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Envisioning Cyborg Hybridity Through Performance Art: A Case Study of Stelarc and His Exploration of Humanity in the Digital Age

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Envisioning Cyborg Hybridity Through Performance Art:
A Case Study of Stelarc and His Exploration of Humanity in the Digital Age

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ABSTRACT

In this paper I argue that artistic representation has historically been and continues to be a valuable medium for envisioning new bodily forms and for raising important questions regarding changes in what it means to be human in an era of rapid technological advancement. I make this claim using Stelarc, an eccentric Australian performance artist, as a case study. Stelarc's artistic exploration of the modern-day cyborg enacts and represents philosophical and ontological concepts such as identity, hybridity, and embodiment that are subject to change in the digital age. In order to arrive at this claim, **Chapter 1** will trace the cyborg back to its use in 20th century Dada art. I do this to demonstrate how artists have historically depicted shifts in human subjectivities along with their changing technological landscapes. In **Chapter 2**, I define more precisely what the "cyborg" means for the 21st century and outline a selection of cyborg narratives pertaining to futurist lines of thought. Here I introduce Donna Haraway's conception of the cyborg but return to it more extensively in **Chapter 3**. **Chapter 3** examines the scientific and philosophical context of Stelarc, beginning with a discussion of the Extended Mind Hypothesis as a neurological background or frame of reference for his art. It continues with a close look at Haraway's *Cyborg Manifesto* as a philosophical foundation that Stelarc engages with in his performance pieces. **Chapter 4** gives a thorough background on Stelarc and the central themes he explores throughout his work. **Chapter 5** closely analyzes two of his pieces, *Prosthetic Head* and *Ear on Arm*, in order to explore how his art both enacts and moves beyond Haraway's cyborg as he questions and blurs notions of embodiment, awareness, prosthesis, and 'natural.' **Chapter 6** summarizes my argument and concludes with remarks about the importance of Stelarc, our relationship to technology, and the new technological implications of what it means to be human.

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Chapter 1: An Introduction to Hybridity in Art

“By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs. The cyborg is our ontology; it gives us our politics. The cyborg is a condensed image of both imagination and material reality, the two joined centers structuring any possibility of historical transformation.” (Donna Haraway, 1991)¹

Part I: Cyborgs in 20th Century Art

Long before the present, chimeric and hybrid entities colored the imagination of Greek and Roman mythology and have persisted as mythological creatures, cultural motifs, and science fiction characters in a diverse array of folklore and historical discourses. In the late 18th and early 19th centuries, however, the chimeric figure experienced a new manifestation in the form of the cyborg. The rise of industry – with its evolving technology and machinery – began to more concretely penetrate and call into question the definition of ‘human’ and its relation to the external world, engendering a new conceptual context that framed the cyborg as a technologic-mechanic recasting of the chimera. In pop-culture, the cyborg can broadly be defined as a human-machine hybrid. However, the term covers a wide spectrum of interconnections and fusions between the human body, the human psyche, and technological bodies.

Departing from classical depictions of reality and humanity, a new era of 20th century artists sought to grapple with novel philosophical concepts of ‘the self’ amidst

¹ Donna Haraway, “A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,” in *Simians, Cyborgs and Women: The Reinvention of Nature*. (New York: Routledge, 1991), 150.

this rapidly expanding technological world that saw both an improvement in the efficiency of labor and the horrifying violence of war. In their piece, *Cyborg Pedagogy: Performing Resistance in a Digital Age*, Charles Garoian and Yvonna Gaudelius reflect that,

The machine was a force to contend with and the Futurists, Dadaists, Surrealists, and artists of the Bauhaus in the early part of the century used the dynamic machinations of cabaret, circus, and variety theater to challenge that force in order to imagine collage, montage, and assemblage metaphors befitting the new age of machines.²

In Walter Benjamin's view, Dadaism (as well as Expressionism, Cubism, and Futurism) created a rupture in the form of aesthetic work and exhibited a change in the aesthetic of perception. The mechanical reproduction and the reproducibility of Dadaist works altered the techniques for the production of art, "the temporal and spatial conditions of art,"³ and the space between the subject (human) and the object of perception. The Dada Manifesto of 1918 openly demanded new materials for painting and expressed the need to see objects differently in accordance with the new historical conditions of a mechanized and technologically-influenced post World War I world. Thus, Dada artists were searching for a technique "in which the image would *tell* in a new way."⁴ Photomontage was one of these new artistic mediums as it, "belonged to the technological world, the world of mass communication and photo-mechanical

² Charles R. Garoian and Yvonna M. Gaudelius, "Cyborg Pedagogy: Performing Resistance in the Digital Age," *Studies in Art Education*, 42 (2001): 334, accessed October 20, 2015.

³ Kia Lindroos, *The Temporalization of Politics in Walkter Benjamin's Philosophy of History of Art*. (Jyväskylä, Finland: University of Jyväskylä, 1998), 124.

⁴ Dawn Ades, *Photomontage*. (London: Thames & Hudson, 1986), 20.

reproduction.”⁵ Furthermore, photomontage posited the artist as an engineer who meant to construct, to assemble his or her work rather than represent – engendering a critical shift in the role of the artist and expanding the realm of what could be created. As James Gleick writes, a new channel for communication of information (such as photomontage), “does more than extend the previous channel. It enables reuse and ‘re-collection’ – new modes. It permits whole new architectures of information.”⁶ Dadaism was, at its core, a manifestation of and reflection on new technological modes of being. As an artistic movement, Dadaism functioned as a critical carrier of cultural information, indicating a seismic shift in the way technology permeated and fundamentally altered the human conception of the self – in short, our ontology.

As the Dada artist Hannah Höch stated in an interview with Edouard Roditi, the purpose of Dada *photomonteur*, “was to integrate objects from the world of machines and industry in the world of art,”⁷ or as Benjamin puts it, to create “some sort of alloy in the joint presentation of reality and apparatus.”⁸ Before technology enabled the actualization of machine-human hybrids, such amalgamates were envisioned and represented by Höch and her Dada contemporaries. Matthew Biro, in his book *The Dada Cyborg: Visions of the New Human in Weimar Republic*, writes that, “...The Dada artists at times envisioned themselves as mediators between different extremes.”⁹ It is precisely this, “idea of mediation – of possessing the ability to translate between opposites and perhaps also to

⁵ Dawn Ades, *Photomontage* (London: Thames & Hudson, 1986), 13.

⁶ James Gleick, *The Information*. (New York: Pantheon Books, 2011), 32.

⁷ Lucy R. Lippard, *Dadas on Art*. (New York: Prentice-Hall, 1971), 73.

⁸ Walter Benjamin, *Illuminations*. (New York: Harcourt, Brace & World, 1968), 250.

⁹ Matthew Biro, *The Dada Cyborg: Visions of the New Human in Weimar Berlin*. (Minnesota: University of Minnesota Press, 1961), 74.

translate opposites into one another,”¹⁰ that characterized the Dadaists as artistic pioneers of an investigation into ‘the self’ and the parallel reconceptualization of human identity in the early 20th century. In their pursuit of new artistic platforms, the Dadaists sought to undermine Classical artistic authority and represent “new modes of (interior and exterior) awareness created by the impact of technology on human perception.”¹¹

The work of the aforementioned Dada artist, Hannah Höch, exemplifies this turning point in the perception of human identity. Through Höch’s employment of elements such as photomontage and fragmented, recombinant imagery, she positioned art as a powerful medium through which to examine and reevaluate the human condition in a technologically-inundated era. In her groundbreaking piece, *Schnitt mit dem Küchenmesser Dada durch die letzte Weimarer Bierbauchkulturepoche Deutschlands* [Cut with the Kitchen Knife Dada through the Last Weimar Beer-Belly Cultural Epoch of Germany] (1919-20) (Figure 1), Höch displays a “vast and complex ‘simultaneous montage,’ a constellation of photomechanically reproduced photographic fragments.”¹² This work that Höch created, through the combination and reconfiguration of existing pictures and text, broke from Classical artistic tradition in its non-hierarchical depiction of a multifaceted landscape saturated with cyborg imagery. The prominent cyborg figures merge images of German government authorities, military, and political leaders with those of artists, writers, dancers, actresses, and scientists. These, “collaged, hybrid, and (sometimes) hermaphrodite entities represent recognizable individuals while suggesting –

¹⁰ Matthew Biro, *The Dada Cyborg*, 74.

¹¹ *Ibid.*, 1.

¹² *Ibid.*, 77.

through their fragmented and recombined structures – a radical transformation of these modern individuals through war, revolution, and technological development.”¹³ Even when certain figures in Höch’s work do not reveal mechanical or prosthetic parts, they still evoke a cyborgian character suggested by their unique, stitched-together appearance and fusion of traditionally gender-specific attributes.

Though the term “cyborg” was not a part of Weimar vocabulary – having been retroactively introduced to describe the art of that era – it aptly captures the Dadaists’ reconceptualization of embodiment and the interconnections they saw rapidly emerging between humans and technology. In this context, hybrid and cyborg entities helped the Dada artists to grapple with the ambiguity and multivalence of their new reality – a world of technological advances that furthered humankind’s manipulation of the world yet one that still shook in the aftermath of World War I and its unprecedented mass deaths. Images of technology are featured alongside and embedded in the composite cyborg bodies of *Cut With the Kitchen Knife*. Wheels, gears, and other circular motifs suggest locomotion, movement, and changing of the German cultural landscape. Additionally, they explicitly refer to the ties between “technology, movement, inversion, and social revolution.”¹⁴ Similar pictures of trucks, trains, ships, and planes also suggest the beginning stages of a rapidly globalizing society and the early-twentieth century “conquest of space and time.”¹⁵ Meshing pre-existing images of faces from Höch’s social circle and those excluded from it with industrial machinery and technological

¹³ Matthew Biro, *The Dada Cyborg*, 71.

¹⁴ *Ibid.*, 73.

¹⁵ *Ibid.*

innovations, Höch's photomontage explores the relationship between technology, representation, and human identity – a radical artistic (or rather 'anti-artistic,' as was the Dadaists' claim) endeavor that ultimately pushed the boundaries of contemporary body politics.¹⁶

Through its fixation on what is now labeled as 'cyborg,' *Cut with the Kitchen Knife* promoted a "politics of 'hybrid identity' that encourage[d] its spectators to imagine new, more-networked and distributed modes of human existence";¹⁷ it represented a transition point that called into question the role of the machine and new relationships between art, science, and technology. After the destruction of World War I, the cyborg in art emerged as a figure that embodied hopes and utopian futures; while it literally combined images to create organic-technological hybrids, it more generally encompassed the idea of hybrid identity essential for understanding how new forms of existence and society were envisioned post war. The effects of war and the "transformation of the human body under the conditions of mechanized warfare during World War I"¹⁸ made horrifyingly clear the double-edged sword of technological innovation. This ambiguous character is evident in *Cut With a Kitchen Knife's* portrayal of the contradictory elements (such as male heads with female bodies, human-animal bodies, human-machine bodies, and bodies that incorporated wheels and other tools of transportation) that constituted a new subjectivity in the beginnings of a technological era. Undoubtedly, this kind of imagery was influenced by the realistic photographs that documented the WWI

¹⁶ Matthew Biro, *The Dada Cyborg*, 2.

¹⁷ *Ibid.*, 101.

¹⁸ *Ibid.*, 75.

battlefield in which increasingly destructive munitions often blew bodies and machines alike into pieces that fell together and collapsed into each other in their own horrifying assemblages. This new subjectivity arose as human bodies were transformed through their interactions with technology; technological innovation increased the physical capabilities of the body in a way that allowed for more agency within the surrounding environment (i.e. appliances that eased the brunt of housework, or machinery that streamlined a more efficient form of food production that provided a higher surplus). Yet, while this extension of the body into its technologically-mediated environment facilitated positive changes in aspects of life such as labor, it simultaneously wrought unforeseeable consequences and unprecedented levels of violence and destruction. The cyborg captured both the positive changes as well as the consequences as it was, “fundamentally defined by its ability to interface with diverse – and often contradictory – systems that had the power to radically transform it.”¹⁹ Defying traditional ideas about what it meant to be human and merging clashing categories of identity, the cyborg, “demanded to be read in terms of a multiplicity of often incommensurate sets of expectations.”²⁰

Hannah Höch was one, but by no means the only, artist whose work triggered an investigation of the discordant concepts of self and society; her ability to conceptually “interrelate all forms of distinct interior and exterior impressions”²¹ ushered in a new concept for understanding the self – one that unveiled the relations and contradictions between things as a constitutive and essential component of their being. Already

¹⁹ Matthew Biro, *The Dada Cyborg*, 6.

²⁰ *Ibid.*, 103.

²¹ *Ibid.*, 97.

anticipating Donna Haraway's theorization of the cyborg by 70 years, Höch intentionally altered the contemporary perception of reality in order to "encompass novel dynamic spaces of numerous possibilities."²² She understood the cyborg before the term existed; her multi-media compilations transcended the traditional boundaries of human form and suggested a variety of future itineraries for human beings and their metamorphoses. In other words, before 'transgender' and 'transhuman' bodies were technologically conceivable, Höch explored and envisioned through her artwork a new identity politics that both captured and celebrated the futuristic concept of hybridity.

²² Matthew Biro, *The Dada Cyborg*, 77.



Figure 1. Hannah Höch, *Schnitt mit dem Küchenmesser Dada durch die letzte Weimarer Bierbauchkulturepoche Deutschlands* [Cut with the Kitchen Knife Dada through the Last Weimar Beer-Belly Cultural Epoch of Germany] (1919-20). Image from: <http://sky-cccam.com/hoch-cut-with-the-kitchen-knife.html>.

Chapter 2: Cyborgs in the Modern Era

A century after the Dadaists ruptured artistic convention, artists continue to occupy a position characterized by experimentation, imagination, and creative freedom – their art an invaluable strategy for reading the world and confronting its emerging changes. The 21st century has produced a dramatic shift in the technological landscape, shrinking the clunky machinery represented in Dada art into the practically invisible digital information technologies of today. This difference is significant for at least two main reasons. First, the speed and power available for the manipulation of information leverages older technologies (including industrial manufacturing), and thus extends their impact on many areas of life via ever cheaper mass production, new forms of entertainment, and, of course, new media for artistic experimentation. Second, these new technologies, unlike their early industrial predecessors, are barely visible to the naked eye, rendering them almost magical by comparison with the large machines of the Dada time period. While anyone with an inclination to do so could take apart, put together, and otherwise easily manipulate these technologies, the workings of digital technologies are not so clear. Instead, they invite us to think of ghosts in the machine and other magical processes that are inaccessible to all but the most dedicated student, marking a substantial leap in technological progression.

In other words, technology appears to have followed a boomerang-like trajectory; the external, bulky machinery of last century has rusted over as the technologies of today pivot back toward the body in increasingly miniaturized forms, some of which are

capable of bodily internalization. With the rise of information technologies that began with the Turing Machine, the digital era gave rise to new, recursive relationships between humans and their technological environment that have inspired many artists to once again investigate ‘human nature’ and its possible transfigurations in a digital age.

I will argue throughout this paper that the use of cyborg and hybrid identity in the work of the performance artist, Stelarc, plays a crucial role in renegotiating the space of the human body and forming a new subjectivity against the backdrop of a data-driven and technologically mitigated society. The multifaceted figure of the hybrid cyborg is set against a cultural landscape permeated and shaped by an abundance of information technologies, networked systems, and mechanized processes which impact human identity from a variety of angles.²³ These characteristics of ‘the digital age’ give the cyborg both a new ontology and a political symbolism. To fully examine the role of the cyborg in contemporary performance art however, it is first necessary to provide a brief introduction to cybernetics and current trends in futurist thought.

Part I: The Prevalence of Cybernetics, Information Theory, and the Digital Revolution in Contemporary Art

The hypermediated world we live in has inspired many new artistic explorations in the field of *cybernetics*. According to the famous mathematician and philosopher, Norbert Wiener, cybernetics theory is meant to incorporate a set of ideas that encompasses communications theory (how messages are sent and received), systems

²³ Garoian and Gaudelius, “Cyborg Pedagogy,” 333.

theory (the complex entities in which those messages are sent and received), and control theory (the effects that those messages have within the system). Furthermore, Wiener's theory goes beyond the sum of these parts; it seeks to explain the relationships between them.

At its foundation, cybernetics is the “idea that all control and communication systems, be they animal or machine, biological or technological, can be described and understood using the same language and concepts.”²⁴ This is evident in fields ranging from synthetic biology, which aims at engineering biological parts, devices, and systems to various forms of artificial intelligence capable of mimicking human qualities such as reasoning or self-awareness that are programmed as mathematically and logically formalized systems. The trend in this era of ‘code-cracking’ has initiated deeper explorations of human physiology and neurology as well as the impact of their reproducibility and translatability across mechanical and technological bodies.

Cybernetics has therefore given rise to serious questions regarding the nature of humanity such as: What is a human being if they are merely made up of information (DNA) and the manifestation of that information (interactions between one's genetic make-up and the environment)? And, if information can be translated and understood across biological and mechanical bodies by means of distilled and universal languages and codes, what is the role of humanity in shaping the external environment (i.e. synthetic biology to alleviate effects of rising carbon-dioxide emissions), creating novel environments and bodies (i.e. virtual online spaces or virtual characters), and intervening

²⁴ Norbert Wiener, *The Human Use of Human Beings*. (New York: Anchor Books, 1954), 257.

internally into one's own body in order to alter biological or neurochemical processes (i.e. pre-implantation diagnosis or psychopharmacological drugs)?

In this reflective capacity, cybernetics bears a resemblance to the process of artistic creation itself. Michael Apter argues that the entire process of art-making,

is one which involves many feedback processes including those between the artist and the work of art he is in the act of creating, between the work of art and its audience, and between the audience and the artist through criticism in the short-term and, in the long term.²⁵

Artists in theatre and live performance actively engage with these relationships such that their art or actions are coextensive with their audience and performers; they provide self-regulatory environments, or systems, of stimulus-and-response that utilize mechanisms in which an audience provides feedback to performers and vice-versa.

Further commenting on this shift in artistic focus, Apter believes that the emphasis in cybernetics on process and change “may have been one of the factors generating an increasing feeling among artists that art should be regarded as a process rather than as the production of static objects.”²⁶ This feeling has manifested itself in a variety ways including the production of impermanent works or art, “the concept of ‘happening’ as an art form and the deliberate and creative utilization in some works of kinetic art.”²⁷ In this rapidly expanding field, artists use various media to reflect upon and

²⁵ Michael J. Apter, “Cybernetics and Art.” *Leonardo* 2 (1969): 263, accessed January 12, 2015.

²⁶ *Ibid.*, 263-264.

²⁷ Michael J. Apter, “Cybernetics and Art,” 264.

complicate conventional thinking about the meaning of embodiment, agency, and more general understandings of the self.

Reconceptualization of the body and its relation to the world in light of cybernetic findings is the subject of much of Stelarc's work; in an interview he notes that for him, "a body is this total physiological, phenomenological cerebral package, which interacts with the world, interacts with other bodies and is augmented by technology."²⁸ He is interested mainly in those operations and situations, in the "interfaces and exchanges [in which] intelligence and awareness is generated, not simply from an isolated body."²⁹ Employing the internet as both a tool and model for interconnectivity, Stelarc suggests that "intelligence is distributed remotely and spatially,"³⁰ as the body increasingly becomes part of a greater operational structure within the modern technological environment. A body, he argues, is "not just this entity, but this entity connected to another body, where awareness is sliding and shifting, coagulating, ebbing and flowing, intensifying and dimming, depending on the connectivity of the body."³¹

The impact of cybernetics and the focus on connectivity as a new modality is ever-present in much of contemporary art, a movement bearing similarities to the innovations of Dada art yet differing greatly in technological context. Stelarc stands in this field as a pioneer, his cyber creations and interconnected, hybrid bodily forms generating an invaluable influence on locating the role of the cyborg in futurist

²⁸ Stelarc, interview by Miss M. "An Interview with Stelarc," Future-NonStop.org, June 1997, accessed March 22, 2015.

²⁹ Ibid.

³⁰ Ibid.

³¹ Ibid.

discourses. As I will show in the next section, ideas about what the cyborg is now and what it will or should be in the future vary greatly and carry a multiplicity of meanings.

Part II: Transhumanism, Posthumanism, and Singularity

The dominating cyborg trope arises in futurist discourses that project specific visions of transhumanism, posthumanism, and the possibility of technological singularity. Transhumanism is a loosely defined movement that has gradually developed and garnered attention in the past two decades. According to Oxford professor of Philosophy Nick Bostrom,

...Transhumanism promotes an interdisciplinary approach to understanding and evaluating the opportunities for enhancing the human condition and the human organism opened up by the advancement of technology. Attention is given to both present technologies, like genetic engineering and information technology, and anticipated future ones, such as molecular nanotechnology and artificial intelligence.³²

The common transhumanist goal is that through the, “responsible use of science, technology, and other rational means we shall eventually manage to become *posthuman* (emphasis added), beings with vastly greater capacities than present human beings,”³³ however, the precise meaning of ‘responsible’ is up for debate when its meaning is constituted by actors with different financial stakes, values, and belief systems. Posthumanism is an emerging theory and trend in technologically-mediated futurist thinking whereby information is continuously separated from information-carrying

³² Nick Bostrom, “Transhumanist Values.” Ed. Michael Depaul. *Journal of Philosophical Research* 30.9999 (2005): 3-14.

³³ *Ibid.*, 3.

bodies and turned into data, building from and echoing cybernetic theory. The theory therefore puts forth the possibility that entire human experience might be condensed and articulated in full by machines.

From the posthumanist line of thought follows the Technological Singularity Hypothesis, namely that with the exponential growth rate of technological development, artificial intelligence will surpass human intellectual capacity and thence control, culminating in changes to or the termination of humanity as we know it – an event called *singularity*.³⁴

The singularity however, originally proposed by Vernor Vinge, is not restricted to one path but could possibly manifest in a variety or combination of scenarios. One such example is the classic AI scenario, in which humans create superhuman artificial intelligence in computers. Alternatively, we could find ourselves in the IA scenario, in which we enhance human intelligence through human-to-computer interfaces, namely, we accomplish intelligence amplification. Vinge also lays out the possibility of a ‘biomedical scenario’ in which we improve the neurological operation of our brains, and the ‘internet scenario’ – in which our online networks and databases are so deeply interwoven into the fabric of humanity as to be considered a superhuman being.³⁵ To the broader public, these aforementioned movements in futurist thinking have created a surge in bioethical engagements with questions concerning the “nature” of humans, machines, and the ambiguities surrounding their categorical boundaries.

³⁴ Amnon H. Eden, and Eric Steinhart, *Singularity Hypotheses: A Scientific and Philosophical Assessment*. (Heidelberg: Springer, 2012).

³⁵ Vernor Vinge, "Signs of the Singularity." Spectrum.ieee.org.
<http://spectrum.ieee.org/biomedical/ethics/signs-of-the-singularity> (accessed April, 6, 2015).

The last scenario, the ‘internet scenario,’ seems to resonate most closely with Stelarc’s work and his emphasis on new forms of connectivity in the digital era. Stelarc acts as a scientist experimenting with and guiding the new flows of information enabled by online systems and networks. However, Stelarc’s zeal for addressing and destabilizing commonly-held views of humanity through his provocative performances is not the dominant attitude towards the relationship between humans and technology. The idea that such a level of intelligence achieved in various types of singularity is in principle unknowable leaves many people hesitant about the future of humanity – an open debate that incites fear in the wake of unpredictability and invites a plethora of alternative visions for the cyborg.

Part III: Competing Definitions of ‘The Cyborg’ and its Futuristic Purpose

Predicated on this void of certainty regarding the pervasiveness and intelligence of technology, futuristic narratives run the gamut from complete faith in cyborg-technologies to alleviate the world’s most daunting problems to scenarios of impending doom and fall of humanity at the hands of cyborg war-lords. In the latter view of a posthuman future or age of technological singularity, cyborg technology is portrayed as a tool for control and domination; in the hands of a wealthy tech-savvy elite it has the capacity to further the prevalent socio-economic divides. This conception of a cyborg future is more concretely depicted in pop-culture as a constructed inorganic organism that replicates human acts and sentience. As early as Mary Shelley’s *Frankenstein*, this

cyborg trope common to science-fiction literature and films commonly threatens all-out warfare with human adversaries, because humans threaten to destroy or enslave the machines, eventually provoking the machines to take over in self defense.³⁶

Other leading technological innovators of the modern era, such as Google's director of engineering, Ray Kurzweil, hold more optimistic views of our technological trajectory and exert a vast influence over the prospect of a posthuman future. Trumpeting the infinite capabilities of AI and cyborgs to save our race and the planet, people like Kurzweil tend to adhere to a vision of transhumanism that implicitly reproduces and technologically revives a hierarchical structure of domination. Additionally, his status as a wealthy caucasian male working for one of the most powerful corporations immediately calls into question how transhuman technologies would be distributed, whether or not they are self-serving their creators and increasingly powerful corporate owners, or whether they merely provide new mechanisms for class division and unequal attribution of rights. I believe that Kurzweil's motivation and optimism are essential facets of the development of new technologies. However, the dominant narratives that Kurzweil along with major media outlets disseminate subscribe to a narrow view of what our future, and the future of cyborgs, could look like.

Making explicit the political ideologies embedded in technology, Donna Haraway writes that, "modern production seems like a dream of cyborg colonization work, a dream that makes the nightmare of Taylorism seem idyllic...and modern war is a cyborg orgy, coded by C3I, command-control-communication-intelligence, an \$84 billion item in the

³⁶ Similar themes are central to the *Terminator* series, *Colossus: The Forbin Project*, and the *Battlestar Galactica* series, to name a few.

1984's US defense budget.”³⁷ For instance, consider both the success of NASA in landing a man on the moon and the existence of the ‘dark net’ that uses decentralized servers to protect user anonymity – both of these leaps in technological development were realized in large part because of military interests and funding. This is not to say that the cyborg solely holds a negative place in the public sphere; there are many amiable, funny, helpful robots and cyborg-like characters who fortunately balance out this dim view of our future. Yet, Haraway's view is an example that shows why the historic connection between the U.S. military and its influence over technological development cannot be dismissed as irrelevant.

The brief descriptions above of hypothetical futures are but a few of the many hypotheses that shape public perceptions of the cyborg. Yet, I argue that the one of the main features of machine-human hybrids in contemporary thought and media is their embodiment of a certain inevitable alterity and existence beyond our control. Cyborgs in (what I am calling, for lack of a better term) the traditional, idealist transhumanist realm of thought are not only mechanisms for control but also embody the techno-optimist prediction that, “science will create the means to channel evolutions among marvelous new paths, ones that will, alas, eventually lead to human extinction.”³⁸ The conversation about cyborgs is too frequently polarized in these directions and as such can occlude more nuanced possibilities (such as those posited by Vernor Vinge) that arise with an active engagement with and reconceptualization of the role that technology plays in our

³⁷ Donna Haraway, *Simians, Cyborgs and Women*, 150.

³⁸ Langdon Winner. “Resistance Is Futile: The Posthuman Condition and Its Advances,” in *Contemporary Issues In Bioethics 7th Edition*. Ed. Tom L. Beauchamp, LeRoy Walters, Jeffrey P. Kahn, and Anna C. Mastroianni. (Belmont: Wadsworth Pub. Co., 2008), 782.

culture. Overly deterministic views deny the empowerment afforded by humans' capacity for responsible technological development in tandem with our own trajectory, or even the ability to engage in a productive dialogue about what 'responsible' technological development might mean.

Thinkers like Donna Haraway depart from narrowed approaches to a cyborg future. Haraway instead invokes the cyborg as a metaphor for breaking away from destructive dualisms and dichotomies of identity. Understood in this way, the cyborg extends beyond its various physical manifestations as a metaphorical concept used to ease boundaries between 'human' and 'machine' as well as 'natural' and 'unnatural.' The modern cyborg has these powerful interrogative and provocative capacities in large part because of cybernetics and information theory; if who and what we are as individual humans is ultimately determined by a pattern of information, the cyborgs invites critical theoretical (and practical) questions that have to do with how the embodied platform that instantiates that information in physical form is related to its content – its identity. For instance, would I still really be me if I were implemented in non-biological machine form? If not, how much machine information can I add before I am no longer me? Haraway's cyborg is a fruitful philosophical device for questioning these bio-machine boundaries and how they have become more complex since the Dada era; how have these boundaries changed and blurred when the machines of the 21st century are information machines capable of directly engaging with our bio-information machines and not just mechanical parts?

Katherine Hayles also endorses the view that “cyborgs are simultaneously entities and metaphors, living being and narrative constructions.”³⁹ Situated between a real world of technological development and an ideological one, the cyborg for Hayles retains a powerful capacity for both reflecting a new human subjectivity and envisioning humanity’s trajectory:

There is both a materiality, an embodied presence to the myth of the cyborg, and a metaphorical space that is created by the narratives that produce the myth. In this sense, the metaphor of the cyborg creates a conceptual space for performing embodied subjectivity.⁴⁰

The metaphorical cyborg is only one imagined version of the cyborg, yet is one that provides a space for projecting a (new) subjectivity in a digital age that confronts yet does not erase the limits of current identity politics.

Haraway and Hayles’ theories expands upon the cyborg’s cultural presence both before and after Norbert Weiner’s cybernetic theory, placing it in the realm of social theory. Their notions of the cyborg are thus useful philosophical tools that help to open up new avenues for conceptualizing a posthuman future – for this reason I examine Haraway’s theory more thoroughly in the third part of Chapter 3. However, it is important to note that while both thinkers have produced ground-breaking narratives of the cyborg, their work needs to be revisited in light of the ‘digital revolution’ that has produced artificial intelligence, intelligent operational agents, or other life-forms that can

³⁹ Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. (Chicago, Ill: University of Chicago Press, 1999), 114.

⁴⁰ Garoian and Gaudelius, “Cyborg Pedagogy,” 337. This dual function of the cyborg is echoed by Donna Haraway and Katherine Hayles.

proliferate, replicate, and transmit themselves on the net. Said more simply by Stelarc, “the realm of the post-human may no longer reside in Donna Haraway's notion of the cyborg. The realm of post-human may well reside in intelligent autonomous and operational images.”⁴¹ Despite Stelarc’s desire to depart from Haraway’s cyborg in his more technical artistic work, her foundational framework has been a critical resource for all cyber and transhumanist artists.

The cyborg as both a metaphor and reality continuously forces us to ask, what makes us human? Because it is at once a projection of our best scientific understanding of ourselves in a distilled and encoded form and also a manifestation of otherness to which we turn for philosophical reflection, the cyborg provides us with important questions about what exactly makes a human different from a cyborg. As scientific and philosophical discoveries become more advanced, so too the cyborg becomes more adept and precise when it comes to asking these ontological questions.

Chapter 3: Context of the Modern Cyborg

Part I: The Impact of Neurological and Physiological Findings on Human Subjectivity

The modern cyborg arises in the wake of extensive cognitive and neuroscientific findings which have more broadly shattered historical views of ‘the self’ and significantly

⁴¹ Stelarc. Interview with Miss M. “An Interview with Stelarc.” Future-NonStop.org, accessed March, 22, 2015. Web, June 1997.

altered the mind/body conceptualization. The material development of technology in conjunction with new scientific and consequent philosophical musings about ‘the self’ catapults the 21st century citizen into a new frontier of understanding of what it means to be human.

Uniting and building upon foundational research from biology, chemistry, mathematics, computer science, linguistics, philosophy, and psychology, the fields of neuroscience, cognitive science, and other ‘sciences of the mind’ have exploded within the past twenty years. As much as they are fueled by increasingly precise scientific research, this project of understanding the cognitive processes of mind is driven by an innate desire to investigate and understand ourselves as conscious beings. Neuroethics introduces new ideas about free will, self-control, self-deception, and ethics, and retains the capacity to “refine ourselves as moral agents.”⁴² Of course, as data about our brains arises, it probes us to tinker with its mechanisms in self-investigatory experiments. This includes the use of pharmaceuticals that alter moods and behaviors, in addition to other avenues such as cognitive learning methods, or even advocating exercise on the basis of its neural effects. The particular use of technological means to alter our own minds is seemingly a novel phenomenon. Yet, even as technologies that operate on the basis of recent neuroscientific findings may offer a new perspective of ourselves, neuroethicist Neil Levy asserts that using technological means to alter our minds reflects our fundamental nature as self-creating and self-modifying animals:

⁴² Neil Levy, introduction to *Neuroethics: Challenges for the 21st Century*. (Cambridge: Cambridge University Press, 2007), p. x.

This is not something new about *us*, here and now in the “postmodern” West...We are distinctive inasmuch as we have public and distributed minds: minds that spread beyond the limits of individuals, but which include and are built out of other minds and the scaffolding of culture. The sciences of the mind offer us new opportunities for altering our minds and increasing their powers, but in doing so they offer us new means of doing that we have always done; the kind of thing that makes us the beings that we are.⁴³

Although the means with which we now intervene into our own minds are distinctively of a technologically and mechanically-mediated era, the basic desire underlying these explorations has always been there. Stelarc echoes this belief that the desire to alter ourselves is in some way intrinsic to our human nature, stating in a radical fashion that, “perhaps the meaning of being human is not to remain human at all.”⁴⁴ To better understand the salience of this idea, one needs to be acquainted with contemporary theories of cognition that describe connections between the mind and environment.

While Levy holds that our connection to and dynamic relationship with external technologies in shaping and changing ourselves is a facet of human behavior, he does so on the basis of a relatively new conception of the mind – namely, the Extended Mind Thesis. In short, the extended mind thesis (EMT), alluded to in Levy’s description of a mind that spreads “beyond the limit of individuals,” holds that “the mind is not wholly contained within the skull, or even within the body, but instead spills out into the world.”

⁴⁵ This emerging concept questions the historically and socially entrenched Cartesian view of mind/body *dualism*. Instead of identifying the mind as an immaterial substance separate from the physical body, the EMT insists that it is actually the emergence of the

⁴³ Neil Levy, introduction, xiii.

⁴⁴ Stelarc, "An Interview with Stelarc." Interview by Miss M for Future-NonStop.

⁴⁵ Neil Levy, *Neurtoethics*, 29.

entire ensemble which “answers to the description of an agent.”⁴⁶ The agent simply *is* the set of processes and mechanisms within the brain but “not something over and above them.”⁴⁷ Stated alternately, rather than “presenting the mind at the expense of the body,” we can acknowledge their different legibilities and simultaneously grant their “coexistence in order to produce a comprehensible being.”⁴⁸

Granting the mind this extension in the form of embodiment, the EMT further proposes a view of *active externalism* – the idea that objects and tools in the external world can be used and incorporated into cognitive processes as to be seen as extensions of the mind. If the mind is understood as “the set of mechanisms and resources with which we think,” then that set must contain more than just our internal resources, made up of neurons and neurotransmitters.”⁴⁹ The environment contains the tools we have made for ourselves (i.e. pens, books, calculators, computers), and as such those tools are inscribed on and aid our mental processes.

For this reason, cognitive scientist Andy Clark recounts why, in his eyes,

We shall be cyborgs not in the merely superficial sense of combining flesh and wires but in the more profound sense of being human-technology symbionts: thinking and reasoning systems whose minds and selves are spread across biological brain and nonbiological circuitry.⁵⁰

This controversial statement suggests that we will not only be able to incorporate machine systems like cochlear implants into our bodies, but that eventually we will be

⁴⁶ Ibid., 26.

⁴⁷ Ibid., 27.

⁴⁸ Garoian and Gaudelius, “Cyborg Pedagogy,” 337.

⁴⁹ Neil Levy, *Neuroethics*, 29.

⁵⁰ Andy Clark, *Natural-born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*, (Oxford: Oxford UP, 2003).

able to incorporate thinking systems that will merge with our minds and will become self-aware. Similarly for Stelarc, intelligent autonomous and operational images become a kind of artificial or alternate life form, and, “by continuously interfacing the body with new technologies and robotic systems and even other bodies remotely,” you “generate experiences that you wouldn't ordinarily have and so consequently you are always thinking and possibly even redefining what it means to function in this way.”⁵¹

So, Levy, Clark, and Stelarc all suggest that the compulsion to intervene with and alter ourselves is an essential part of humanity – the desire itself is not new. But, new technologies and instruments are what “generate new information, which in turn produce alternate desires and paradigms of the world.”⁵² By introducing new technologies into our lives, we participate in an extensive feedback system with the environment. Clark invites us to contemplate this harmonious relationship and the consequent impact on a humanity whose understanding of itself is in a constant process of revision; he writes, “the various kinds of deep human-machine symbiosis really do expand and alter the shape of the psychological processes that make us who we are.”⁵³

Part II: Donna Haraway's *Cyborg Manifesto* as a Theoretical Foundation for Interpreting Cyborg and Hybrid Subjectivities

Introduction to Haraway

⁵¹ Stelarc, "An Interview with Stelarc." Interview by Miss M for Future-NonStop.

⁵² Ibid.

⁵³ Andy Clark, *Natural-born Cyborgs*, 32.

Donna Haraway's metaphorical cyborg as postulated in her *Cyborg Manifesto* provides a space for projecting a shifting definition of subjectivity in a digital age that confronts current conceptions of identity and suggests that novel technologies make those conceptions privy to change. Many cyborgs, she believes, have developed as the project of militarism and patriarchal capitalism. As such, they can be seen as tools of domination or mechanical bodies imbued with the socio-political character of their makers who are predominantly from a ruling, elite class. In this section I will unpack Haraway's alternate, abstracted conception of a cyborg in order to analyze how it might be actualized and expanded upon in the realm of Stelarc's performance art.

Haraway's framework re-conceptualizes the identity of the cyborg and uses it as a tool to undermine what she views as harmfully rigid categorical boundaries. She asserts that hybrid beings or cyborg entities can themselves provoke reactions of fear or strike people as grotesque in their otherness.⁵⁴ This phenomenon is known as the Uncanny Valley – a description of a graph that charts responses to portrayals of humans varying in their degree of human likeness (Figure 2). The “valley” refers to a dip in “likeability” or “comfort level” as artistic representations increasingly resemble humans but remain discernibly non-human. The exact location of the valley and rationale behind it is the subject of ongoing research in robotics, but the main take-away is that there is a zone of human representation that provokes disgust and fear in viewers – an uncanny, eerie feeling. The Uncanny Valley is a rough sketch of human responses, even an “inherently

⁵⁴ The human tendency to fear and subsequently marginalize entities which are deemed ‘other’ and thus outside the bounds of morality is captured wonderfully by Neill Blomkamp's film the *District 9*.

woolly idea,”⁵⁵ but it succeeds in so far as it outlines a general sense of unease corresponding with things that “look almost lifelike, and yet not quite believable.”⁵⁶

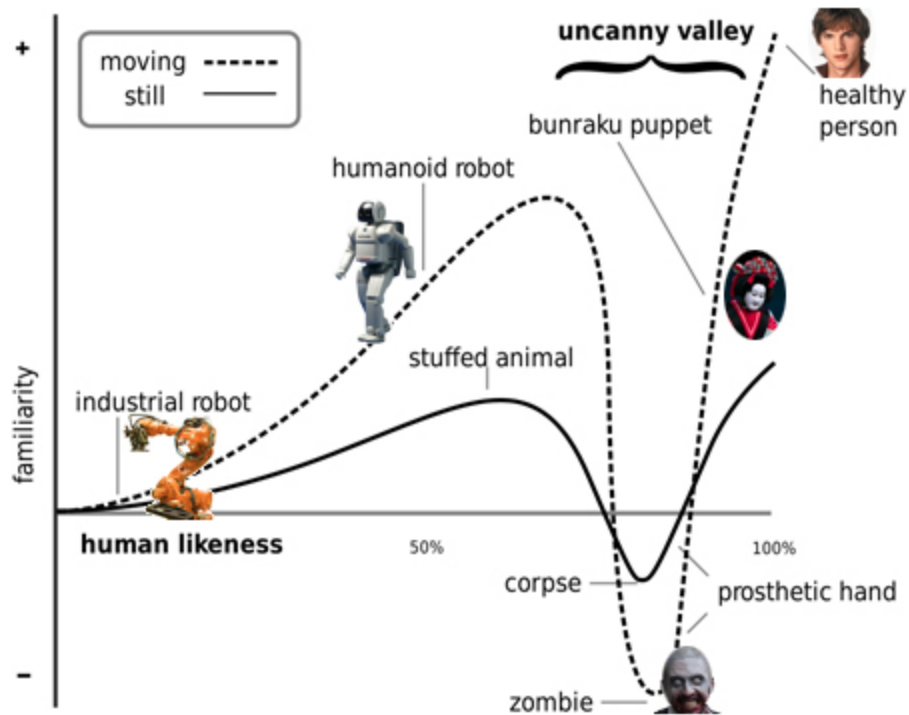


Figure 2. “Uncanny Valley.”⁵⁷

In the face of discomfort provoked by “uncanny” figures, Haraway recommends that “rather than recoil in horror at even the most unsettling hybrids produced by contemporary technoscience, one must seek to find kinship with the cascade of

⁵⁵ Rose Eveleth, “Robots: Is the Uncanny Valley Real?” *BBC Future*. BBC, Sept. 1, 2013, accessed Apr. 13, 2015.

⁵⁶ *Ibid.*

⁵⁷ Image from <http://spectrum.ieee.org>.

synthesized recombinant entities and creatures that increasingly populate the world.”⁵⁸

While the type of transhumanism Haraway disputes through her definition of a cyborg embodies a reaction of *disgust*⁵⁹ toward beings that breach with the traditional category of *human*, Haraway’s alternative use of the cyborg as an imaginative resource paves the way for an investigation of the constructed boundaries between human and machine, male and female, and human and non-human.

Boundary making in itself is not confined to any one set of philosophical, political, or economic points of view – it is a human universal and is part of being conceptual creatures. Nevertheless, certain harmful or exclusive boundaries can become entrenched in our culture that restrict a critical re-thinking of their foundations, one that mirrors technologically-mediated ontological shifts. *A Cyborg Manifesto* thus utilizes the cyborg metaphor in order to blur and question the restrictive boundaries produced through patriarchal, hegemonic, capitalist, and empirical discourses and provides a critical opening in the realm of transhumanist thought.

The Cyborg Lack of Origin

⁵⁸ Winner, Langdon. “Resistance Is Futile: The Posthuman Condition and Its Advances.” *Contemporary Issues In Bioethics 7th Edition*. Ed. Tom L. Beauchamp, LeRoy Walters, Jeffrey P. Kahn, and Anna C. Mastroianni. Belmont: Wadsworth Pub. Co. 2008. 780-790. p. 786.

⁵⁹ Popular notions similarly aligned with those of Ray Kurzweil seek to abandon our ‘antiquated’ biological confinements and contend that a desertion of our animal and mortal bodies is inevitable; it is advantageous for the human race, and will allow for an escape from the *disgust* of humankind. The notion of *disgust* in this context primarily refers to outright rejection of or repulsion at the fact that we are animals and therefore mortals. Haraway recognizes that such threads in transhumanism, which rail against this mortality and animality, render the cyborg a potentially dehumanizing and alienating ideological force, one which creates the need for violent dualisms and destructive categories of identity. (Nussbaum, 2004)

Haraway's cyborg breaks with the Oedipal and Christian narratives that emphasize the concept of *origin* and the inherent desire for a return to an origin of innocence. The cyborg, she writes, "does not dream of community on the model of the organic family, this time without the oedipal project. The cyborg would not recognize the Garden of Eden; it is not made of mud and cannot dream of returning to dust"; in other words, the cyborg has no origin story in the Western sense.⁶⁰ Situated as such, Haraway uses the cyborg as a metaphor, as both a lived reality and a fiction, to interrogate anxiety-ridden distinctions between human and animal, organism and machine, and physical and nonphysical. Historical dualisms of identity such as these have been systematic to practices of domination over the *other* (i.e. women, people of color, nature, workers, animals). For Haraway, these boundaries can be highly problematic in that they compete with one another to reproduce relations of domination or have different values attributed to them based on sexism or racism, for instance.

As cultural artifacts inevitably infused with politics, cyborgs might be seen the offspring of patriarchal capitalism. But Haraway argues that, "illegitimate offspring are often exceedingly unfaithful to their origins. Their fathers, after all, are inessential."⁶¹ Cyborgs and "high-tech" culture, while potentially another tool in the politics of domination, provide a challenge to dualisms and antagonisms that are essentialist and incapable of accounting for partialities, contradictions, and inevitable tensions in identity. Her manifesto confronts norms of categorization and classification, arguing instead for taking "*pleasure* in the confusion of boundaries and for *responsibility* in their

⁶⁰ Donna Haraway, *Simians, Cyborgs, and Women*, 151.

⁶¹ *Ibid.*

construction.”⁶² Haraway’s non-essentialized cyborg has no origin story in the Western sense, no Genesis, and is thus capable of uniting divergent and multiple political coalitions through *affinity* rather than *identity*. Though developed “illegitimately” through patriarchal capitalism, Haraway argues that cyborgs are a potential site for a paradigmatic shift away from discourses founded on histories of *origin*.

Imagining the cyborg in this manner rather than from within the transhumanist/posthumanist framework gives it the radical potential to embrace rather than reject confusions, contradictions, and tensions of identity. Emerging precisely at the place where boundaries are ideologically up for question, Haraway proposes that cyborg politics “is the struggle for language and the struggle against perfect communication, against one code that translates all meaning perfectly, the central dogma of phallogocentrism.”⁶³ This belief appears to contradict ongoing projects within cybernetics and cognitive sciences with that exact aim: to utilize the idea that a person *is* information in order to translate systems between biological and technological realms.

Here I believe that Haraway, rather than trying to debunk the realities of cybernetics, is trying to make a case for the cyborg as a symbol of fragmented identities that cannot always be categorized and of sentiments that escape computational reproducibility. In crafting the cyborg as a “poetic/political unity” that does not depend on harmful and oppressive logics of appropriation, incorporation, and taxonomic identification,⁶⁴ Haraway provided an undeniably insightful framework for deconstructing

⁶² Donna Haraway, *Simians, Cyborgs, and Women*, 150.

⁶³ *Ibid.*, 176.

⁶⁴ Donna Haraway, *Simians, Cyborgs, and Women*, 157.

and rethinking the body and identity that was ahead of her time in 1991. However, when we reintroduce Haraway into the contemporary posthuman conversation, her view ironically overlooks the physical reality of many modern cyborgs and their reliance on codes and other types of classifications.

The Harawayan cyborg, as a metaphor, envisages pleasure in illegitimate fusions, in partialities and boundary crossings – characteristics that Timothy Druckery asserts are needed by transhumanist and posthumanist narratives (including artistic ones) in order to “confront social, cultural, and individual transformations that have exploded the borders between reflection and experience, identity and singularity, the body and its mechanization, and the public sphere and the pseudo spheres of electronic collectivity.”⁶⁵

Chapter 4: An Exploration of Stelarc’s Performance Art

Part I: The 21st Century Artist’s Role as Cultural Liaison

One of the critiques commonly leveraged against Haraway’s poetic manifesto or ‘dream’ of cyborg existence is that it is too abstract and intangible; although she cites several works of feminist science fiction that incorporate cyborgs as empowering fictional creatures, her cyborg remains a weighty philosophical concept that is difficult to envision. Previously, I discussed how art, in particular Dada art, was a powerful medium that anticipated and actualized new modes of hybrid existence before they were

⁶⁵ Timothy Druckery, “An Itinerary And Five Excursions,” in *Stelarc: The Monograph*, ed. Smith, Marquard, and Julie Clarke (Cambridge, MA: MIT, 2005), 45.

technologically feasible. Just as Dada artists used collage as a medium to convey this different subjectivity arising in tandem with the increased use of machinery in the traumatic aftermath of World War I, contemporary artists also create conceptual spaces to investigate the human condition. In an age of accelerating technological development, they utilize art to make real the philosophical issues that surface in such a context.

With the introduction of an ‘electrified’ industrial modernity in the 19th century and continuing with the contemporary menagerie of personal devices and networked identities, integrated systems of the 21st century have,

displaced hierarchies, ‘democratized’ information, incorporated communication, regularized labor, destabilized locality, externalized imagination, and, in the end, *potentialized experience in a way that radically alter[s] memory, identity, and presence by temporalizations that [are] both fragmentary and urgent* (emphasis added).⁶⁶ (2005)

The growing pervasiveness and reliance on modern technologies has laid the foundation for a twenty-first century whose crises oscillate between, “technology and power, matter and quantification, representation and shock (the trope for the avant-garde), artificiality and materiality, the ‘imaginary’ and the ‘real,’ the apparatus and the system.”⁶⁷

Information technologies have evolved our ways of communicating from proto-writing to the alphabet, to source encoding, visual telegraphs, morse code and to today’s age of information or ‘digital revolution’ that marks a major leap in the evolution of technology. As James Gleick writes, “The new media seemed to be radio, telephone, and television. But these were just the faint glimmerings in the night sky, signaling the

⁶⁶ Timothy Druckery, “An Itinerary And Five Excursions,” 38.

⁶⁷ Ibid.

light that still lay just beyond the horizon.”⁶⁸ In (an almost ironic manner), as the amount of information (measured by entropy) increased, the physical technology responsible for transmitting it miniaturized, seamlessly and almost invisibly integrating with the environment.

As I mentioned in Chapter 2, the past 50 years can be characterized as an era of fervent code-cracking; Alan Turing’s WWII feat of cracking the Nazi enigma code led to the advent of modern computers while the Human Genome Project decoded the instructions for our biological existence. The growing “mechanization of the world picture”⁶⁹ perceiving the world and the body as code has given rise to the detachment and disembodiment of bodily systems such as vision, cognition, and genetics, slowly eroding the “border between the self and the systems put into place to regulate its operation.”⁷⁰ This unique circumstance is reflected in the multitude of devices and appendages that link embodied subjects to a wireless “omnipresent infosphere” in which technologies reduce identity as encoded in systems of measurement and accumulation of data. Within this debated zone of reality and identity, artists once again rise to the occasion as powerful provocateurs and guides who reflect on how our understanding of ourselves might have changed or else need to be revisited.

The performance artist, Stelarc, stands out as a pioneer in this field precisely where the artistic exploration of cyborg identity and Haraway’s cyborg myth intersect. I use Stelarc as a case study because he is a bold performance artist willing to push the

⁶⁸ James Gleick, *The Information*, 29.

⁶⁹ Timothy Druckery, “An Itinerary And Five Excursions,” 46.

⁷⁰ Ibid.

boundaries of what is thought of as ‘natural’ or ‘artificial.’ Perhaps even more influential in my decision to research Stelarc’s world is the optimism that his art makes room for, albeit subtly.

Overwhelmed by zealous techno-optimists on the one side (e.g. Ray Kurzweil) – who champion the ‘inevitability’ of technological ‘progress’ and its eventual takeover – and the technological skeptics on the other who decry all new technology and its negative impact on an idealized notion of an ‘all natural’ existence, I find that Stelarc, often using his own body as a site of experimentation, complicates both overly-reductive narratives in his representation of the cyborg condition in the 21st century. To be fair, however, Stelarc is only one influential artist amidst a growing body of actors who are grappling with the more nuanced middle-ground of this debate concerning technology and, more specifically, posthumanism.

According to Hamid Dabashi, artists can either reinforce the normative cultural order or release the public from its limitations – he writes that, “When an artist charts the directions of any confrontation with the inhibitive orders of a culture, or their complete release, in his or her creative imagination, the public consumer of this art ponders the possibilities of acting out such imaginings.”⁷¹ If Stelarc uses his own body as a medium to imagine and grapple with the themes of human identity, evolution, and obsolescence, what are the culturally ‘inhibitive orders’ that he confronts? In what ways does he reveal certain cultural impossibilities or culturally occluded possibilities, and of what value is his art to the growing body of research and discourses regarding the fate of humanity, to

⁷¹ Hamid Dabashi, *The World Is My Home*, ed. Andrew Davison and Himadeep Muppidi (New Brunswick, NJ: Transaction Publishers, 2011), 190.

the predicted ages of trans- and posthumanism? In an attempt to answer these questions, I will first introduce the main ideas and concepts that govern his artistic trajectory. I will then describe and analyze three of his pieces and situate them within Haraway's theoretical framework in order to explore in what ways Stelarc captures, actualizes, and goes beyond Haraway's cyborg myth.

Part II: The Body as an Object for Design and Reconfiguration

Stelarc takes Haraway's myth literally to envision what a modern cyborg might look like. However, while he tinkers with the physical body (for example, creating and attaching prosthetic limbs to himself, creating virtual bodies, and even suspending his own body by hooks – See Figure 3), his pieces should not be taken as literal or practical suggestions.⁷² Rather, Stelarc's work exceeds the mere acceptance and creation of new forms of flesh and machine in order to probe more seriously at the perceptions and limits of physical embodiment, provoking viewers into contemplating the connections between the human psyche, society, and culture, as well as the role of technological progress in human evolution.

⁷² Stelarc has been criticized for his patriarchal desire and indulgence in a male fantasy of displacing the anatomical female body in order to recreate birth outside of the womb. Amelia Jones remarks that "The male fantasy of sex and procreation without the bother of involving female bodies is an ancient one in the tradition of Western thought." (In "Stelarc's Technological 'Transcendence'/Stelarc's Wet Body." *Stelarc: The Monograph*. 2003. 116)



Figure 3. Top – *Internal/External: Event for Obsolete Body*, 80 Langton Street Gallery, San Francisco, 1983. Taken from ScottLivesyGalleries.com.
Bottom – *Sitting/Swaying: Event for Rock Suspension*, Tamura Gallery, Tokyo, 11 May 1980. Photo by Kenji Nozawa. Taken from ScottLivesyGalleries.com.



Figure 4. Top: *Handwriting "Evolution,"* Maki Gallery, Tokyo, 22 May 1982. Photo by Akiro Okada. Bottom: *The Third Hand,* Tokyo, Nagoya, Yokohama, 1984. Photo by Toshifumi Ike.

Always “interested in the body as a structure rather than a site for the psyche or for social inscription,” rather than a more conventional independent agent acting with free-will, Stelarc constructs his performance pieces to involve altering, manipulating, replicating, or adding to his body along technological avenues. He renders the body “not as an object of desire but rather an object one might want to redesign,” because “the body as a biological apparatus fundamentally determines our perception of the world.”⁷³

The link between embodiment and perception mentioned above by Stelarc borrows from the concept of *embodied cognition*. Embodied cognition, similar to the Extended Mind Hypothesis, holds that a person’s cognitive processes are in large part shaped, aided, and influenced by certain aspects of the body situated outside of the brain. The features of the body include the motor system (the portion of the nervous system responsible for movement, the perceptual system (signal transmission of stimuli picked up by the sense organs that identify, organize, and allow one to interpret the environment), the body’s interaction with the environment (situatedness), and the ontological thoughts about being in the world intrinsic to having a body and a brain. The features of cognition are comprised of high level mental constructs (i.e. concepts, categories, and boundaries), and assorted cognitive tasks (i.e. reasoning, decision-making, or judging). Embodied cognitive science emphasizes not only that cognitive processes and experiences result from the various individual capabilities stemming from having a body but also that these individual experiences cannot be detached from the larger web of environmental aspects including biological,

⁷³ Stelarc, interview by Marquard Smith. “Animating Bodies, Mobilizing Technologies,” in *Stelarc: The Monograph* (Cambridge: MIT Press, 2005).

psychological, and cultural contexts. Herein lies the central feedback mechanism that plays a fundamental role in Stelarc's performances.

In his interviews, Stelarc frequently repeats a variation of this belief: "The intensity and accumulation of information, the intimidations of precise, powerful, and speedy machines and extreme off-the-world environments,"⁷⁴ confront the human body with *obsolescence*. Deeply embedded in an environment of technologies that recursively inform and change our own cognitive processes, he questions whether a purely biological existence can survive in these new, alien environments, or whether we might need to adjust our conception of the self in search for 'alternate anatomies,' aided by and integrated with technological scaffolding.

Embodied cognition suggests that the entanglement and feedback loop between an embodied agent and the world is formed by the type and features of an agent's body. It then follows from this that agents with different kinds of bodies can be differentiated by their distinctive degrees of embodiment, where embodiment is defined as "the extent to which an agent can alter its environment."⁷⁵ In this space, electronic media, virtual worlds and bodies, prosthetics, and the internet provide new operational and aesthetic tools for Stelarc to radically explore the influence of cybernetics on his own cognitive processes and subsequently push the limits of conventional embodiment to incorporate and even internalize those technologies, which reciprocally affect our ontology. The resulting experiments with hybrid bodily forms capture this historical relationship of humans to

⁷⁴ Stelarc, interview by Marquard Smith, "Animating Bodies, Mobilizing Technologies," 228.

⁷⁵ Michael Dawson, "Embedded and situated cognition," in *The Routledge Handbook of Embodied Cognition*, ed. Lawrence Shapiro (Routledge, 2014), 62.

their external tools and places information theories together with the current proliferation of technology as a critical tools that expose problems associated with notions of embodied identity, intelligence, awareness, and agency.

Part III: Misunderstanding Technology

As mentioned earlier, when technology enters the conversation about the ‘future of humanity,’ it is usually given an inaccurate degree of autonomy that misrepresents the aforementioned reciprocal relationship between humans and technology, neglecting technology’s character as an extension of ourselves. Often times this narrative translates into what I described in Chapter 2 as an almost apocalyptic vision of cyborg take-over and human extinction, similar to Haraway’s description of a militaristic “cyborg orgy,”⁷⁶ threatening all-out warfare and extinction of the human species. In an essay on the adaptive evolutionary possibilities envisioned in Stelarc’s work, Jane Goodall also outlines this prototypical science fiction narrative wherein, “technology evolves to the point where a rival species is generated, fuses human and machine qualities, threatens to become dominant, and so puts biological humanity on the road to extinction.”⁷⁷

Timothy Druckery is another who points to the machine’s historical position as a mediator between nature and culture and reminds us that “its historical presences in the imagination [have] long led to speculations about its autonomy and sentience.”⁷⁸ Even

⁷⁶ Donna Haraway, *Simians, Cyborgs and Women*, 150.

⁷⁷ Jane Goodall, “The Will To Evolve,” in *Stelarc: The Monograph* (Cambridge, MA: MIT, 2005), 2.

⁷⁸ Timothy Druckery, “An Itinerary and Five Excursions,” 35.

Stephen Hawking recently proclaimed that "The development of full artificial intelligence could spell the end of the human race,"⁷⁹ validating a public fear of AI domination and human extinction. Narratives which prophesy machine-like entities as completely autonomous beings driven to exterminate humankind portray technology as *other*. This means that the machine and the cyborg become dominant over humans and other animals in the social hierarchy. While I do not mean to suggest that the development of AI, for example, should not go without precautionary regulations or proceed without continuous scrutiny, I think that the above depictions of technological character occlude a more accurate picture of its place in society and relationship to humans.

The prominent Sociologists Trevor Pinch and Harry Collins find an alternative description of Science and Technology in the unlikely metaphor of a golem. A golem is "a creature of Jewish mythology... a humanoid made by man from clay and water, with incantations and spells."⁸⁰ The golem, like technology, is a powerful creature neither intrinsically good nor evil. Without responsible control it has the strength to destroy its creators, yet this is not of the golem's own volition. Indeed, the golem is "a little daft," and cannot be blamed for its mistakes because its mistakes are actually those of its creators. So it is with technology – its character cannot be understood outside of its dialectic relationship with humans. Stelarc aptly reminds us of this, pointing out that ever since we evolved as hominids with bipedal locomotion, "two limbs became manipulators,

⁷⁹ Rory Cellan-Jones, "Hawking: AI Could End Human Race," BBC News, BBC News: Technology, Dec. 2, 2014, accessed Jan. 11, 2015.

⁸⁰ Harry Collins and Trevor Pinch, *The Golem at Large: What You Should Know about Technology* (Cambridge, UK: Cambridge UP, 1998), 1.

we begin to construct artifacts, instruments, machines.”⁸¹ Technology is not a separate species; it has evolved alongside humans to become our tools and external organs. It is undeniably “the creature of our art and our craft.”⁸²

Part IV: Contingency, Hybridity, Kinship, and Coping With Obsolescence – Attitudes Toward Technology Explored by Stelarc

Stelarc argues for a reconceptualization of technology in contemporary culture grounded in its capacity to extend our minds and reciprocally shape how we live. In his work, technology is “conceptualized as environmental, never as a species in itself.”⁸³ He allows us to see technology’s golem-like properties, thus engendering a culture of ethical responsibility that can better comprehend the social and political factors which endow technology with a specific character. Rather than depicting technology as its own entity, the central focus of his work seeks to blur the boundaries between “natural” and “unnatural,” and to merge the body with machine to expose the interdependency between the two. When asked why there was a desire to invade the body with technology or to attach it to the body, Stelarc responds:

The body has always been a kind of prosthetic body coupled to its technology. And technology has proliferated in the human horizon. But with its increasing microminiaturization and with more and more biocompatible materials, technology cannot only be attached to the body but can also be implanted.⁸⁴ Technology doesn’t contain the body so much as become a component of the body. It’s not so much an

⁸¹ Stelarc, Interview by Marquand Smith in *Stelarc: The Monograph*, 232.

⁸² Harry Collins and Trevor Pinch, *The Golem at Large*, 1.

⁸³ Jane Goodall, “The Will to Evolve,” 4.

⁸⁴ E.g. cochlear implants, pacemakers, artificial hearts and joints, and retinal implants on the way.

agent desiring to be invaded by technology but rather a body that positions itself to be indifferent to invasive probes.⁸⁵

If a central theme in Stelarc's work is the compatibility and symbiosis of flesh and machine, he takes this as a point of departure to further investigate the role of technology in advancing evolution. The modern cyborg performed by Stelarc takes on a new meaning as it captures the nature of liminal identities manifested in a high-tech cultural terrain that is both formed by and forms our embodied subjectivity.

As opposed to classifying what is "natural" for humanity, Stelarc's vision abandons the limits of this categorical nomenclature and suggests the evolutionary possibilities for integrated, hybrid or "artificial" bodies. Goodall, commenting on the provocative yet optimistic view that the simple physical body has become obsolete, writes that the scenario for Stelarc is one in which the,

human body has moved toward a condition of potentially terminal unfitnes or maladaptation because of environmental chances of its own making, yet at this very crisis point it may discover a radically new evolutionary direction.⁸⁶

We are 'unfit' because of what Joe Hellerstein, a computer scientist at the University of California, Berkeley calls "the industrial revolution of data"⁸⁷ – the rapid increase and saturation of information, data, and networked systems. This proliferation, according to Stelarc, exceeds our current capacities as our "instruments generate an intensity of information that assaults the body and extends it beyond our human scale."⁸⁸ Consider

⁸⁵ Stelarc, Interview by Marquad Smith in *Stelarc: The Monograph*, 232.

⁸⁶ Jane Goodall, "The Will to Evolve," 4.

⁸⁷ "Data, Data Everywhere," *The Economist*, Feb. 27, 2010, accessed Apr. 14, 2015.

⁸⁸ Stelarc, Interview by Marquad Smith in *Stelarc: The Monograph*, 216.

the number of devices that catalog and quantify biological information about us with increasing precision, the burden and blessing of a cellular device that allows for one to be “reached” at any point, or the rapidly increasing amount and rate of information that we are expected to take in daily. We have brought ourselves to a point of evolutionary crisis to which, in Stelarc’s view, our existence as a purely biological species is not suited for adaptation. He questions whether we can cope with the environmental consequences of alien action and extreme absence without being overcome by our fixations on individuality and free will.

The process of coping for him involves a physical component that he believes is intrinsic to our species – the construction of artifacts and amplifications of the body. Yet, it also entails an adjustment of our conceptions of identity – traditionally comprised of the mind and the body – and thus of embodiment, awareness, and consciousness.

Let us use the creation of online aliases or virtual ‘selves’ through games like Second Life or The Sims as a small example of how we might need to break with, “humanist conceptions of the body as a self-enclosed container of consciousness.”⁸⁹ Through these virtual realities one extends his or her identity far beyond the confines of the physical body, yet the virtual identity cannot simply be relegated to the mind; there is, in fact, a virtual space located outside of but coextensive with an agent’s embodied cognitions. However, a physical/virtual distinction does not equate to a mind/body distinction. A virtual component of a citizen is not merely a disembodied thinking apparatus, but rather a “different way of conceptualizing a *relationship* to the human

⁸⁹ Arthur Kroker and Marilouise Kroker, “We Are All Stelarc Now,” in *Stelarc: The Monograph* (Cambridge, MA: MIT, 2005), 85.

body.”⁹⁰ When explaining his pieces *PING BODY and PARASITE*, forays into forms of intimacy transmitted not through proximity but through Internet data and images, Stelarc notes, “the Internet becomes a kind of crude external nervous system, optically stimulating and electrically actuating the body.”⁹¹ From these pieces and others it is clear that Stelarc’s interest lies in the complexity of networked systems, in the feedback loops between the mind and and its technological, social, or cultural environment, and in issues of actuation and multiple agency.

Part V: Embodiment

Reconceptualizing embodiment and agency for Stelarc requires that we apprehend it as an operational entity, or as he puts it, a “structure” – one that is enmeshed in its environment and connected to multiple other structures. The body is merely an emptied out structure and its significance lies in its relation to and interconnections with other bodies, its character as both embodied and embedded in social structures and institutions, and its ability to act as a node in complex networks that processes and communicates through language. A constant mediator between environment (i.e. social institutions), culture, and the psyche, the body is a structure for the “world’s imposition on the body.”⁹² Thus, embodiment “represents the assimilation of inscription.”⁹³ Culture

⁹⁰ Allucquère Rosanne Stone, “The War of Desire and Technology at the Close of the Mechanical Age,” *South Central Review* 15 (1998): 40, accessed Feb.12, 2015, doi: 10.5860/CHOICE.33-3962.

⁹¹ Stelarc, Interview by Joanna Zylińska and Gary Hall, “Probings: An Interview with Stelarc,” in *The Cyborg Experiments: the Extensions of the Body in the Media Age*, ed. Joanna Zylińska (London and New York: Continuum, 2002), 122.

⁹² Garoian and Gaudelius, “Cyborg Pedagogy,” 337.

and the body are here interconnected in a reflexive loop wherein culture radiates outwards from within the body and is simultaneously permeated by culture from the outside; “The body produces culture at the same time that culture produces the body.”⁹⁴ This view is consistent with the Extended Mind Thesis in its assertion that the mind extends beyond the brain, into its environment in a coupled cognitive system.

With these newly conceived possibilities for interconnections between cultural/environmental inscription and the body, the modern cyborg ceases to represent a “disembodied ontology” and instead signifies an embodiment that is in a “continual state of liminality, contingency, and ephemerality.”⁹⁵ An important connection to and critique of Haraway here should not be disregarded, as the notions of liminality and ephemerality color her cyborg imaginary. As an artistic approach, this attitude calls to mind her acceptance of hybrid beings and the notion of “kinship with the cascade of synthesized recombinant entities and creatures that increasingly populate the world.”⁹⁶ However, if we are to consider Stelarc within her cyborg framework we must first recognize an internal contradiction in her argument: the concepts of boundaries and categories, which her deconstructivist framework dismisses and sometimes even denies as relevant, are the same ones that cybernetics and cyborg constructions and embodiments rely on to interpret the environment. So, let us upholster her framework accordingly: Ironically, the reification of Haraway’s cyborg is only able to capture the ironies, partialities, and

⁹³ Garoian and Gaudelius, “Cyborg Pedagogy,” 337.

⁹⁴ Ibid., 338; Katherine Hayles, *How we Became Posthuman*, 200.

⁹⁵ Garoian and Gaudelius, “Cyborg Pedagogy,” 338.

⁹⁶ Langdon Winner, “Resistance Is Futile: The Posthuman Condition and its Advances,” *Contemporary Issues In Bioethics 7th Edition.*, ed. Tom L. Beauchamp, LeRoy Walters, Jeffrey P. Kahn, and Anna C. Mastroianni (Belmont: Wadsworth Pub. Co., 2008), 786.

contradictions of identity not *in spite of* but *because of* boundary-making implicit in cybernetics.

The performance of cyborg identity can therefore be a lens through which to examine and critique the narratives of the digital revolution and manifestations of high-tech culture. Cyborg performativity acutely merges an embodied form with its supposedly ‘external’ environment in an intervention comprised of the narratives of “personal memory, cultural history, and desire.”⁹⁷ It repositions the subject to intervene in a context that better captures a contemporary identity, for instance one that Haraway suggests might be considered fragmented, partial, networked, contradictory, or ironic. As such, the performative instinct of the cyborg empowers the subject’s agency in a technological environment; the cyborg serves as a reflection and manifestation of digital culture, yet at the same time it gives vigor and validity to critiques of culture itself.

Stelarc portrays hybridity in his art for this very purpose. He renegotiates the physical body (using his own) to address the philosophical issues appearing in an increasingly complex technological landscapes. It is here where Stelarc most clearly emulates the influence of Hannah Höch; he utilizes the space of performance art and his technological capabilities to envision and enact a subjectivity that has not previously been visualized but has been felt and understood in the abstract sense.

Just as Höch collaged representations of hybridity that were felt but not logistically possible in the early 20th century, so Stelarc animates contemporary hybridity and “negotiates the space of the in-between”⁹⁸ in his subversion of traditional notions of

⁹⁷ Garoian and Gaudelius, “Cyborg Pedagogy,” 339.

⁹⁸ Arthur Kroker and Marilouise Kroker, “We Are All Stelarc Now,” 85.

identity, embodiment, awareness, and the mind. Although his pieces are technically feasible and reproducible, they are original in their construction and thus demonstrate an insight into the changing nature of what it means to be human in this century.

Part VI: Evolving By and Through Technological Intervention

Stelarc experiments with accelerating the capabilities of the physical body in an effort to keep pace with technological proliferation. In an interview, he pronounced that, “technology, symbiotically attached and implanted into the body, creates a new evolutionary synthesis, creates a new hybrid human – the organic and synthetic coming together to create a sort of new evolutionary energy.”⁹⁹ A willed technological intervention into the body appears to be a seductive mechanism for transcending natural selection, a suggestion which provokes questions about our evolutionary trajectory and whether or not we should ‘interfere’ with it.

Indeed, we have already begun to tinker with our evolutionary fitness, our biology, our machinery. Citing the capabilities of stem cell technology to multiply cells from a particular area of the body or potentially to grow entire organs, as well as electronic and genetic techniques to “monitor, map, modify, and possibly regenerate the body physically,” Stelarc compels us to ponder an inherent desire to intervene into our own biological blueprints and in doing so throws notions of “natural” and “artificial” into

⁹⁹ Stelarc, interview by James D. Paffrath in *Obsolete body : suspensions : Stelarc*, compiled and edited by James D. Paffrath and Stelarc, (Davis, CA: J.P. Publications Davis, 1984).

confusion (i.e. Is it “natural” to intervene in this way? Is an organ grown from human cells in a laboratory “artificial?”). Of even greater value to technological interventions are the ways his performances complicate and relocate *selfhood*. Although his art could be considered manifestations of the “‘gift of selfhood’ that he purports to deny,” writes Goodall, “this selfhood must also be acknowledged to be no longer ‘inward.’ It has become a slippery phenomenon, difficult to locate.”¹⁰⁰

Now that I have broadly discussed the key themes and questions that contextualize Stelarc’s art, I will describe and analyze two of his pieces in order to illustrate how his performance of cyborg subjectivity pushes the 21st century imagination to conceive of hybrid forms of being that provide alternatives to overly deterministic transhumanist narratives.

Chapter 5: Examining *Prosthetic Head and Ear On Arm*

Part I: *Prosthetic Head* Description

PROSTHETIC HEAD, San Francisco
January 2003. 3D model by Barrett Fox.¹⁰¹

“This is not an illustration of a disembodied intelligence. Rather, notions of awareness, identity, agency and embodiment become problematic.” – Stelarc (Stelarc.org)

¹⁰⁰ Jane Goodall, “The Will to Evolve,” 26.

¹⁰¹ <http://www.barrettfox.com>.



Figure 5. *Prosthetic Head.* Image from Stelarc.org.

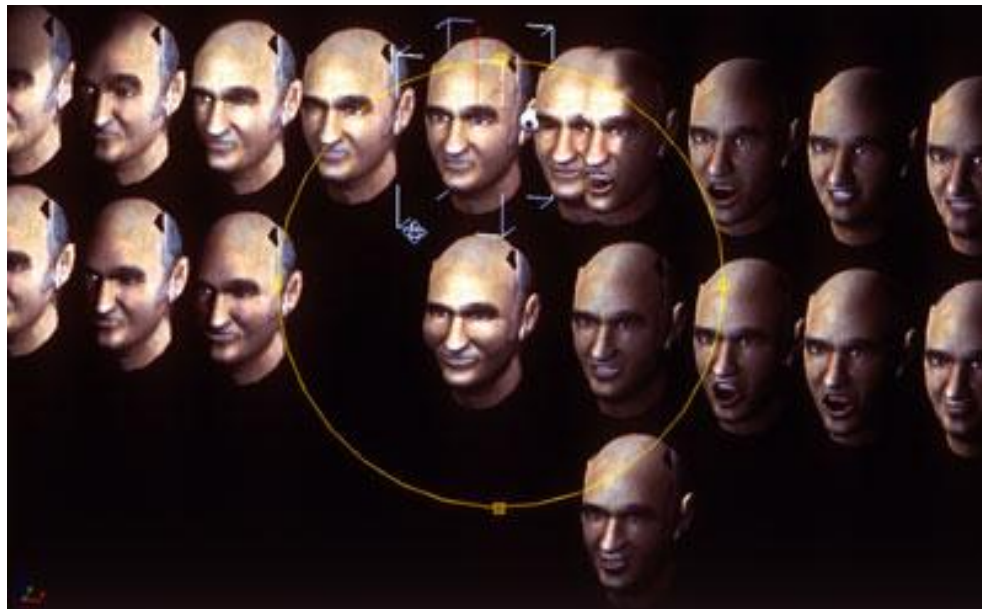


Figure 6. *Prosthetic Head.* Image from CTheory.net.

Prosthetic Head is an embodied conversational agent (ECA) in the form of a 3D computer-generated head – presented as both a Web avatar and a gallery installation – that bears an uncanny resemblance to Stelarc. Working with four manufacturers,¹⁰² he created the virtual head that speaks and responds to its interrogator using appropriate facial expressions and real-time lip-syncing. It contains a text-to-speech engine, source code for facial recognition, and a tailored Alice chatbot¹⁰³ that work in conjunction to produce an automated, animated, and seemingly conscious virtual entity, capable of conversational strategies and responses to nonverbal cues.

Prosthetic Head contains eyeballs, teeth, and a tongue that move and operate as separate parts. An ultra-sound sensor system enables the head to detect user presence and initiate conversation. Its creators also project that with further developments, its visual system will be capable of identifying the color of the user's clothing as well as analyzing user behavior, (i.e. body language and conversational cues) information which it will then uses to personalize conversation and make adequate, appropriate responses and render it a more effectual and convincing automaton.¹⁰⁴ It blinks and changes its gaze; the head nods and tilts adding to the personality of the agent. In addition to these basic computationalized simulacra of human cognitions, the head contains algorithms that allow it to spontaneously start singing and generate original poetry. Stelarc comments

¹⁰² Stelarc was assisted by three San Francisco based programmers: Karen Marcello, Sam Trychin, and Barrett Fox.

¹⁰³ A.L.I.C.E. (Artificial Linguistic Internet Computer Entity) is a language processing program that enables human-to-robot conversation through the application of a general pattern matching rule for human input.

¹⁰⁴ Arthur Kroker and Marilouise Kroker, "We Are All Stelarc Now," 68.

that, “you might say it’s only as intelligent as the person who speaks to it.”¹⁰⁵ However, with the addition of data into its database that anticipate specific queries, the *Prosthetic Head* “will become more informed and less predictable in its responses.”¹⁰⁶ Stelarc even predicts that eventually it will be possible to have biorhythms mapped to its expressions, giving it particular moods in accordance with the time of day, just like humans. Unlike AI, it cannot learn from its conversations, yet as its grows more informed and its conversational capacities gain more precision and autonomy, it becomes a seductive conversational agent, possibly saying things that escape the artist’s responsibility.

Part II: *Prosthetic Head* Analysis

Prosthetic Head undermines traditional, commonsense notions of identity, embodiment, and self-awareness. Forecasting the necessary and most effective components of conversation between humans and computers in the future, Stelarc complicates the idea of locating consciousness by instilling ‘conscious’ characteristics in his virtual head. Resonating with David Chalmers and Andy Clark, the head as an embodied conversational agent problematizes the Cartesian mind-body split. What happens when the physical body dissolves into the virtual, prosthetic head? Is a physical body necessary for cognition? Is consciousness synonymous with awareness? Moreover, can a virtually embodied agent be conscious or is consciousness merely a performative

¹⁰⁵ Stelarc, Interview with Marquard Smith. “Animating Bodies, Mobilizing Technologies,” 232.

¹⁰⁶ Ibid.

construct rather than an internalized essence? Is fluid conversation conceivable in a “disjointed alien world?”¹⁰⁷

The effectiveness and seduction of the head’s communicative capacities provoke a shift in views of the physical body and places it in a delicate position: the body appears now exactly as Stelarc desires – an “objectified, excavated, penetrated, virtualized, robotized, emptied out, alienated, and suspended”¹⁰⁸ site that technological advancements have revealed as having an intrinsically prosthetic quality. Imagining the head was for him an easy jump, as he is controversially of the view that the body has always been prosthetic. Setting aside for a moment the negative and deterministic implications of this perspective, one can appreciate the ways in which Stelarc pushes us to reflect on our existence as liminal beings straddling between virtual and material realities; he shifts our internal gaze outward so that we understand ourselves as creatures whose minds – embedded in a complex array of social, political, and economic institutions – extend beyond our skin and cannot easily be located.

With *Prosthetic Head*, Stelarc proposes an alternative type of externalized embodiment that demonstrates aspects of consciousness – a clear reminder of the Extended Mind Thesis as well as the ability, derived from information theory, to program ‘human’ cognitive functions in ‘non-human’ entities. In an exhibition for Second Life Gallery, Stelarc’s *Prosthetic Head*, complete with appropriate facial expressions and head movements, informs us:

¹⁰⁷ Arthur Kroker and Marilouise Kroker, “We Are All Stelarc Now,” 72.

¹⁰⁸ *Ibid.*, 73.

Obsessions of individuality and free agency become obsolete at the realm of remote interface. A body's authenticity is not due to the coherence of its individuality, but rather to its multiplicity of collaborating agents. What becomes important is not the body's identity, but rather its connectivity. Not its mobility or location, but rather its interface and operation. Notions of intelligence, awareness, identity, agency, and embodiment become problematic. Just as a physical body has been exposed as inadequate, empty, and involuntary, so simultaneously an embodied conversational agent becomes seductive with its uncanny simulation of real-time recognition and response.¹⁰⁹

Prosthetic Head repositions the body as an emptied, alienated physical structure – an obsolete relic of human evolution and practically coincidental site as a conduit for language, social structures, and ideas to pass through. Although an intelligent agent must be both embodied and embedded in the world, with *Prosthetic Head*, Stelarc asks what exactly that embodiment entails and suggests that it could take non-human or non-organic (i.e. prosthetic forms), which are eerily similar to humans.

The head can provoke anxieties or even disgust in its viewers, as it intrigues and repels. Stelarc allows for such reactions to inspire contemplation about why certain entities exist in the Uncanny Valley, the meaning of embodied technologies, or even the possible “fatal humanization of our three-dimensional modeled future.”¹¹⁰ Perhaps it is so frightening because it is an objectified version of ourselves, a ghost or apparition that arrives at the same communication mechanisms and facial movements as we do – only it does so through programming and data collection. A fleshly existence dissolved into a virtual head – it discloses the double-edged sword of a technology that is simultaneously our creation and our objectification.

¹⁰⁹ Stelarc, “Prosthetic Head” (Lecture presented at the Virtuality & Embodiment Panel, Honolulu, 2007).

¹¹⁰ Arthur Kroker and Marilouise Kroker, “We Are All Stelarc Now,” 73.

Arthur and Marilouise Kroker importantly note that Stelarc is a “functionalist who is determined to flesh out nostalgia from the modernist rhetoric of ‘embodied’ identity, consciousness, and the self.”¹¹¹ Appealing to him is the, “postmodern dream of breaking boundaries, disrupted surfaces, and floating consciousness.”¹¹² If we focus less on the extremity and provocativeness of bodily obsolescence, a topic which can be fiercely debated (and should absolutely not be ignored) as it threatens the very real lived experience of physical embodiment in social and political structures, it becomes clear how Donna Haraway’s thesis of the cyborg is manifested in *Prosthetic Head*. This piece echoes Haraway’s goal of undermining organic and essentialist models of the human, highlighting instead the intersections and interfaces of identity. A Cartesian view of the self becomes shaky; an essentialized “I” as a starting point for subjectivity becomes problematic and if unpacked, extends beyond the body to incorporate an external, networked experience that is continuously constructed and “remains open to change, inconsistency and contradiction.”¹¹³

This concept, given full fruition in *Prosthetic Head*, kicks down the door that Haraway unlocked in her cyborg manifesto of 1991, where she writes: “Identities seem contradictory, partial, and strategic.”¹¹⁴ This nature, captured by her cyborg, counters the practice of *naming*, of creating dichotomies and categories of identity that cause exclusion. Stelarc’s *Prosthetic Head* maps these boundary crossings, between virtual and

¹¹¹ Arthur Kroker and Marilouise Kroker, “We Are All Stelarc Now,” 73.

¹¹² Ibid.

¹¹³ Arthur Kroker and Marilouise Kroker, “Stelarc,” on *CTheorynet*, 1000 Days of Theory, Oct. 19 2005, accessed Jan. 25, 2015.

¹¹⁴ Donna Haraway, *Simians, Cyborgs, and Women*, 154.

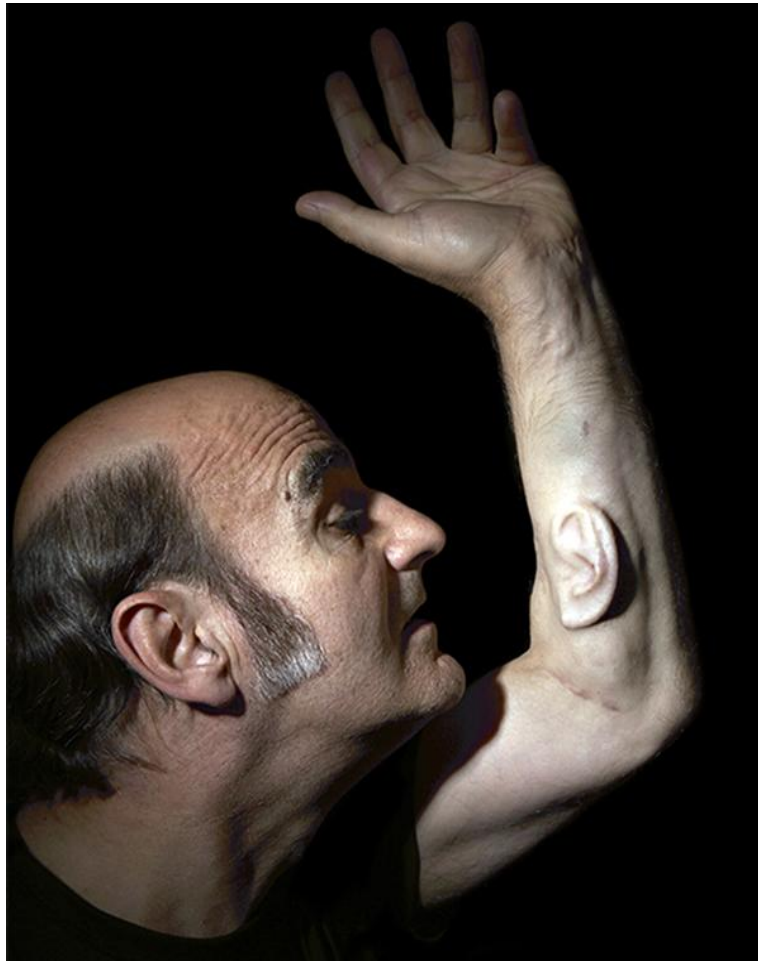
material, as well as between organism and machine. Even as its alienated, computer-generated existence frightens its audience or appears uncanny in its acute human mimicry, *Prosthetic Head*'s influence as a work of cyber-art derives from its cyborgian character – what Haraway describes as a “kind of disassembled and reassembled, postmodern collective and personal self.”¹¹⁵

¹¹⁵ Donna Haraway, *Simians, Cyborgs, and Women*, 162.

Part III: *Ear On Arm* Description

“The EAR ON ARM project suggests an alternate anatomical architecture - the engineering of a new organ for the body: an available, accessible and mobile organ for other bodies in other places, enabling people to locate and listen in to another body elsewhere.” – Stelarc (Stelarc.org)

“As partial objects created through the desire of the original body to recreate itself, organs without bodies are machines waiting for connection...this desiring machine – once grafted to the body and connected to communication technologies – renders the body as multiple, working against the hierarchical, organized, and rational body.” — (Julie Clarke, 2005)¹¹⁶



¹¹⁶ Julie Clarke, “A Sensorial Act of Replication,” in *Stelarc: The Monograph* (Cambridge, MA: MIT, 2005), 205.

Ear On Arm is the end result of a 12 year-long foray into the world of prosthetic parts – a world few have plunged into as enthusiastically or as courageously as Stelarc. Certainly, he is among a small collection of people who foray into this world for purely artistic reasons, confronting the inevitable risks and pain involved. The project was initially envisioned as the implantation of a donor ear of the right side of his head during Stelarc’s residency at the art department at Curtin University of Technology in Perth, Western Australia in 1997, but the procedure proved to be too dangerous to gain support from doctors. Stelarc then adjusted this original idea to create his *Extra Ear ¼ Scale* project that involved the use of his living cells to grow smaller replicas of his actual ear. With the loyal dedication of a team of doctors,¹¹⁷ a stem cell consultant, and 3D modelers and animators, Stelarc finally realized a slightly altered version of his original artistic endeavor in *Ear On Arm*, the surgical construction of a full-sized left ear implanted in his left forearm.

By voluntarily involving himself in this collaborative and interdisciplinary process, Stelarc was able to see his ideas about embodiment, agency, and connectivity to fruition while simultaneously contributing to a growing body of scientific work on prosthetic parts, skin grafting, and the potential uses of stem and cartilage cells. The process of surgically implanting an ear grafted from his own cells onto his arm was an arduous and risky process in large part because of its novelty. Stelarc sought help from numerous doctors and surgeons, motivating experts in anatomy and physiology to branch out into the realm of added body parts. Scientists and medical practitioners are

¹¹⁷ Malcolm A. Lesavoy, MD, Sean Bidic, MD, J. William Futrell, MD, Wayne A. Morrison, MD, and Ramon Llull, MD.

predominantly concerned with artificial body parts and organs as they pertain to fixing or replacing someone's existing, 'natural' ones. Stelarc, however, pushed his collaborators in a somewhat uncomfortable direction – that of unnecessarily enhancing, of *adding to* the body as it is. In this project, Stelarc writes, “a prosthesis is not seen as a sign of lack but rather as a symptom of excess.”¹¹⁸ This view is representative of Stelarc's central interest in redesigning the human body, of coming up with new forms of being in a digital world.

Originally conceived of as containing a miniature microphone that could livestream the sounds it 'hears,' the ear for Stelarc “manifests both a desire to deconstruct our evolutionary architecture and to integrate microminiaturized electronics inside the body.”¹¹⁹ The addition of parts and amplification of our senses through the merge technology appears to him the logical next step in our evolutionary trajectory; “We have evolved soft internal organs to better operate and interact with the world,” he writes. “Now we can engineer additional and external organs to better function in the technological and media terrain we now inhabit.”¹²⁰

For *Ear On Arm*, Stelarc underwent two surgeries. He encountered several problems including necrosis and infection. He endured pain and spent many months in recovery because, as he acknowledges in his artist's statement, “the body is a living system which isn't easy to surgically sculpt.”¹²¹ Because it is grafted from his own cartilage cells, the ear does not have the same issues with the body rejecting a foreign

¹¹⁸ Stelarc, “Ear on Arm: Engineering Internet Organ,” *Stelarc.org*, accessed Dec. 24, 2015.

¹¹⁹ Ibid.

¹²⁰ Ibid.

¹²¹ Ibid.

object as would the implantation of a donor part. Even so, the doctors went through a process of trial and error when inserting the ear, finally using a Medpor implant¹²² as a scaffold that allows for the ear's stability and integration with existing tissues and skin. During the procedure, the miniature microphone, which was to provide the Internet-connected, communicative function, was inserted inside the ear but had to be removed weeks later due to infection. Undeterred, Stelarc states on his website that the final procedure, "will re-implant a miniature microphone to enable a wireless connection to the Internet, making the ear a remote listening device for people in other places. For example, someone in Venice could listen to what my ear is hearing in Melbourne."¹²³ The ear, complete with this wiring will be a feat of technology, biology, and creative vision – a human body part turned artistic object that cannot be easily categorized or labeled.

Part IV: *Ear On Arm* Analysis

Ear On Arm is sign full of ambiguity and suggestive possibilities. It captures our anxieties and fears of hybridity, of monstrous bodily forms and enlivened body parts constructed externally or artificially. Yet, despite its existence as a replication of a body part with preordained function, *Ear On Arm* proposes that new bodily forms realized

¹²² Stelarc describes the Medpor implant as, "a porous, biocompatible polyethylene material, with pore sizes ranging from 100-250 micrometers. This can be shaped into several parts and sutured together to form the ear shape. Because it has a pore structure that is interconnected and omnidirectional it encourages fibrovascular ingrowth, becoming integrated with my arm at the inserted site, not allowing any shifting of the scaffold. (Stelarc.org).

¹²³ Stelarc, "Ear on Arm: Engineering Internet Organ," *Stelarc.org*, accessed Dec. 24, 2015.

through relocation, replication, and reconfiguration can take on unique properties that actuate new senses of being, a realization in line with theories of embodied cognition. The eventual incorporation of a microphone *Ear On Arm* renders the ear a site for communication; startling or grotesque as it may appear, it symbolizes our willingness to connect and desire to extend ourselves beyond our physical limitations.

While Stelarc is surely the only person to have a full left ear on his forearm, the main ideas his project addresses are familiar and easy to comprehend if we think about the simpler technologies used in our daily lives. For example, smartphones serve as extra ears that pick up sounds and voices from across the globe; they also serve as an extra pair of eyes through which one can see beyond one's immediate field of vision. Seen in this way, many of the technologies that proliferate society become added body parts and extensions of ourselves, devices which amplify our natural capacities for taking in information and catapult our senses across time and space. Even so, *Ear On Arm* is distinct from other devices that amplify sound because unlike our ears, which selectively listen, this one could function almost autonomously, like a bot picking up information from a vast sea of data. The ear might then simply be a preemptive visualization of the (non-medical)¹²⁴ incorporation of technologies as components of the body, a phenomenon that will become more common with microminiaturization and improvements in technological biocompatibility.

¹²⁴ I recognize that there are already many of integrated technologies used for medical purposes (i.e. cochlear implants, pacemakers, and prosthetic limbs), but here I am concerned with the artistic, non-medical incorporation of technology that Stelarc calls “symptoms of excess.” (Stelarc.org).

Ear On Arm shocks viewers in its physical strangeness or uncanny manifestations, but the philosophical implications and bioethical questions it raises are even more provocative. Julie Clarke writes that the implanted ear takes on a new function as an interface and “receiver of new kinds of messages,” which allow it to gather information “from a silent and unseen world that operates without our awareness,” in order to “produce meaning.”¹²⁵ The project thus maps the mind as an extended operational system, one extruding awareness and experience as described in the Extended Mind Thesis.

In addition to the ear’s remote listening through the use of a microphone, Stelarc expresses his desire for an alternate functionality, namely,

the ear as part of an extended and distributed Bluetooth system - where the receiver and speaker are positioned inside my mouth. If you telephone me on your mobile phone I could speak to you through my ear, but I would hear your voice 'inside' my head.¹²⁶

While not actualized at present, this component posits the host body as a mere node within a widespread network, as a hollowed structure in which language and communication independently occur outside of the host’s actions. The body, taken over by external agency, “becomes not only a host for miniaturized technological components but also a body of multiple agencies remotely interacting with it, a body that *has a much more fluid sense of self*, not so much a split self from a body, but rather a self that is extruded (emphasis added).”¹²⁷

¹²⁵ Julie Clarke, “A Sensorial Act of Replication,” 202.

¹²⁶ Stelarc, “Ear on Arm: Engineering Internet Organ,” *Stelarc.org*.

¹²⁷ Stelarc, *The Cyborg Experiments*, 122.

At the very least, this idea makes problematic the conventional notion of free agency that Stelarc repeatedly questions in his performances. The prosthetic ear represents a subjectivity which, in its technological and external proliferation, surrenders aspects of an idealized sovereign self and by acting as a receiver of external sounds and data, it breaks down barriers separating the self from other as “the differences of others become integrated into the difference of the self that is continually negotiated.”¹²⁸

Technology is the most effective mechanism for introducing this kind of reconceptualization; after all, writes Clarke, “technology is often the impulse that enables individuals to conceptualize the body in different ways and rethink notions of agency.”¹²⁹ Through the innovative use of available technology, *Ear On Arm* asks important questions about the shifting nature of agency and awareness, proposing and experimenting with new physical forms that better exemplify those shifts.

The project (in its final stage) becomes a conduit for a flow and amalgamation of information, a function that at its extreme will result in the eventual corruption of the autonomous, internally-bound self. The extra ear imagines a new self outside the norm or idealized form of what Stelarc believes to be an obsolete human body, adding to it a quality which he suggests might make it more suited to its environment.

The proposition of permanently attaching a parasitic organ(ism) onto his body is an artistic feat which “provides an opportunity to welcome the strange and indeed the stranger, alien or other,”¹³⁰ an instance of other hybrid forms of being put forth by

¹²⁸ Julie Clarke, “A Sensorial Act of Replication,” 193, 199.

¹²⁹ Ibid., 198.

¹³⁰ Julie Clarke, “A Sensorial Act of Replication,” 200.

Haraway. Amanda Fernbach maintains in her book *Fantasies of Fetishism: From Decadence to the Post-Human* that Stelarc's work might be classified as "decadent fetishism," a practice which tends to accentuate, "the proliferation of difference, open-ended play, partiality, and multiplicity, rather than closure and completion."¹³¹ This feature makes Stelarc a suitable student to Haraway and practitioner of her deconstruction work. Commenting on the link between dualisms persistent in Western traditions and oppressive systems of logic that must isolate "others" (women, people of color, nature, workers, animals), Haraway writes that "The self is the One." Yet, she argues, "to be One is to be an illusion, and so to be involved in a dialectic of apocalypse with the other." She then argues that high-tech culture challenges these dualisms, in part because, "it is not clear who makes and who is made in the relation between human and machine."¹³²

Ear On Arm blurs the borders between the self and the other, and natural and artificial, which propagate hierarchies of beings and their inherent exclusions. It further elaborates on Haraway's cyborg theorization in its allusion to the monstrous, the implausible, and the unthinkable – qualities that, "destabilizes the difference between what is human and what is considered not human. It points to lives differently configured and imagined – lives that are enhanced and extended by prosthetics."¹³³ Opening new avenues for experience, Stelarc probes our anxiety over maintaining a "pure," body and questions whether such a concept still even exists or carries meaning; certainly, writes

¹³¹ Amanda Fernbach, *Fantasies of Fetishism: From Decadence to the Post-Human* (Edinburgh: Edinburgh University Press, 2002), quoted in Julie Clarke, "A Sensorial Act of Replication," 204.

¹³² Donna Haraway, *Simians, Cyborgs, and Women*, 172.

¹³³ Julie Clarke, "A Sensorial Act of Replication," 210.

Clarke, technology has the power to spur “an eruption of ambiguous openings” on the body, ushering in a new set of urges and desires which disrupt this notion of a “pure” form of body.¹³⁴ Stelarc employs this technological power in order to explore how we might quell our anxieties of hybrid beings and nonhuman others, instead envisioning pleasure in their existence.

Chapter 6: Concluding Remarks

Just as the Dadaists assembled images to describe in a new way their environment and changing perceptions of self, Stelarc uses his performance art to continue exploring novel ways of being in the world. Recognizing this role, Stelarc once said that, “the artist can become an evolutionary guide, extrapolating new trajectories; a genetic sculptor, restructuring and hypersensitizing the human body; an architect of internal body spaces; a primal surgeon.”¹³⁵ His work clearly shows an ability to guide powerful investigations into the self, into how the contemporary technological landscape renegotiates and changes the meaning of embodiment, agency, awareness, and identity. But rather than performing to simply illustrate or impose his ideas, Stelarc throws his own body into uncharted territories in order to experiment and question what a modern cyborg existence might mean and in turn, what it means to be human.

Dabashi writes that, “Signs rebel against that will to dominate, and against any cultural control to have them unilaterally signify, under the penalty of law, one thing or

¹³⁴ Ibid.

¹³⁵ Stelarc, “Strategies and Trajectories,” in Paffrath and Stelarc, *Obsolete Body*, 76.

another.” In and of themselves, “signs mean nothing. They are richly exciting and deeply anxiety provoking, and in them there is a healthy will to rebel against attempts to make them signify.”¹³⁶ The cyborg is a sign which is all too often forced to signify one thing or another, most commonly the end of humanity or similar apocalyptic scenes. But the cyborg and alternate forms of hybrid beings in themselves do not signify such outcomes. This is why artistic visions and dreams of cyborg existences that escape tyrannical forces of signification provide an invaluable medium in which the sign of the cyborg can rebel. When Stelarc produces these visions, he uproots us from our comfortable convictions regarding hybridity; performing visions of flesh merging with machine or creating seemingly impossible bodily forms unleashes the cyborg sign from its contemporary implications and allows it to oscillate in the liminal spaces of Haraway’s cyborg myth. Freeing the cyborg from a deterministic future allows us to finally depart from our anxieties and instead Haraway’s proposal, to “take pleasure in the blurring of boundaries and responsibility in their construction.”

I do not believe that we should all grow prosthetic limbs or undergo dramatic projects performed by Stelarc. I am not quite convinced that the human body is obsolete, and that we need to technologically adjust ourselves in order to adapt to our high-tech world; reading Stelarc’s art in an overly pragmatic way misses the point, I think. I do, however, agree with Stelarc when he says, “we have a fear of the zombie and an anxiety of the cyborg, but really it’s a fear of what we’ve always been and what we have already

¹³⁶ Hamid Dabashi, *The World is my Home*, 240.

become”;¹³⁷ the implications of this suggestion are Stelarc’s biggest strength. For some, Stelarc’s cyborg performance pieces will pose a threat to an idealized ‘humanity,’ merely confirming a growing sense of alienation. But if read in a more nuanced way, I think Stelarc actually underscores an innately human need for inclusion, communication and connection. Enacting Haraway’s cyborg identity, his work speaks to the fact that humans have outgrown destructive categories, labels, and dichotomies of identity that have become inadequate and fail to capture subjective experience in the 21st century.

Certainly, his art disgusts and horrifies. But if the initial reaction of squeamishness is overcome, there is something beautiful that lies at the heart of his endeavors. Charting new evolutionary paths that merge miniaturized digital machinery with our biological machinery exposes the tensions between human and machine, natural and artificial – moreover, they suggest the possibility for new cognitive processes and understandings of ourselves in the context of cybernetics, information theory, as well as neurological findings. The physical interventions of his performances, as one can imagine, are often painful for Stelarc, a feature that is evident in his facial expressions and reflections on his performances. The pain, he often explains, is not the purpose of the performance, but rather an inevitable symptom that comes with ‘giving birth’ to new ideas.

Technologically continuing what Haraway began in *A Cyborg Manifesto*, Stelarc creates new openings in human subjectivity and actualizes Haraway’s poetic self that can

¹³⁷ Stelarc, interview with Gary Hall, ”Probing: An Interview with Stelarc” in *The Cyborg Experiments: The Extensions of the Body in the Media Age*, ed. Joanna Zylińska (London and New York: Continuum, 2002), 121.

be partial, fragmented, ironic, or contradictory. By enacting hybridity through performance art, Stelarc captures the cyborg that we have become yet have always been.

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