface." He proposes bodies which are spatially distributed but electronically connected - multiple online bodies of individuals linked to multiple parts of each other so that as one person moves there left thumb, for example, the left thumbs of the people that are connected are actuated remotely and move. Each person feels the movement of their own body manifested through the multi-placement of another body's action. The awareness of each of the inhabitants of these connected bodies is neither entirely within their own individual body, nor removed from their body. This is not about fragmentation of the body, nor about master-slave control relationships. It is, rather, about a multiplicity of bodies remotely prompting and guiding each other through feedback loops of split physiology and agency. This structure is close to the sense I have sometimes in my performances and hope for in Boom. He has designed a multiplicitous embodiment, an extreme inter-subjectivity, closer to primodial horde conceptions than late capitalist ones.

Stelarc describes a couple of his pieces in which the "patient" experiences parts of their body as either not there, in Glove Anesthesia, or as not their own, in Alien Hand, as about what Freud would consider pathological conditions. "But", he writes, "in the terrain of cyber complexity that we now inhabit, the inadequacy and the obsolescence of the ego-agent-driven biological body cannot be more apparent. A transition from psycho-body to cyber-system becomes necessary to function effectively and intuitively in remote spaces, speeded-up situations and complex technological terrain." He writes of bodies both enhanced by prostheses and remotely activated by "unknown" agents, as being capable of incorporating mechanical motions with neither memory nor desire. I, too, appreciate these possibilities.

I propose that we can continually be morphing, constructing our selves and connections, resisting both authoritarian rule of what subjectivities to become and avoiding personal stagnation. The aDress project I began this year facilitates my speaking through alternate parts of my own body, as well as through the alternate body of my friend similarly augmented, via wireless radio transmission. My friend can speak out of my body at any time as well, so, if she observes that I need aural assistance, she can send her voice in real time through the speaker mounted in the abdominal panel of the aDress I am wearing. Does this situation present new ethical questions? Should I have ultimate control of my projections - controlling volume, altering or interrupting transmission through induced feedback? Are the projections of my friend's voice coming out of my stomach even mine? What will "mine" come to mean as we co-embody?

Stelarc imagines bodies having experiences of their online connected other bodies mapped onto their nerve endings, collapsing the distance between these bodies. The

11 Stelarc, page 66
12 ibid, page 67
palpable sensations transmitted from remote bodies onto each other extend and enhance physiology.

"Bodies must now perform in techno-terrain and data structures beyond the human scale where intention and action collapse into accelerated responses: bodies acting without expectation, producing movements without memory. Can a body act without emotion? Must a body continuously affirm its emotional, social and biological status quo? Or perhaps what is necessary is electronic erasure with new, intimate, internalised interfaces to allow for the design of a body with more adequate inputs and outputs for performance and awareness augmented by search engines."\textsuperscript{13}

The last paragraph of Stelarc's manifesto reads, "Consider a body whose awareness is extruded by surrogate robots in situations and spaces where no body could go. These machines with arrays of sensors, manipulators and hybrid locomotion would exponentially multiply the operational possibilities - scaling-up the subtlety, speed and complexity of human action. Perhaps what it means to be human involves not retaining our humanity."\textsuperscript{14}

This reminds me of Artaud's \textit{body without organs} and Deleuze and Guattaris extrapolation of that idea, as well as of the \textit{lines of flight} we can take when we can leave our bounded subjectivities behind. They write, 'Where psychoanalysis says, "stop, find yourself again," we should say instead, "Let's go further still, we haven't found our body without organs yet, we haven't sufficiently dismantled ourselves yet."'\textsuperscript{15}

Nobody is a distinct, whole, isolated entity. We have many parts and they are constantly mixing in an unfathomable infinite flux.

Laurie Anderson is a contemporary artist whose take on technology relates with Heidegger’s and my own. She recognizes that our culture is now in the throws of gear lust. We all want/need the latest electronic gadgets. Why do we feel this way? Why does technology equal power? Where does that perceived power lie in our world views? These are all questions she asks. And she uses her own presence, her voice mediated on stage through various technological constructions, to share tales, dreams and poetic diary entries and anecdotes with her audience. In 1977 she attached a pre-recorded tape piece containing a sentence of Lenin’s onto the bow of her \textit{Tape Bow Violin}, and with the Revox tape playback head in place of the bridge, she played and modulated the sentence. Her audience heard, from chirping to deep bass with the words sinking in, "‘Ethics is the Esthetics of the Few... of the Few... of the Few... ture.’"\textsuperscript{16}

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\textsuperscript{13} Stelarc, page 69
\textsuperscript{14} ibid
\textsuperscript{15} Deleuze and Guattari
\textsuperscript{16} Burckhardt, page 153
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In her latest tours, *United States* of 1984, *Empty Places* of 1989, *The Nerve Bible Tour* of 1995 and *Moby Dick* of 1999, she is one lone woman on stage with massive technology, dealing with it, negotiating, speaking through it. With this position I identify. It is similar to my place at public sites in the city performing live, though in *Boom* I have taken these live performances and made a sound and video installation.

It is the role of those of us who find it compelling, to construct our potentialities in a socially visible way and bring our multiplicities and ever changing imagined self-borders and border crossings to the new agora. And we do not need surgical bio-technological treatments to extend our bodies. Nothing needs to be built – machinic extensions are waiting for us to notice and merge. Nothing is for sale at this fair; everything is for imagined recognition, association, assimilation and dissolution.

**vi. Parapraxis**

I can choose an extension for myself, a machine for myself. I can integrate it into myself and use it. What about it, besides what it was designed to be, is inherent in its machineness that informs my relation to it and informs its relation to me? I think this does have something to do with the in between step of transitional phenomena. There is something to machines, about machines, more than what we designed them to do, how we tell them to function, and what we expect, ask, demand of them. They hold something that we did not ask for, that we did not consciously design for, and this interests me thousands of times more than what machines do that we did consciously design them to do.

I believe that people and machines, as beings in the world, communicate with and through each other in ways we are far from understanding. We are not so very different. We are part of each other, in fact. As we learn to break down the borders of fear and jealousy between people and machines, we will also dismantle the walls and prejudices between people and other people.

Are there parts of machines that you want to be parts of you - that stir up envy within you? If so, stop envying these elements. Admire them, and as you admire them, they become part of you. Incorporating them physically as part of yourself is the next step, which you may choose to take.

Much of people's combined hate and lust of electronic and mechanical devices is reflective of the fact that many of our machines (flying ones are the obvious examples, computer science research and biotechnological advances participate as well) are war machines or the "illegitimate" and legitimate children of the war industry. But we do

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17 Haraway
not need to retain this perception of machines. We can imagine them and us into being whatever we wish to imagine, exist in this perception, and thereby manifest.

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The danger, as Heidegger sees it, of our incessant ordering is that while nature perceived as a calculable complex of effects of forces can facilitate correct perceptions, in the midst of all that is correct, the true may fade away. While ordering holds sway, it drives out every other possibility of revealing. But, Heidegger also points out, within this danger lies the “saving power”. We have a necessary share in revealing. We are needed and used in the coming to presence, of unconcealment, of technology. “Everything, then, depends upon this: that we ponder this arising and that, recollecting, we watch over it. How can this happen? Above all through our catching sight of what comes to presence in technology, instead of merely staring at the technological.”¹⁸

The desire exists to make something new, to discover something, to be the first to see something, to hear something, to say something, to make something present. This is not technology as instrumentalism nor art as aestheticism, it is techne, the ancient Greek definition of techne: “that revealing that brings forth truth into the splendor of radiant appearing”.¹⁹

¹⁸ Heidegger, page 32
¹⁹ ibid, page 34
Chapter Two: **UTTERANCE**
- the act of uttering, or expressing by voice
- the power or style of speaking
- that which is uttered
- the utmost, or last, extremity; i.e., death

Western culture tends to locate the embodied voice above the collarbone (conveniently near the place Western Culture also tends to locate thought). Other cultures place the voice below the collarbone, throughout the body and even sometimes out of the body.

Screams in public demand responses and therefore create a concentrated social event space. They function for other people in the screamer’s environment in this way, but also communicate back to the screamer’s self. We have no natural habitat for this communication. We have only psychiatric hospitals. How and where can one communicate vocally to one’s self through sounds that are socially startling, without attracting reactions from others? Camouflage in sympathetic sounds, such as sounds of machinery on city streets.

As I have been working on my project sounding/singing with enormously powerful machines, from leaf blowers to chipper trucks, cement mixers, and the biggest machine on the east coast, a ten-million dollar pump truck, I have accessed vocalizations that I had never found before and that resonated in ways that moved me emotionally in ways that I have no verbal language for. These experiences were through sympathetic harmonizing with the gigantic monster machines. Tug of war. Capturing the machines and then being pulled, and then back and then again. And resonating in perfect pitch together sometimes for less than a second, sometimes for minutes.

Closely akin to my construction site machines as transitional objects idea is the infrasound interface squeeze project I designed and built last year. Both are ways to vocally extend one’s body. *Emotor* translates vocal expressions into vibrations, the parameters of which are controlled by hand gripping - an anxious clenched hand gesture raises the amplitude and frequency, while a gentle relaxed hold slows and softens the vibration. The interface that embodies the electronics is made of a rubber that shares acoustical impedance properties with human muscle, and is held by the user's body. The effect is that of the vibrations moving into the body and the vocalizations and gestural negotiations being experienced in and projected out of the users entire body. It can be used by an individual to add another mode of control to their own vocalizations while altering the experience of their vocalizations for both themselves and others in their social space, as the user's voice now emanates from their entire body.

**i. Vibration**

We are immersed in vibrations as constantly changing environmental influences - noisy machines on city streets, machines in our homes, our own voices, impacts sending shock waves. We rarely think about how vibrations touch our thoughts and emotions.
Infrasound vibrations, unlike music and most mood elixers, are, as of yet, non-commodified phenomena. We usually want to de-emphasize machine presence.

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Interactions in the physical world involve multiple modalities for sensing and transferring emotional states. More than from the definitions of the words themselves, we observe and express ever-changing feelings through pitch and amplitude of voice and through posture and gesturing. I believe that there are elements of machines that will constitute innately understandable communicative languages. Vibrations, both sound and infrasound, are the elements of this nature I am exploring in this thesis.

People already sense and project vibrations as emotional expressions. Not just through vocal intonations, which are audible vibrations. People quiver with muscles tightened when angry or scared. We rock ourselves and our babies in order to calm. We shake with rage or fury. And our organs react to psychological states. Our heartbeat and breathing rates change depending on our state. And we use our machines as extensions of our bodies to express and absorb feelings. For example, sometimes people rev their car engines when angry, which not only makes an aggressive noise and increases speed (sometimes the car is stopped and the radio is blasting so these modes are not even accessible), but also gives the person controlling the car vibrational feedback as the vibration of the car quickens, giving the feeling of a surge of power. We find the hum of machines either pleasant or annoying, depending on the effect their vibrations have on our psychological states. People who are with machines a lot know this well. While seeking machines to sound with, I walked past the Big Dig’s “do not enter” signs for the first time and I did not get very deep before a construction worker in his truck stopped me and said, “You are not supposed to be here.” I explained to him why I was there, what I was doing, and we began to talk about sounds. He drove me to parts of the site with machines whose tonal qualities, he said, I might really like. “Some sounds are nice,” he said, “and I don’t mean just music,” he said, “sounds, some are beautiful. And some are just irritating,” he said. This stuck with me – that he knew all this so clearly.

Studies have been made linking infrasound (below audible) vibrations to psychological states.

People hear vibrations between about twenty Hz and twenty thousand Hz. (hertz: unit of frequency equal to one cycle per second) Studies on the effects of infrasound (sub-audible vibrations) on psychological states began being documented as early as the nineteen-fifties. Experiments showed that infrasound between 2 Hz and 15 Hz at a level of 105 decibels, or a 7 Hz infrasonic tone at 105 decibels, can produce a ten percent increase in visual reaction time. Different infrasonic frequencies have been mapped to different physiological and psychological effects. Sandover and Champion found that

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20 Bryan, Michael and Tempest, William

21 Bryan, Michael and Tempest, William; Leeds, Joshua; Berglund, B., Hassmen, P., and Job, R. F. Soames, pages 2985-3002
vibrating people’s bodies at various intensities affects their abilities to perform simple arithmetic tasks. How their performances are influenced are directly dependent on the frequency of the vibration. Vibration stimuli resulted in significant reductions in their abilities to perform the arithmetic tasks at some frequencies, but improved their abilities to perform the tasks at other frequencies. They tried combining noise and inaudible vibration, noise alone, and vibration alone, and found the same results. So, some infrasound and their analogous sound vibrations can produce identical psychological effects. This supports the hypothesis that infrasound vibrational stimuli accesses emotions analogous to those the related sound accesses. In Boom the machine sounds are not only heard but felt by the people present. The vibrations produced in their bodies by the four speakers with strong low frequencies are experienced as a physical holding of sorts. People feel held from inside their chests, inside their bodies, by the sound and infrasound vibrations of the installation, similar to the holding I sometimes experience in negotiations with the machines.

Entrainment is a phenomenon in which frequencies innately synchronize. This phenomenon demonstrates infrasound vibrations communicating, or at least affecting, the human body. A human body has the obvious frequencies of respiration and heartbeat, and also many subtle subconscious vibrations. We intuitively modulate our emotional states by the sounds and movements our bodies make - sighs, exclamations, et cetera. These are expressed out to the world and also back to ourselves through our hearing, bone resonance, and metabolic, hormonal, and neuro-chemical changes that occur in the act of creating sounds and vibrations. "Resonance therapy" is a new field utilizing vibration to modulate emotional states. New age alternative medicine machines are being designed to use frequency modulations to induce various psychological states.

ii. Language

Verbal language is limited. There is not a word for every feeling. For example, there are many drastically distinct sensations which all are referred to verbally as "pleasure" and are thereby simplified. There are words in some languages for emotions that lack names in other languages. Nameless emotions are less actuated in a society than are signified emotions. The interactions with the machines bring me through emotions that I can not name or even explain, but which I strongly experience. This is represented for visitors of Boom. We can learn to experience emotions we did not know we had. Perhaps this language I am exploring in Boom could enable us to further develop our sense of communication and empathic abilities. Perhaps emotions innate and waiting for us will be found through our interactions through machines. Certainly new languages will develop between people and their interfacing machines that will expand conceptions of human social communication.

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22 Sandover, J. And Champion, D. F., pages 203-212

23 Leeds, Joshua
I want to feel the presence of the machines involved in my interactions, be those interactions with the machines or through them. I do not want their presence disguised. I want it to react to and influence me. I want to influence and react to it.

We could possibly grow to understand ourselves better as we are given feedback about our states as we are mediated by our machines. Or, we could lose what we now think of as our sense of self, and replace these by projections of imaginations of ourselves - self constructions supported/facilitated by our machines. This is approaching virtual reality in the real physical world. Undoubtedly, our concepts of our own human nature will evolve.

iii. Vocalise

I am fascinated in exploring what can be communicated through expanded voices, body-movement-voice emphasis, and processed voices. Various examples from the performing arts include Laurie Anderson, Julia Heyward, DJ Spooky, John Cage, Meredith Monk, David Hykes, Jan DiGaetani, George Crumb and others. Stockhausen did incredible stuff with voice processing on tape at a time when such work was more technology bound and artists worked with tape rather than real time machine interfaced performances. Their experiments with recordings informed later performance works.

Meredith Monk intones with a wine glass on her sound recording, Our Lady of Late. She plays the glass by moving her finger around the rim, producing sliding tones and harmonics. And she sings with them. Sometimes in sympathetic resonance, sometimes off on her own spins dipping into and out of the ringing vibrations of the glass. Whether working in the medium of dance or performance or song or film making, she always thinks in musical terms. In her vocal work she tries to continually stretch her range (which is about three octaves) and to use different kinds of resonances. Emotional quality of a sound is what she goes for. Her work demonstrates that when working with the vocal instrument archetypal sounds are found that transcend culture. For example, she used a lot of glottal break in solo vocal work before knowing that it was also used a lot in Balkan music. I used a lot of glottal break in the performances leading to Boom, before I knew anything about it or Balkan music or Monk.

I offer now her Notes on Voice, as they relate directly to this thesis:

Notes on Voice
1. The voice as a tool for discovering, activating, remembering, uncovering, demonstrating primordial/prelogical consciousness.
2. The voice as a means of becoming, portraying, embodying, incarnating another spirit.
3. The dancing voice. The voice as flexible as the spine.

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Duckworth, page 357
4. The voice as a direct line to the emotions. The full spectrum of emotion. Feelings that we have no words for.
5. The vocal landscape.
6. The body of the voice/the voice of the body.
7. The voice as manifestation of the self, persona or personas.
8. Working with a companion (the accompanying instrument: organ, piano, glass, etc.): repeated patterns or drone creating a carpet, a tapestry of sound for the voice to run on, fly over, slide down, cling to, weave through.
9. The voice as language.\textsuperscript{25}

\textsuperscript{25} Monk, from Jowitt, page 56
Chapter Three: **BOOM**
- from Middle English *bummen*, to hum; from German *bummen*, of echoic origin
- to make a deep, hollow, resonant sound; to speak or indicate with such a sound
- a booming sound, as of thunder, heavy guns, etc.
- the resonant cry of certain animals, as the bullfrog
- a long beam extending as from an upright to lift or carry something and guide it as needed [the *boom* of a crane, a microphone *boom*]
- to increase suddenly in size, importance, activity, etc.; undergo swift, vigorous growth, flourish

The arm of a crane is a boom, the arm of a microphone is a boom, markets have booms, societies have booms, sounds are sometimes booms. Boom is a big loud thing or event, only inasmuch as through it our experience of something is extended.

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![Diagram](image)

figure 1.
Boom is a four-channel audio, two-channel color video installation in a large underground room of the MIT Media Lab. Video projections are on two adjacent walls, meeting in their shared corner. (figure 1) Each projection is 9’ x 12’, filling the walls, floor to ceiling. The room is completely in darkness. My voice, solely from #1 of the four speakers, begins, relaxed, gentle, personal:

“It began as a way to hide. So that I could make sounds, so that I could speak, so that I could scream in the city, in public, without being afraid of what people might say, how they might react, what they might think of what I sound like. I had things to get out, and I didn’t have a space to do it. So I figured I could go, with machines that are loud and hide within their sounds and make my own. And it worked.

I began with jackhammers and chain saws, and branch choppers, lawn mowers and leaf blowers. And I became in sympathetic resonance with these machines and felt a connection with them, like they were extensions of my body. I began singing with cement mixers and backhoes and ten story cranes. I began developing relationships with the machines that I would visit. I would visit the same machine everyday. And hook into it. Having gone days without being with a certain machine I might become depressed and need to go find that machine. And hook into it. And have it hook into me. Because when I get into resonance with the sounds of its motor it’s like I’m driving the motor with my voice. And the machine is within me, and I am within the machine.”

The room remains in darkness, except for the slight glow of the corner walls from the two video projections of black. Visitors have positioned themselves on the floor between the screens and speakers, some sitting, some lying, some standing, all quiet, listening. There is some humor in the spoken words and some visitors laugh a bit. They listening carefully, with full attention. When my speaking finishes there is a pause, five seconds, and the room is as quiet as it has ever been, waiting.
As the sounds of the cement truck pulling into Boston Sand and Gravel to accept its next load fill the room, the videos fade quickly in - a cement truck pulls in towards me on screen #1 while I walk in towards it on screen #2.

Spatial and temporal distributions of sounds in the room allow people to sense the characteristics of the construction site and its contents from the perspective of being between my presence in the piece and the machine I am resonating with. Sound spectral cues are used to reproduce spatial reverberations to cause the visitors’ auditory systems to perceive being in the actual construction site environment though they are actually in the room of *Boom*. Hearing is not purely in our ears, but all over our bodies via vibrations. Sensory inputs from all available modalities converge in regions of the brain for spatial processing. Spatial perception requires multi-modal information. The visuals of the projections, sound, and vibration render the space the visitor is “in” (being presented with).
I am next to the machine but separated by bars. I climb the bars, lean in to the machine. The sound tones have an acupunctural precision, able to vibrate certain organs, interstitial tissues, cells, thereby accessing the body's warehouses.

In the space of the installation, Boom, the recorded sound of the cement trucks and the cement pump truck negotiates with my recorded voice. The truck sounds emanate more from the video screen projecting my point of view of the machine at the start, while my voice is emanating from towards the screen simultaneously showing the machine's point of view of me. The room becomes the sound chamber – a surrogate simultaneously for my body's resonant cavities and for those of the machine - and the beating occurs in the room, against the back wall like against the back of my throat. Then, when in the audio footage the machine and I match pitches and resonate in each other, it is heard and felt viscerally by all the people in the room. We fill the space and their bodies. [It would be interesting in future installations of this project to find a room whose resonant frequency is a harmonic of that of the machine and myself so that not only the machine and I would resonate and project our bodily experience into those present in the space, but the walls of the space itself would be matched to us and the room-as-body/room-as-machine would resonate with the people inside it.]
The cement mixer's throat is within breath's reach. Guttural churning initiates the growl in its every apparatus, expanding incessantly, extending, vibrating, until the interior of my body is moving likewise and my mouth is opening.

And I am screaming. I just realized. I do not know when it started but I am sounding in ways I do not recall, but know. My consciousness takes over and I fall out, then struggle to regain the holding of the vibrations of the machine matched to my body's vocalizations. And I make it.
I get pissed off – I do not know at what, but I am pissed off. I growl back at that cement mixer. It’s tough guy chest beating dizzy spinning roar roar roar. I roar. AAAAAAAAAAAAAAAAAAARRRRRH! RRRAAAAAAAAAAAHHHRRRRRRRRRR! OOOOOOOORRRROOAAAAAARRRRRRHRHRrrr! Now I am in the lead. I am not tamed. I am holding.
Its growl sweeps to a pounding hiss, then back to a growl. I understand. I hear fury, humor, confusion, pain, and elation. I can feel the interior receiving the thrashes of cement. The machine’s speech is physical and shakes me violently while holding me, safe. It absorbs me. I am in it.

The cement truck empties into the cement pump truck, and I help the cement along with my voice, and I pass down the side of the pump truck as the cement passes through it. The sounds of the pump truck now fill the space and every body/every thing. And its voice is less harsh to me than the cement truck’s and I can tone in resonance with it right away, with many of the harmonics it is producing.
I feel myself in it as I bend and polish a hubcap with my hands. And I am caught in the reflection. The sound now oscillating between the truck and me is a metallic high pitched, fast-paced vibrating chirping. Appropriate with the mirroring happening in vision, too.

When I am in sympathetic resonance with the cement pump truck in *Boom*, to try to keep track of where my voice ends and the machine’s begins is futile, is not applicable. We become vocally one. When on site with a machine, I perceive us as constantly merging and separating. When in resonance, I sometimes have the perception of being part of the machine and powering it, driving the motor with my voice. At other times I am pulled along by the resonance of the motor, I am hurrying or slowing down to feel the beating of our closer and closer to matched frequencies slow to nothing as the resonance takes over. Sensitivity is put in a state of deepened perception. Vibrations of the sounds act directly and profoundly on sensibility through the organs.
I am moving under the body of the cement pump truck. There is a constant arbitration of who is driving whom, my voice driving the machine’s motor and/or the machine’s vibrations moving my body, feelings, and perceptions of self within space. As I follow the machine’s vibratory lead, try to keep up, to match, to catch, through matching vocalizations, I access previously unacknowledged places within myself. I become in sympathetic resonance with it as both an autonomous active body and as part of myself simultaneously. By merging and falling out, struggling and capturing, losing and regaining, we are negotiating our relationship, our take on each other, our roles, our positions relative to each other.
Eight-and-a-half minutes into *Boom* the machines turn off as the workers prepare to move the boom of the pump truck, and at this occurrence the people in the installation space who have been experiencing this holding, and have given themselves to it, feel it pulled out of them and feel let down, heavier. An energy has been pulled back out of their bodies and they miss it, forget to breathe, forget their rhythms, want it back.
In thirty seconds the machines start back up and hold them again.

I have climbed onto the pump truck, which jolts with enormous force in the steady rhythm of its own pushing and pulling of cement. It blows tones in between booms, and I capture again and again and again, just in time, in the movement of our bodies, and with full free vocalizations.

As I vocalize and organize the resonant cavities of my own body to match the vibrations of the sounds of the machine, I pull the vibration of the machine into my body. I am becoming machine. I perceive space closer to the machine’s perspective.
After a continuous six minutes of the pumping droning rhythm with my voice in sympathetic resonance with the sounds of the machine, everybody in the room of Boom has become entrained with the vibrations. After these sensations have convinced us just enough, the video and sound fade and leave the room. The people in the space remain rather still for a time, as if awakened after meditation. After five minutes my spoken words begin again, as the program is looped to replay.
In becoming extended by the machines, I do not want machines to speak for me, but rather to use technology to give increased voice to my body and expand my expressive modes and possibilities.

With the performative practice of vocally negotiating with huge monster machines on city streets, I am questioning the preconceptions and habits of our society in relation to the machines sharing our spaces. It is my intention to publicly enable, by example, critical personal navigation and participation in our evolving social spaces. I am challenging forth into unconcealment significant elements in the parapraxis of machine design. Sound and infrasound vibrations play roles far reaching.

We are all designers, de-signers. We are all contributing to the production of the world, or worlds. We choose elements and direct how our worlds become habitual or anti-stable. These are temporary performances and perceptions challenging preconceptions of how machines shape our lives. We have skipped a step somewhere along our path in becoming cyborgs. Cyborgs are symbiotic mergings of people and machines. As one being. But what about the transitional object step of recognizing the machine as separate from one’s self and part of one’s self at the same time? Simultaneously. We must not say this is mad. It is in fact true.
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