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CROSSING THE BOUNDARIES: STELARC'S ARTWORKS AND THE RECLAIMING OF THE OBSOLETE BODY

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A thesis submitted to the Faculty of Arts, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Arts by Coursework and Research Report

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Abstract

Stelarc, the performance artist, has since the middle of the twentieth century, harnessed technology to enable an ongoing challenge to the physical body. Embracing ever evolving technology, Stelarc provokes the art world with a series of works that he claims demonstrate the body as limited and obsolete. The body positioned as limited enables Stelarc to seek the transcendence of the same body through the use of the body/technology symbiosis in the form of medical instruments, prosthetics, robotics, virtual reality systems and the Internet. Acknowledging that this body/technology symbiosis has brought with it changes in embodied and disembodied experiences, this study reclaims the “obsolete” body as the lived experiential body by exploring Stelarc’s contradictions both in his rhetoric and his performance. The established contradictions substantiate the body as corporeal and embodied and as necessary to exist in and make sense of our surrounding world.

Stelarc; body; technology; obsolete; transcendence; prosthesis; virtual reality; embodied; disembodied; corporeal; performance art; contemporary art.

Declaration

I declare that this thesis is my own unaided work. It is submitted for the degree of Master of Arts by Coursework and Research Report in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination in any other university.

_____

Susanne Hildegard van Zyl

_____day of _____2009

This thesis is dedicated
in loving memory to my husband Trevor
who continuously supported and encouraged me,
to Terence and Talha whom I love and thank for their love and support,
to Mercy who spent many hours keeping herself busy while I worked
and to little Shiloh who has joined our family recently.

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Introduction

What it means to be human is no longer the state of being immersed
in genetic memory but rather in being reconfigured in the electromagnetic field
of the circuit (www.stelarc.va.com.au/)

The notion that the body is "obsolete" has, as noted by technotheorist and artist Simon Penny, become particularly fashionable in current cybercultural circles. Penny explains that "this desire to transcend the body via the technology of the day [is] much less futuristic than contemporary adherents would imagine". Penny concludes that this desire to transcend the flesh is perhaps the most "consistent and continuous idea in Western Philosophy" (1997:31). This thesis aims to research this concept of the "obsolete" body and the transcendence of the boundaries of the physical body through the use of technology. The work of the performance artist Stelarc will be used, among others, to show how performance art in the latter part of the twentieth century, has harnessed technology to enable an ongoing challenge to the boundaries of the physical body by ever evolving technological advancement.

The word 'transcendence' is derived from the Latin *trānscendere*, to climb over. Transcendence generally means "to exist beyond (the material world)", but it is also defined as going "above or beyond (a limit, an expectation)" (Collins 1991, S.v. "transcendence"). Within the scope of this study, the term 'transcendence' will primarily refer to the desire to surpass, exceed, and reach beyond the boundaries and limitations of the body.

The process of "reaching beyond itself" as the "primary phenomenon of life" is advocated by Georg Simmel in "The transcendent character of life: 1918" (1971) to show how humans have vastly expanded their "sense of the world" through organic and inorganic matter. Showing that the physical life is characterised by boundaries and limitations, Simmel argues that the human capacity of "sensory imagination and calculation" does not simply constrain the human, but allows for the

technological extension of some of these corporeal limits. This argument suggests that there tends to be a certain relation between people's existing bodily capacities and the projects and the types of physical developments planned and achieved by humans (Shilling 2005:176-177). Simmel demonstrates this by discussing the expansion of our sensible world through the use of the telescope and the microscope. Whereas we previously made use of the senses to perceive the world, we now have built artificial eyes that enlarge and disclose objects that cannot be perceived in our natural perception of space. We have, as established by Simmel, transcended the "compass of our natural being in certain directions" (Simmel 1971:356) through the use of technology.

The word "technology" is from a Greek term *techne* that means both the activities and skills of a craftsman and art of the mind[1]. It is conventionally understood as referring to the practical application of techniques and knowledge to productive processes. Technological advances have contributed to the myriad ways in which non-human materials have been added onto and placed into the body to monitor, repair or replace damaged organs. Advances in transplant surgery, *in vitro* fertilization and genetic engineering have moved technology inwards to reconstruct, invade and increasingly dominate the very contents of the body (Shilling 2005:173-174). The body modified with the use of technology has evolved as the "technologised body".

Cyberspace is the broad term that refers to computer or electronically mediated communications which generate virtual places in which information is accessed and people can interact without having to be physically co-present with others. Both cyberspace and cyborgs are referred to collectively as "cyber-technologies" (Shilling 2005:174). This coupling of human and machine has initiated the reconceptualisation of humans as cyborgs by theorists such as Donna Haraway. Haraway, in her

[1] Heidegger, Martin. 1977. *The question concerning technology: and other essays*. Translated by William Lovitt. New York: Harper & Row: 12-13.

article on technology and feminism, defines a cyborg as a "cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction" (1985:516). The term "cyborg" can therefore also be applied to the more prosaic merging of humans and technology (Shilling 2005:174), such as the computer. This occurs every time we work on our computer or log on to the Internet. It is here "our virtual selves come to life through keyboards, screens, wires and computers"[2] (Shilling 2005:174). Through these technologies, we have expanded dualities between the real and the virtual, the body and technology as well as the body and the mind.

The continuing fascination with the idea of separating the mind from the body is identified by cultural historian N Katherine Hayles. She describes how, in the roboticist Hans Moravec's book *Mind children* (1988)[3]*,* Moravec imagines the possibility of downloading human consciousness into a computer. Hayles describes how Moravec "invents a fantasy scenario in which a robot surgeon purees the human brain in a kind of cranial liposuction, reading the information in each molecular layer as it is stripped away and transferring the information into a computer. At the end of the operation, the cranial cavity is empty, and the patient, now inhabiting the metallic body of the computer, wakens to find his consciousness exactly the same as it was before". Hayles questions how someone of Moravec's obvious intelligence can believe that the "mind could be separated from body" and how anyone could think that "consciousness in an entirely different medium would remain unchanged, as if it had no connection with embodiment" (Hayles 1999a:1). Hayles furthermore explains that in this scenario, Moravec argues that "human beings are essentially informational patterns rather than bodily presences", and that "an immaterial essence, which alone comprises the individual's true nature, can be extracted from its material instantiation and

[2] Shilling cites Jordan, T. 1999. *Cyberpower: the culture and politics of cyberspace and the Internet*. London: Routledge.
[3] Moravec, Hans. 1988. *Mind children: the future of robot and human intelligence*. Cambridge: Harvard University.

live free from the body". Hayles calls this concept "virtuality" which she defines as "the cultural perception that material objects are interpenetrated by informational patterns". Noting that this definition plays off a duality – materiality on the one hand and information on the other – she also points to how this fantasy maps seamlessly onto the more traditional dichotomy of spirit and matter. For Moravec, Hayles concludes, the "problem of mortality has been rationalized so that it is possible to make steady progress toward achieving a solution rather than flailing around in mystical nonsense" (Hayles 1999b:69-73). Simon Penny, likewise, confirms how Morevec's idea of human beings living as "immortal disembodied digital entities" is similar to the notion of "going to heaven" (1997:31). This digital fantasy has, as I will outline, emerged as a cultural construct which, while simply restating an existing cultural construction of dualism, has also suggested the posthuman. The posthuman, suggested by Hayles, "privileges informational patterns over material instantiation …". It also conceives "of the body as the original prosthesis that we learn to manipulate, so that extending or replacing the body with other prostheses continues a process that began before we were born". Most importantly in the posthuman there are "no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals" (Hayles 1999a:2-3).

The biological organism seen as the body in the Western world is an abstract concept that is always culturally constructed as suggested by Hayles. The body is the human form seen from the outside, culturally constructed and striving to make representations that can stand in for bodies in general. By contrast, embodiment is experienced from the inside, from the feelings, emotions and sensations that constitute the vibrant living textures of our lives. Hayles notes that although a study of anatomy written across the centuries confirms that ideas of the body change as the culture changes, it is less obvious that our experiences of embodiment also change. Our experiences of embodiment, although also

culturally constructed, emerge from the complex interactions between conscious mind and the physiological structures that have emerged from millennia of biological evolution. Living in a technologically engineered and information-rich environment therefore, brings with it associated shifts in habits, enactments, and perceptions. It brings about changes in the experiences that constitute the world we inhabit (Hayles 2004:229-230). Stelarc's work as a performance artist demonstrates these changes that emerge when the body interacts with technology.

Chapter One of this thesis will consist of an overview of performance art, the role of the body in art and of technology and multimedia as factors that contribute towards this study. This overview will present these factors as essential components to Stelarc's artwork. It will also give a historical overview of Stelarc as a performance artist from the 1960s to the present. At that time, artists began questioning the accepted canon of art forms and the historical development of art during that period and began to present art as the *process* of art-making rather than as the finished art product. It was a short step from the process of art-making to the artist him/herself becoming the direct medium of expression. The physical body itself turned into the artwork.

Chapter One will also present a historical overview of the body which will present Descartes' new interpretation of the body. Departing from previous traditions, Descartes relegated the body to an autonomous entity, and presented the mind and the body as a duality. Defining the body as the spatial substance or matter, Descartes defined the mind as the thinking substance, the *Cogito ergo sum* "I am thinking, therefore I exist". This notion of presenting the mind as distinct from the body and the abstract as distinct from the material, connects the Cartesian influence to the unfolding of the body/technology interrelationship and the influence this thought has had on the desire to transcend, alter or leave behind the obsolete body via technology as expressed by Stelarc in Chapter Two.

In Chapter Two, I will present Stelarc as a performance artist who has, throughout his career, consistently responded to evolving technology. Stelarc has never deviated from his bold claim that “the body is obsolete” and the chronological selection of artworks in this chapter will progressively unfold the concepts and performances that enact the contemporary dynamics of prosthesis, embodiment and virtual reality which have been central to Stelarc’s performance art. Analyzing the chronological representation of selected artworks enables me to place the technologised body as the source of its own transcendence.

Having acknowledged that evolving technology has brought about changes in embodied and disembodied experiences and moved the body to incorporate the cyborg and/or the posthuman, my argument in Chapter Three, however, claims that the posthuman, no matter how technologised, cannot leave behind the physical body in the hope of existing as a disembodied entity but has to acknowledge and deal with the body as a “lived” experiential body.

This research will use the information found on Stelarc’s personal web site, articles extracted through the Internet, and books found in South Africa that relate to this study. More immediate resources were unavailable due to the ephemeral nature and the distant locations of the various performance pieces.

Chapter One: Art, technology and the body

In performance art you have to take the physical consequences for your ideas. [T]o suspend the body with steel hooks, to extend the body with a third hand: it was not enough to speculate. Rather, the approach was to actualize the idea, to experience it directly, and then try to articulate what happened (Quote by Stelarc in Smith 2005b:215).

1.1 A background to performance art

Roselee Goldberg in *Performance live art 1909 to the present* (1979), shows that visual artists, despite the emphasis on art as formal objects, have been engaged in the performing arts since the beginning of the twentieth century. The work of the Futurists, Constructivists, Dadaists and Surrealists often found its roots in performance. While attempting to resolve problematic issues, the artists took their art ideas to the streets, cafés, theatres and galleries. Goldberg noted that while the members of such groups were still in their twenties, or early thirties, they tested their ideas in performance art, only later expressing them in objects. Performance, defying easy definition beyond the simple declaration that it is live art by artists, drew freely from any number of references such as literature, theatre, drama, music, architecture, poetry, film and fantasy, deploying them in any combination (Goldberg 1979:6).

Michael Rush in his chapter titled “Media and Performance” describes the canvases dripped and poured on by the American Jackson Pollock (*Number 1* 1950)[4], the canvases slashed by Argentinian-born Lucio Fontana (*Work [Concetto Spaziale]*)[5] and those punctured by

[4] Jackson Pollock, *Number 1, 1950 (Lavender Mist)* (1950). Enamel. National Gallery of Art, Ailsa Mellon Bruce Fund, 1976.37.1. (NGA: http://www.nga.gov/feature/pollock/painting1.shtm) (accessed on 29/12/2008).

[5] Lucio Fontana, *Concetto Spaziale* (1964-1965). Tempera on canvas, lacquered wood, unframed 57.5 x 45 x inches. Inscription: on reverse in black ink TL "L. Fontana". Walker Art Center. Accession Number: 1998.113. The technique, which Fontana named *Spazialismo*, was conceived in 1949 when he punctured a thinly painted monochromatic canvas with a knife. (Walker Art Centre: http://collections.walkerart.org/item/object/8599) (accessed on 29/12/2008).

Japanese Shozo Shimamoto (*Work [Holes]*)[6], as illustrating the changing perception of art. Soon the gestural art of Pollock was extended by a worldwide contingent of artists including Allan Kaprow, Yves Klein, Otto Muehl, Joseph Beuys and Robert Rauschenberg, into actual Performances, Happenings and Events. The social and sexual revolutions of the 1960s found expression in art that was directed away from the canvas into actions that could simultaneously incorporate the viewer into the work of art. For American artists at mid-century, it was a short step from action painting to action itself as a form of art (Rush 1999:36).

As early as the 1950s, the gestural art evident in the Jackson Pollock's Action Paintings presented painting as an act rather than a final object in contrast to the modernist view of the static nature of art. Pollock, who became internationally known through photographs that showed him standing above or within his huge canvases performing the act of painting, presented art as a performance (Jones 1998:53-55)[7]. Harold Rosenberg, the Modernist critic and writer, called abstract expressionism in 1952 "American Action Painting" and described the body of the artist, as used by Pollock whilst performing, as "action painting", which he described as an act of performance within the "arena" of the canvas. The act of making a mark on the canvas through the movement of the body "enacts, performs, and makes into representation" the subjectivity of the artist (Jones 1998:72). Rosenberg, in a later essay titled "The Mythic Act", refers to the performance quality of Pollock's work by saying: "From these apprehensions of presences and energies in nature Pollock passed into union with them through releasing paint in fluids that directly record his physical movements" (Jones 1998:74). Jones sums up the transition from

[6] Shozo Shimamoto, *Holes* (1954) Ana. Oil on paper, image: 892 x 699 mm support: 1169 x 912 mm. Tate Collection. Ana TO7898. *Holes* was made from layers of pasted newspapers, painted and pierced. Shimamoto began the series around 1949 or 1950, during the post-war American occupation of Japan. (Tate Collection: http://www.tate.org.uk/servlet/ViewWork?workid=71573&tabview=work) (accessed on 29/12/2008).

[7] The photographs were taken by Hans Namuth and published in the 1951 issue of *Art News,* together with an essay "Pollock Paints a Picture" written by Robert Goodnough describing Pollock's working process in terms that stress his uniqueness and genius.

static to performance art by concluding that in abstract expressionism, the artist derived his [sic] subject matter from within, so that painting came to be seen as the "unmediated expression of pure intentionality, of the true 'self' of the artist" (Jones 1998:81). Jones says that this proves that "Art history's metaphysical narrative of art making as an act of bodily transcendence is thus confirmed" (1998:74).

The embodied "self" of action painting initiated new versions of performance in artists such as Allan Kaprow and Yves Klein who placed the viewer as a participant in the performance rather than a passive observer (Jones 1998:85). In 1959, Allan Kaprow, a precursor of the 1960s Happenings, proclaimed that "the line between art and life should be kept as fluid, and perhaps indistinct, as possible" (Wegenstein 2004:206)[8]. Placing the emphasis on the process of performance rather than the finished art product, Kaprow moved his art into real time and space in his *18 Happenings in 6 Parts* (1959)[9]. He issued invitations inviting the audience to become a part of the "happenings", simultaneously experiencing the different components of the event (Goldberg 1979:83)[10].

Bernadette Wegenstein describes this concept of the "Happening" as leaving "no space between the product, its process of creation, and the artist". She describes how these elements all become one as they fuse the self, the process and the artwork (2004:206). The performers of the late 1960s and 1970s, whilst rejecting the traditional materials of canvas, brush or chisel, and turning to their own bodies as art materials, formulated the notion of "conceptual art". "Conceptual art" formulated as "an art of which the material is concepts", implied the experience of time, space and material rather than their representation in the form of

[8] Wegenstein quotes from Kaprow, A. 1956. *Assemblages, Environments and Happenings*. New York: Harry N. Abrams.
[9] Allan Kaprow, *18 Happenings in 6 Parts* (1959). Reuben Gallery, New York. (Goldberg 1979:83).
[10] A detailed description of the *18 Happenings in 6 Parts* is given by Roselee Goldberg in *Performance: live art 1909 to the present* (1979:83).

representative objects (Goldberg 1979:98). The body became the direct medium of expression and the process became the artwork, making art explicitly participational rather than simply viewable, and events, happenings and performances became the ideal media with which to represent art concepts.

Stelarc was not alone in incorporating the artist's own body into performance art. There were, at the same time, other artists who used the body as performance material, such as Vito Acconi, Dennis Opperheim, Chris Burden, and Allan Kaprow.

Chris Burden, the Californian artist, began with performances that placed him in situations beyond the bounds of normal endurance. His first performance *Five Day Locker Piece* (1971)[11] took place while he was still a student. In the students' locker-room at the University of California, Irvine in 1971, Burden encased himself in a 60cm x 60cm x 90cm locker for five days, his only supplies being a large water bottle, the contents of which were piped to him via the locker above. In Venice, California, in the same year, Burden asked a friend to shoot him in the left arm, in a work entitled *Shoot* (1971)[12]*.* The bullet, fired from fifteen feet away, blew away a large piece of flesh instead of grazing his arm as was intended. In 1973, Burden's performance was headlined in the *New York Times* as: "He Got Shot – for His Art". Despite the general public's dismay, Burden's 1970s performances centred on individual acts of bodily violence (O'Dell 1998:1). In *Prelude to 220, or 110* (1971)[13] Burden had his wrists, neck, and legs bolted to a concrete gallery floor with copper bands. Nearby were placed two buckets of water with live 110-volt lines submerged in them. Had any visitor chosen to spill the water Burden would have been electrocuted. Typical of these performances Burden was forcing himself

[11] Chris Burden, *Five Day Locker Piece* (1971). 60cm x 60cm x 90cm locker. University of California, Irvine. (O'Dell 1998:1).
[12] Chris Burden, *Shoot* (1971). F Space, Santa Ana, California, (USA). (Media Art Net: http://www.medienkunstnetz.de/works/shoot/) (accessed on 29/12/2008).
[13] Chris Burden, *Prelude to 220, or 110* (1971). No gallery reference given. (Media Art Net: http://www.medienkunstnetz.de/works/prelude-to-220/) (accessed on 29/12/2008).

and the audience and the sponsoring institution, to face an elemental and harrowing reality. Burden's work exposes real consequences between the performer and the audience, or the artist and the art world, or the citizen and the government (Carr 1993b:16-18). These painful performances were meant to transcend physical reality, in the hope that they would alter people's perception of violence. Even though danger was portrayed on canvas or in the theatre, Burden, by involving real danger, aimed to "alter the history of representation of such themes for all time" (Goldberg 1979:103).

These actions, whether they included or excluded a direct audience, were evidence of the fact that for some artists, the body was now regarded in the same light as the canvas. For these artists, the body itself is turned into an artwork and the viewer automatically becomes a witness to something that actually happens in real time to the performer (Wegenstein 2004:214). An important element of these performances, whether in a public or private space, due to their intangibility and therefore their doubtful commercial value, was the documentation of these performances. The recording of evidence through written text, manifesto, media, film or photography became the material evidence of the event performed.

Vito Acconci, a New York artist, used his body to act out a poem *Following Piece* as *Part of Street Works IV* (1969)[14]. Rather than writing the poem, he randomly followed chosen individuals in the street, abandoning them once they left the street on entering the building of their destination (Goldberg 1979:100). In 1970, Acconci in his performance work *Trademarks* (1970)[15]*,* did not create his artwork before a live audience. He sat in front of a camera, repeatedly twisting his body

[14] Vito Acconci. *Following Piece as Part of Street Works IV* (1969). Sponsored by the Architectural League of New York, New York City. (Jones 1998:126).
[15] Vito Acconci, *Trademarks* (1970). No space reference given, New York City. (Artfacts.Net: http://www.artfacts.net/index.php/pageType/exhibitionInfo/exhibition/22537/lang/1) (accessed on 29/12/2008).

enabling himself to bite deeply into his arms, legs and shoulders. The artwork was intended to be the documentation of these actions. Covering the bite impressions in his skin with printers' ink, he used the marks to stamp various surfaces. In 1972, a published document including text and photographs of this work appeared in the *Avalanche* magazine (O'Dell 1998:17). Instead of producing a marketable object such as a painting or sculpture, the physical process of art-making became the work. The video camera became the partner in the performance, representing the audience (Rush 1999:48) but at the same time, becoming the means of documenting the event by allowing the ongoing experience of the performance to a larger audience.

This growing reciprocity between technology and art happened because artists became increasingly interested in integrating technology into their work challenging the traditional boundary between artwork, audience, artist and technology.

1.2 The introduction of technology into art

The growth of technology began with the Industrial Revolution in the second half of the eighteenth century. In the early twentieth century, the introduction of electricity as a power source transformed everyday life in industrialised countries.

The pace of technological development escalated in the middle and late twentieth century with the introduction of nuclear power, computers, robots and satellites (Webster's 1994, S.v. "technology"). In this climate of technological development, artists in the genre of Happenings, performance art, electronic theatre and interactive installations, became increasingly interested in integrating technology into their work. So, while technology played a significant role in the twentieth century arts in the form of photography, film and video, it was Bell Labs' scientist Billy Klüver, who conceived the notion of collaboration between the artist and the engineer. Klüver, together with Robert Rauschenberg and associates

pioneered artworks incorporating technology that could not have been done without the engineer's cooperation and creative involvement (Packer & Jordan 2001:xxi).

In 1966 Klüver and Rauschenberg, along with Robert Whitman and Fred Waldhauer, founded E.A.T. (Experiments in Art and Technology) to bring artists and engineers together to create new works (Packer & Jordan 2001:xxii). Demonstrating the collaboration between art and technology, Rauschenberg and associates developed *Nine Evenings: Theatre and Engineering* (October 1966), a seminal event of performance and media which was held at the Sixty-Ninth Regiment Armory, New York. As part of this event, Rauschenberg presented *Open Score (Bong)* (1966)[16], which involved the projection of the darting movements of a tennis match between painter Frank Stella and the professional tennis player, Mimi Kanarek, using racquets which were wired for sound. In addition, three large screens showed the video projections of infrared images of approximately 500 volunteers performing simple gestures in a totally dark playing area. These performances showed the artists' delight with the possibilities of the new technology (Rush 1999:37-38).

While technology has been used to develop new artistic media, today's multimedia art is rooted in the computer. Although the first digital computers were initially designed as calculating machines, scientists since World War II have pursued personal computing and human-computer interactivity as vehicles for transforming consciousness, extending memory, increasing knowledge, amplifying the intellect, and enhancing creativity. Only a handful of scientists considered the possibility of personal computing for creative purposes by non-specialists. The first scientist to seriously think of this potential was Vannevar Bush (Packer & Jordan 2001:xvii). As Director of the Office of Scientific Research and Development, Bush recorded in his text "As we may think" (published

twice in 1945, in the *Atlantic Monthly* and *Life*)[17] his vision of how technology could lead towards understanding and away from destruction. This post-war research was a primary inspiration that led to the development of new media, as we know it today (Bush 1945:35).

The advances in both physics and biology since World War II have generated a transformation that touches our very existence. Biology and medicine have been transformed through new instruments and agents such as electron microscopes, mass spectrometers and radioactive isotopes. The advances in computing, semiconductors and microelectronics have enabled the development of new fields of biomedical imaging such as ultrasound, computerised tornography (CT and PET scanners), nuclear magnetic resonance imaging (MRI), and endoscopic surgery. These changes in biomedicine have enabled new ways of changing and repairing the body, including the transplantations of body organs. These new ways of altering and remaking the body through genetic engineering, genome mapping, aesthetic surgery and mechanical, electronic and biological prosthetics, have contributed to the transformation of the notion of the body (Gaggioli, Vettorello & Riva 2003:76).

Artists and groups of artists are creating works in response to recent developments in physics and biology. *Gene(sis): Contemporary Art Explores Human Genomics* (April-August 2002, travelling) organized by the Henry Art Gallery, University of Washington, presents works in response to recent developments in human genomics (Held 2004:264).

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[16] Robert Rauschenberg, *Open Score (Bong)* from *Nine Evenings: Theatre and Engineering* (1966). Held at the Sixty-Ninth Regiment Armory, New York. (Rush 1999:37).

[17] "As we may think" was published first shortly before, and then just after, the U.S. nuclear attacks on Japan, as is explained by the editor of the text. The blasts that leveled Hiroshima and Nagasaki were produced by the U.S. military-industrial complex, of which Vannevar Bush was a primary organizer, having coordinated the activities of some six thousand leading American scientists. The editor explains that within this article Bush urges men of science to the task of making more accessible 'our bewildering store of knowledge' when the fighting has ceased: "For years inventions have extended man's physical powers rather than the powers of his mind".

As part of this exhibition Eduardo Kac presents his *GFP Bunny* (1999-present)[18] or “Alba” as she is affectionately known. She is a transgenic animal, created by splicing the DNA of a Pacific Northwest jellyfish with that of an albino rabbit. The result of this combination is that under a particular ultraviolet light the albino rabbit glows fluorescent green (Held 2004:272).

As a collaboration between the fine arts and hard sciences the Tissue Culture and Art group consists of artists interested in the possibilities that tissue technologies present “as a medium for artistic expression” (Clarke 2005:204). Working with Stelarc, they used their knowledge in tissue engineering and interest in partial life to assist Stelarc in his quest for an extra ear (Clarke 2005:204).

Most of Stelarc’s projects and performances throughout his career have required medical and technical advice and assistance. Collaborating with professionals such as engineers, programmers, micro-surgery instrument makers, doctors and genetic engineers, Stelarc realizes that each project he undertakes reaches beyond his own expertise (Smith 2005b:216) and has therefore consistently aligned his performances with available expertise and technology.

1.3 A short history of the body in Western culture

The body, performed by Stelarc, is central to his artwork, and as this study argues, continues to inform the understanding of the body. As the body, defined as the physical structure, including the bones, flesh and organs of a person, is central to the investigation of this thesis, the culturally constructed body will be overviewed because the culturally constructed body changes as ideas about culture change.

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[18] Eduardo Kac, *GFP Bunny* (1999-present). Photographic documentation of living artwork, dimensions variable. Courtesy of Julia Friedman Gallery, Chicago. Photograph credit: Chystelle Fontaine (“Held” 2004:272).

Dalia Judovitz in her study, *The culture of the body: geneaologies of modernity* (2001), describes the body as being grounded in specific historical conditions. In her research, it is clearly outlined that it was Rene Descartes (1596-1650) in his anonymously published *Discourse on method* (1637), who represented the body radically differently from the publication of Michel de Montaigne's (1533-1592) *Essays* (1588).

Montaigne, fifty years before Descartes, conceived the baroque body neither as an autonomous object nor as a mere instrument. As summarised by Judovitz, in the latter part of the sixteenth century and the early part of the seventeenth century, the body's physiological complexity was understood to be governed by the interplay and balance of the four humours: blood, phlegm, choler (yellow bile) and melancholy (black bile). Because of these humours, the body was understood as flexible and transitive, depending on the combinations and particular mixtures of the four fluids. The dominance of any particular humour created an imbalance that shifted the individual's complexion from health to disease. In Montaigne's *Essays* (1588), this humoural conception of the body determined its embodied character and reflected its analogical relationship to nature, culture and personal desire. To Montaigne, the body "like rivers or seas whose borders fluctuate and shift", was "neither bounded nor defined as a fixed, self-enclosed entity" (Judovitz 2001:68).

In contrast to Montaigne's fluid body, defined as the experiential or lived body due to the interplay of the humours, as well as the personal, cultural, social and natural forces on the body, Descartes presented a radical new interpretation of the body. His *Discourse on method* (1637) marked one of the most significant turning points in the conception of the body in the European tradition.

Rene Descartes (1596-1650), the French mathematician, philosopher and scientist, relegated the body to an autonomous entity. He redefined the body in terms of the circulation of blood, the body's

technological resynthesis as a machine, and its philosophical reduction to a material thing. Descartes' definition of the body was based on two newly emergent systems of reference: Harvey's anatomical discovery of the circulation of blood, and the belief that the entire material universe could be explained in terms of mathematics and physics.

William Harvey (1578-1658), an English physician, described the circulation of blood as a self-enclosed system. This system reflected the emergence of a new concept of medicine, one which self-regulated the body from disease to health, which he described as one that "no longer relied on the 'supposed isomorphism between the cosmic order and the equilibrium of the organism' reflected in nature's presumed powers to correct its own disorders" (Judovitz 2001:69). The circulation of blood within the pathways of the arterial-venal system established the body as an autonomous system of exchange. Within Harvey's system, the heart emerges as the true sovereign of the body, the guiding principle of life and becomes tangible in the form of the pulse. The continuous and circular movement of the blood ensures both the preservation and regeneration of the body. Descartes' interest in Harvey's model of the circulation of the blood as a closed and self-regulated system of exchange, enabled Descartes to represent the body as a mechanical device: *as a machine* (italics mine) (Judovitz 2001:67-70).

Descartes, as indicated in *Webster's new world encyclopedia* (1994, S.v. "Descartes"), applied the methods of mathematics to metaphysics and science. Descartes also postulated two quite distinct substances that make up the human body, one substance defined as the spatial substance or matter, and the other substance as the thinking substance or mind. This is referred to as the "Cartesian dualism", the mind/body duality. Descartes identified the "thinking thing" (*res cogitans*) or mind, with the human soul or consciousness. He identified the body as a physical machine. The body somehow interacting with the soul was secondary to and, in principle, separated from the soul (Webster's 1994,

S.v. “Descartes”). This “Cartesian dualism”, which posits the autonomy of mind and body as two distinct substances, is highlighted, as cited by Jones, by Descartes’ famous comment, from the *Discourse on Method* (1637), that “this me – that is, the soul by which I am what I am – is completely distinct from the body: and is even easier to know than is the body” (Jones 1998:37).

Judovitz points out that it is only historically later, in the writings of Maurice Merleau-Ponty (1908-1961), the French philosopher, where the body is reclaimed as the lived, experiential body (Judovitz 2001:107). Merleau-Ponty who grounds his theory in bodily behaviour and in perception, argues in his 1945 *Phenomenology of perception*[19]*,* that perception is intertwined with bodily awareness and with language. Merleau-Ponty observed in his *Phenomenology of perception*[20], that the lived body is not discrete from the mind as vessel, but is, in fact, the “expressive space” by which we experience the world. Unlike other objects in the world, the body cannot be thought of as separate from the self, nor does it signify or ”express the modalities of existence in the way that stripes indicate rank, or a house-number a house: the sign here does not only convey its significance, it is filled with it” (Jones 1998:39). Merleau-Ponty explains[21]: “So I am my body, in so far, at least, as my experience goes, and conversely my body is like a life-model, or like a preliminary sketch, for my total being”.

This study argues that Descartes and Merleau-Ponty’s notions of the body act on the culturally constructed body as presented by Stelarc. The notion presented by Descartes allows this study to explore Stelarc’s artworks in which he presents the body “obsolete” and transcended. Merleau-Ponty’s theory also allows this study to explore the body as the lived experiential

[19] Judovitz refers to Merleau-Ponty, M. 1945. *Phenomenology of perception.* Translated by Colin Smith 1962. New York: Humanities Press (1962:102).
[20] Ibid.
[21] Simone de Beauvoir footnotes Merleau-Ponty, *Phenomenologie de la perception* in her book *The second sex* (1953:30).

body by presenting Stelarc's contradictions both in his rhetoric and his performance.

1.4 Stelarc the artist: a historical overview

Stelarc, formerly Stelios Arcadiou was born 19 June 1946, in Limassol on the Island of Cyprus. He studied Art and Craft at T.S.T.C., and Art and Technology at CAUTECH and M.R.I.T., Melbourne University, Australia (Atzori & Woolford 1995, Stelarc 1994).

Stelarc, who positions himself as a performance artist, reveals that he had always wanted to be an artist. During his interview with Miss M. ([S.a.]) he says that at a young age he understood that being an artist was to draw realistically. Later in his high school years, he began to place the nature of art as being "a strategy for comprehending the world, not merely a craft that makes hot-couture [sic] images for museums" (Miss M. [S.a.]).

Although originally trained as a visual artist in the 1960s, the "first things" Stelarc says during his interview with Miss M. ([S.a.]), that he made in art school, were helmets and goggles, which altered the wearer's binocular perception. Stelarc describes this piece of artwork as "a sensory compartment that you plugged your head into," a "rotating domelike structure with flashing lights and electronic sounds" providing a "continuous sensorium around your head." (Miss M. [S.a.]) This artwork was designed to alter the perception of the normal humanoid vision (Miss M. [S.a.]), a concept which is used throughout Stelarc's career as the relationship between the positioned "obsolete" body and the transcendence of this corporeal limited body through technology. In his critical text, Jeremy Drummond cites Stelarc as claiming that, even at that early stage in his career, no one understood what he was trying to do, therefore he was not allowed to do a fourth year, and did not complete his art course ([S.a.]).

After leaving the Institute, Stelarc moved to Japan, where he found the technological environment in which he could produce his work. He taught art and sociology at the Yokohama International School, and drawing and sculpture at Ballarat University College. Since the late 1960s, he has performed extensively in Japan, Europe, and the USA. Aside from traditional venues, his work has been included in a variety of new music and dance festivals as well as in experimental theatre. Through the use of medical instruments, prosthetics, robotics, virtual reality systems and the Internet, Stelarc explores alternate, intimate, and involuntary interfaces with the body (Drummond [S.a.]).

1.5 Stelarc's theories of the "body as obsolete"

Stelarc, as performance artist, considers the body obsolete in form and function (Stelarc 1994). He claims "the body" is propelled by a "desire to transcend its evolutionary limitations" (Carr 1993a:12). Coupled with technology, Stelarc enacts the vision which international Net enthusiasts such as the Extropians[22] promise: that soon each one of us will be able to transcend the limits imposed on us by our bodies.

Stelarc who has consistently objectified his own body, refers to it in performances as "the body" in the third person (Carr 1993a:12). Because it is difficult for him to convince others to undergo rather awkward, difficult and sometimes painful experiences of his artworks, Stelarc uses his own body and intends through his performances "to express an idea with his direct experience" (Atzori & Woolford 1995). Brian Massumi, in "The Evolutionary Alchemy of Reason" (2005) elaborates on Stelarc's notion of expressing an idea with his direct experience by explaining that with Stelarc's performances, "expression and experience join", making the body an "actual manifestation of a concept" (2005:125). Stelarc as "body" artist takes the physical consequences of his ideas. His performances

[22] The Extropians is an international group of the most extreme Net enthusiasts, whose leader Max More founded the Extropean Institute.

express both the experience and the concept on which the artwork is based directly. Imagination and speculation, to Stelarc, are not enough (Smith 2000b:216). His medium is, as Massumi states, his body and his ideas (Massumi 2005:125).

Stelarc has performed a fusion of technology with the body since the late 1960s. Bernadette Wegenstein says Stelarc is "probably the example of how body discourse in performance art has changed during the last thirty to forty years". In Stelarc's work, she adds, the transition of the body as raw material for artworks has developed from the wounds-performances through his suspensions with levers and hooks through the skin in the 1970s and 1980s to the extended body of the 1990s and into the new millennium (Wegenstein 2004:221). Stelarc uses the available current technology to perform his artworks and started with mechanical technology which made the suspension performances of the 70s and 80s possible.

As technology developed in the 1980s, Stelarc extended his performances with the use of electronics as seen in his suspension *Event for Stretched Skin / Third Hand (The Last Suspension)* (1988) (fig 6). The extension of electronics into information technologies of the 1990s made possible performances such as *Split Body: Voltage In / Voltage Out* (1995) (fig 7). With the expansion of information technologies and the World Wide Web, Stelarc connected himself into this system to enact performances such as *Fractal Flesh, An Internet Body Upload Performance* (1995)[23] (fig 8) and *Ping Body an Internet Actuated Performance* (1996) (fig 9 and 10).

The growing developments in the field of physics and biology during the second half of the 20th Century made it possible for Stelarc to use these developments in the new millennium to actualise performances

[23] Stelarc, *Fractal Flesh, An Internet Body Upload Performance* (1995). Telepolis, Luxembourg (Stelarc:1994).

using biotechnology, for example *Extra Ear ¼ Scale* (2003) (fig 11) where Stelarc realizes the fusion of technology and the body. In this medium of performance art, Stelarc challenges the boundaries of the body by changing the body through redesigning its interface (with its environment) through the use of the body/technology symbiosis in the form of medical instruments, prosthetics, robotics, virtual reality systems and the Internet.

Stelarc as performance artist has for the past 35 years provoked the art world and the media with a series of works that he claims demonstrate the “body as obsolete”. In his performances, he claims and shows the body as both limited and obsolete, and seeks to transcend these limitations through technological extensions. Chapter Two will analyse a representative chronological selection of these works to show that they are all based on extensions of Stelarc’s existing body responding to the changes in technology that were available to him as a performance artist.

Chapter Two: Transcending the "obsolete" body

"Life is from the onset nothing other than a reaching-out-beyond-itself"
(Simmel 1971:372).

Stelarc, who throughout his career responds to the changes in technology, consistently provokes the art world and the world media. He draws attention to the symbiotic relationship of technology to the body not only through his performances but also by claiming: "*The body is obsolete*" (italics mine). These are the words that confront the viewer on entering Stelarc's official Web site <http://www.stelarc.va.com.au/> which maintains his texts and performances as composite works in progress. This chapter will analyse a chronological representation of selected art works which illustrate the technologised body as the source of its own transcendence.

2.1 "The body is obsolete"

In his performances, Stelarc progressively unfolds the concepts that demonstrate and emphasise the influence of technology on the reality of the body. This progressive unfolding of events illustrates the symbiosis of prosthetics, virtual reality and biotechnology on the body. Stelarc, as body artist, boldly positions his body as an "obsolete" "object" that needs to be altered, extended, and redesigned in order to align itself to the technological environment in which it finds itself.

During his interview with Yiannis Melanitis, Stelarc gives the reasons why he considers the body obsolete. He explains that if a body's internal temperature varies three or four degrees, its health is at risk, if a body loses 10% of its fluid, it dies. The body can only live minutes without air, a week without water, and possibly a month without food. In good health the body averages 70 years but if already fifty (as Stelarc is), then this is "a problem" (Melanitis 1999).

On his web site, Stelarc similarly questions the body. He writes of the body as neither very efficient nor very durable. He outlines the body as a performance which is determined by age, which often malfunctions and quickly fatigues. Furthermore, the body is susceptible to disease and is finally doomed to a certain death. Stelarc repeatedly amplifies this theory of "obsolescence of the body" through his performances by placing his body into situations that directly force the body to prove his claim and thereby become the manifestation of its own obsolescence.

2.2 Body suspensions / obsolescence performed

The body, male, in his 20s or 30s is hooked up through the flesh by 18 metal hooks and left suspended for a time in an unnatural situation. Stelarc explains this act of suspension as is illustrated by *Event for Lateral Suspension* (1978) (fig 1) as the fact that "he would be amplifying the obsolescence of the body out there, the need for it to burst from its biological, cultural and planetary containment …" (Carr 1993a:10).

Stelarc's first suspensions were done from 1972 with ropes and harnesses that rather supported the body than suspended it. He found that these became visually cluttered and subsequently introduced the notion of piercing the skin in 1976. While saying he knew about the Hindu Indian suspension rituals, Stelarc consistently claims that his suspension events were not about religion or shamanism and he did not desire to make the suspensions an image of levitation. He did not prepare himself through chanting, enter into altered states or take any anaesthetics (Atzori & Woolford 1995).

In 1987, Fakir Musafar, the only other person doing suspensions publicly, criticised Stelarc in an article written by Adam Parfrey in the magazine *Apocalypse Culture,* for limiting the time of a suspension and calling it art. Claiming Stelarc was dabbling in "magic technology", Fakir critically claims that "if he hung for a longer length of time, he'd have a

mystical experience" (Larratt 2004). Stelarc denied any spiritual connotations to his work which he believes places the focus rather on the obsolescence of the body. In his work, he places the body as a mortal object, yoked to technology in an unnatural situation outside its normal functionality in order to experience and explore the outcome. The outcome of this is that the suspended technologised body is unable to function normally and becomes unable to fulfil its purpose as a bipedal human body. This is confirmed by Massumi in his text "The Evolutionary Alchemy of Reason", who said that the "regularized, needful, useful actions of the human body all hinge in one way or another on its bipedal upright posture, the body's usual way of counteracting gravity". Massumi explains that "the suspended body is in no position to extend its present situation into a logically expressible next step by choosing from a set of possible actions. It is not only in a needless and useless condition; it is in an utterly dysfunctional one … the body is placed at the limit of its functionality" (2005:142).

Never having seen Stelarc suspended in the flesh, my observation of images of the suspended body in various situations as illustrated in *Event for Inclined Suspension* (1979) (fig 2) embodies the reality of the act in my imagination. It highlights for me the vulnerability and mortality of the body because Stelarc does indeed place his body at the limit of its functionality. It becomes utterly dysfunctional, helpless, and at the mercy of those who have been recruited to initiate and complete the procedure.

What is obvious in the image of suspension, is the lifting of the skin from the body where the hooks pierce the body. Considering the skin as a boundary of the body separating the internal viscera from the external environment, this deliberate breaking and stretching of that boundary becomes a metaphorical act of breaking through boundaries of the body through the use of technology. These boundaries are discussed by George Simmel in "The transcendent character of life: 1918" (1971). Simmel claims that the body as boundary shows the significance of

boundaries in our existence which is substantiated by “virtue of the fact that we *have* boundaries everywhere and always, so accordingly we *are* boundaries.” These boundaries, Simmel states, make us aware that every thought we have stands between wise and foolish, every deed between a greater and a lesser measure of meaning, adequacy, and morality. We are constantly orientating ourselves to an “over us” and an “under us”, a “more or less”, a “better or worse” (1971:353). Drawing from Simmel’s argument, the suspended Stelarc appears as an established boundary which is altered by the body-technology interrelationship.

Simmel points out that although a boundary (such as the skin) is established, “every single determinate boundary can be stepped over”, and every such act “finds or creates a new boundary”. Every boundary is indicative of our “position” in the world, and therefore every boundary can be altered and breached (Simmel 1971:354). Simmel’s argument reinforces my positioning of Stelarc as the unfolding technologised body performing the “unified act of life [that] includes both the state of being bounded and the transcending of the boundary, despite the fact that this seems to present a logical contradiction” (Simmel 1971:356). The suspended body as the transcendence of boundaries makes it therefore the source of its own transcendence which is confirmed by Simmel who says that every limit that is set can be transcended because there exists something to transcend (Simmel 1971:358).

Stelarc positions his body as artwork in an unnatural situation, outside its normal functionality, yoked to technology to experience and discover the outcome. Once an outcome is established, the body is suspended, becoming limited and dysfunctional and because all boundaries are transcended, it reveals its obsolescence. The duality of the boundary which can be breached is established and therefore the outcome is ambiguous. This begs the question as to the value of the suspended body. In reply, Massumi states: “What is being suspended is embodied human *possibility*” (2005:142).

Before I explore these possibilities, I will briefly show how Stelarc presents "desire" as the motivational force which is used to initiate transcendence.

2.3 Transcendence desired

When suspensions in the genre of performance art emerged in the 1970s, the body as artwork was attributed primarily to the male body artist. At that time, art presented as a performance was expressed through action painters such as Jackson Pollock who confirmed art-making as an act of bodily transcendence by placing the emphasis on the *act* of art-making rather than on the finished product. The body became the direct medium of expression and the means through which to embody art concepts.

The suspensions, being mostly quiet events done in remote locations or private spaces, reflect the desire to explore the body as extended beyond the limitations of itself as boundary. Reaching beyond its limits, Stelarc observed that "[his] events are involved with transcending normal human parameters, including pain"[24] (Jones 2005:89). As he transcends these parameters, Stelarc achieves the "desired" transcended body.

On his web site, Stelarc (1994) describes this experience in *Seaside Suspension: Event for Wind and Waves* (1981) (fig 3):

> The body, parallel to the horizon and looking out to sea, was suspended from a wooden structure on an outcrop of rocks near the shore as the tide was coming in. The weather was overcast with a blustery wind swaying the body and waves crashing against the rocks spraying and splashing it. The duration of the suspension was approximately 20 minutes.

[24] Original quote by Stelarc cited in Paffrath, James D & Stelarc (eds). 1984. *Obsolete body/suspensions/Stelarc.* Davis, CA: JP Publications (1984:8). This book is not available for loan in South Africa.

Stelarc describes this same experience in an interview with Cynthia Carr. He explains that during the seaside suspension while facing sideways over the incoming tide, he began “to feel that the surface of the sea was an extension of his skin stretching out to the horizon then back, a membrane that began pulsating and finally bursting in the form of waves” (Carr 1993a:12-13).

Hanging between the branches of a tree, the suspension called *Prepared Tree Suspension: Event for Obsolete Body, No.6* (1982) (fig 4) proves Stelarc’s desire to be extended beyond mere body. Requesting the spectators (about 350 - 400) to leave after 15 minutes, Stelarc desired to experience the “symbiotic relationship of body and the tree” without being distracted by an audience. Stelarc describes the experience of the audience by saying that he believed that “[i]t must have been beautiful to drive off leaving the body there” (Carr 1993a:11).

The body will now be presented as the technologised suspended body; as artwork that simultaneously enacts both the boundary and its own transcendence of that boundary. The body in this artwork becomes the source of its own transcendence and what is being suspended is not simply the body but the “embodied human possibility”. Despite the fact that this seems to present a logical contradiction, it claims the technologised body as both limited (bounded) and transcended.

2.4 The “body” as “object”

In a typical Cartesian manner, Stelarc claims that the body is “an impersonal, evolutionary, objective structure” (Atzori & Woolford 1995). He refers to his body in the third person as “the body” in order to objectify himself so that he is able to dissociate himself from the experience of suspension. He explains that “[i]t’s not important that it’s me. It’s important that a physical body suspended in space has these experiences” (Carr 1993a:13). Cynthia Carr of the event *Street Suspension* (1984) (fig 5)

discusses Stelarc's rhetoric that places "… the body not as a subject but as an object …" (Stelarc 2000:562). In her book *On edge: performance at the end of the twentieth century* (1993)[25], Carr gives a detailed description of how Stelarc turned these suspension performances into carefully calculated antiseptic events thereby positioning the body as object rather than allowing the performance to become a subjective experience of his own body. Carr describes a bowl full of sterilised hooks, two bottles of rubbing alcohol, cotton swabs and gauze which stood on the table. Stelarc had made a drawing "like an acupuncture diagram with hooks instead of needle points" for the two assistants helping him. He'd apparently had trouble finding assistants, but finally recruited two sympathetic performance artists. Stelarc showed the two men what to do with the hooks, one would pinch the skin up, and the other would insert the hooks. By inserting into skin instead of muscle they would avoid any blood vessels or nerve endings and therefore minimise bleeding. "Start with the elbows", he told them. "Go through quickly … pinch the skin more tightly … faster … get it symmetrical … grab more flesh …" (1993a:13).

Stelarc then mounted a platform, 18 fishhooks piercing the back of his naked frame. Positioning himself face down below a pulley with 18 rings, Stelarc calmly instructed the two assistants to connect the hooks and pulley with the cord. Carr describes the thirty or so spectators around the platform as "tiptoe silent". Suddenly "the body" gasped with pain. "No worse than usual", winced Stelarc, "… just keep forgetting how bad it is". He then instructed his assistants to remove the platform below him, so that he'd be left hanging by the hooks, his skin stretching, causing him excruciating pain (Carr 1993a:13).

[25] Refer to the chapter entitled "Before and after science".

2.5 Transcended “suspended” body

> “Every subject plays his part … through exploits … that serve as a mode of transcendence; he achieves liberty only through a continual reaching out toward other liberties” (De Beauvoir 1953:liv).

In an evolutionary process, technological developments have contributed to the human experience of expanding the boundaries of its world. As suggested by Simmel, there tends to be a certain relation between human bodily capacities, technology and the projects and types of physical developments planned and achieved by humans (Shilling 2005:176-177). Simmel demonstrates this by showing how our world has been expanded through the development of the telescope and the microscope. Whereas we previously made use only of the natural sense of sight to perceive the world, now we have constructed inorganic eyes that allow us to disclose and enlarge objects outside our “natural” perception of space (Simmel 1971:356).

Marshall McLuhan whose interest in technology focuses on technologies as media, reiterates Simmel’s assertion in his book *Understanding media: the extensions of man* (1964) by explaining that the personal and social consequences of any medium that challenges the boundaries of ourselves, results from new perceptions created by this extension of ourselves and by new technology (1964:7). A relational-loop is put in place; new technologies generate new perceptions, and these generate further boundaries. McLuhan concludes that “[t]hese media, being extensions of ourselves, also depend upon us for their interplay and their evolution. The fact that they do interact and spawn new progeny has been a source of wonderment over the ages” (1964:54). This shows that the body-technological interrelationship is one of dynamic symbiosis, the human acted upon by technology, and technology acted on by the human.

Stelarc has, throughout his career, reacted to developments in technology especially those which relate to the expansion of bodily capacities. He has planned and executed projects which challenge the

boundaries between the physical and the technological. As mentioned earlier, he started his career with a project which consisted of donning a helmet and goggles that were designed to “scramble binocular vision by superimposing fragmented rear and side views onto the normal frontal view” (Massumi 2005:126). His performances have gradually taken advantage of technologically altered human perception within the body-technology interrelationship as the performances described in this thesis show.

Considering the relational-loop that exists between the body and technology, Stelarc’s performances acknowledge the vulnerability and mortality of the body. In addition, the boundaries created by the skin are challenged by being pierced and stretched and an impelling metamorphosis emerges. By suspending the body, Stelarc expresses the relationship forces that emerge between the body and technological advancement. These did not only involve the visual but also amplify and externalise the internal sounds of the body. Visually and sonically the body expresses its metamorphosis.

Although Stelarc expresses the stretched skin as the “gravitational landscape” (Atzori & Woolford 1995), he makes it clear during his interview with Rainier Linz that by amplifying body sounds, it is possible to articulate what is happening inside the body. Describing the heartbeat and brainwaves as rhythmic, the stomach sounds as random, and the muscle signals as triggered, Stelarc describes the sounds made by the body as “buzzing”, “beeping”, “clicking”, “thumping” and “whooshing”. The bloodflow, described as a type of “whooshing” wind sound, is captured by Doppler ultrasonic sound transducers; the muscles, heartbeat, and brainwaves are translated into EMG, plethysmogram, and EEG readouts. Stelarc describes how the body, as medium of expression, makes sounds that are intrinsic to the performance (Linz 2001). He explains how he uses his body as a gravitational landscape by piercing the skin and expresses what lies beneath the surface of the pierced skin by presenting the

internal organs as amplified sounds. These sounds once again challenge the boundaries of the body by emerging into the surrounding space of the suspension performance.

The bodily organic expressions of sounds and landscapes as created by Stelarc in his performances are described by Massumi as “a visibility of gravity and a sonic architecturality” (Massumi 2005:147). Claiming suspension as “embodied human possibility”, Massumi explains that through it, the body becomes “a *transducer,* a local organization of forces (epidermal elasticity and strength) that responds to, and transformatively prolongs, another force (gravity)”. The transducer in this case “transforms gravity from an invisible condition of station, locomotion, and action into a visibility” (2005:147). This means that the body which is suspended visibly expresses the force of gravity on itself as a gravitational landscape. As a sonic architecturality, Massumi describes how the “rush of blood through the artist’s veins rises in a state of heightened receptivity to the effects of gravity” and is therefore transformed into “amplified sound waves” that spread to fill the surrounding space (2005:147).

The “compulsive force of unfolding” (Massumi 2005:141) that continues throughout Stelarc’s career, are dependent on the body as medium of expression. These “extendabilities” (Massumi 2005:148) are the beginning of a series of continual adaptations that Stelarc’s “obsolete body” creates in response to technological advances.

2.6 Prostheses

> “The body’s obsolescence is the condition of change. Its vitality is in obsolescence” (Massumi 2005:152).

On 29 May 1988, Stelarc performed his last suspension in a performance called *Event for Stretched Skin / Third Hand (The Last Suspension),* (1988) (fig 6). The dualistic nature of the body had been established in its expressive visual and sonic extendabilities but even

though transcendence was reached, the body nonetheless remained suspended, dysfunctional, and limited. This unfolding of events brought Stelarc to a new boundary, that of an evolutionary limitation that suggests that we have arrived at a point where we cannot effectively adapt ourselves as a purely biological species in the technological environment we have created. His response to this was to unfold in a radically new evolutionary direction, embracing evolving technology. Stelarc attached a robotic Third Hand to the suspended body in order to extend his body beyond its own capability.

The Third Hand, a human-like robotic manipulator, was made to the dimensions of the real right hand. As prosthesis, the Third Hand was attached to the right arm as an extra hand, as an addition rather than a substitution. Capable of independent motion, the hand could pinch, grasp, release and rotate its wrist 290-degrees in either direction. Capable of independent motion, this dexterous robotic manipulator was activated by the EMG (electromyogram) signals from the muscles in Stelarc's abdomen and thigh muscles. Electrodes positioned on the four muscle sites provided the control signals (Stelarc 1994) even though Stelarc stated that he would prefer to have the electrodes surgically implanted (Carr 1993a:11).

With the addition of the prosthesis, Stelarc changed the body-technology relationship by transforming the suspended body into a manipulator of technology. But the body is still suspended and the body-technology symbiosis remains unable to function in any way as a normal bipedal human. When the body and the prosthesis are unhooked and positioned upright, they become the antithesis of the vulnerable suspended body having the appearance of an extended technologised cyborg.

Historically, prostheses have been regarded as artificial body parts intended to restore the functions of a missing body part and have been

the source of many technological innovations, from wooden peg legs to legs for athletics modelled on the biomechanics of animals (Shilling 2005:175). The primary aim of the prosthetist was to make a worker as economically productive and as efficient as possible by creating an artificial limb which could restore the worker's productivity. Although artificial limbs primarily reflected the anxieties associated with the damaged male body, subsequent developments in prostheses made it possible for women who had undergone a mastectomy to appear normal with the use of silicone gel implants (Shilling 2005:181-183).

But the addition of a prosthesis as used in the Third Hand is not meant to replace a missing body part, it is meant to transcend the limits imposed by a body that has only two arms. The boundaries of the organic mortal body are now extended with this prosthesis, into technology. This cyborg, a combination of machine and organism, body and technology, regards the prosthesis not as a substitution for a missing limb, but as an addition to its functioning ability.

2.7 Initiated cyborg: evolving the posthuman

> "Altering the architecture of the body results in adjusting and extending its awareness of the world" (Stelarc 2000:562).

In the performance by Stelarc called *Split Body: Voltage In / Voltage Out*, (1995) (fig 7) the body/technology interrelationship is presented as one of dynamic flux as technology becomes an extension to the body, and the body becomes the source of technology. In this event, Stelarc walked onto the stage and was helped into a series of electrodes that connected him by means of wires to the computer. On his right arm was attached the Third Hand as described in the previous performance. An assistant started the computer program which caused the left side of the body to move. The robotic arm closely followed this movement. The computer operator, by pressing icons on a touch-screen which was connected to a muscle stimulation system, produced a random set of left-

side movements (Massumi 2005:165). The robotic Third Hand, however, was wired to the right side leg and stomach muscles and was controlled by Stelarc who made it move with these muscles in symphony with the electronically controlled left side. The body was split into two: voltage in, and voltage out. Electricity was transduced by the body into organic movement, and organic movement was transduced back into the mechanical Third Hand. The performance was accompanied by sound effects relayed from electrical impulses picked up from the brain, the movement of the muscles and the flow of blood through the body (Massumi 2005:166). This performance was described by Massumi as the body being "made into a literal transducer – relaying between artificial and natural intelligence, human will and programmed motion, organic and mechanical movement, electrical magnetic force and organomechanical force" (Massumi 2005:166).

This development in Stelarc's performance art was evidence of a shift from the purely organic suspensions through the attachment of the prosthetic Third Hand to the creation of a true cyborg which fused man and technology. The cyborg was no longer an autonomous bionic construction consisting of a prosthesis with biological body fusion, but had shifted into incorporating digital information as an integral component of its construction. Confirming this, Hayles says that "central to the construction of the cyborg are informational pathways connecting the organic body to its prosthetic extensions" (1999a:2).

Effectively, Stelarc enabled the human body to embrace technology thereby altering its physicality. This has involved physical substitution of extensions and enhancements to increase the capacities and possibilities of our bodies. Living in an environment in which technology and electronics have become an integral part of our existence has also brought with it shifts in the way we do things, the way we perceive things and the way that we experience our world.

Experiments in the combination of electronics and the human brain are underway in various institutions around the world. Devices have been developed that give humans the ability to communicate by moving a cursor on a screen using sheer brainpower and scientists are developing neurological tools that may eventually enable paralysed patients to flex mechanical limbs, steer a motorised wheelchair and operate robots that respond to their needs. There are even experiments to create machines that are able to act out the intentions of patients who are unable to move, allowing them to communicate their feelings, such as their pleasure at seeing a visitor. These preliminary brain-computer interfaces or BCIs could link patients' fully functional brains to the outside world (Brownlee 2005).

These experiments show the increasingly sophisticated relationship between biological capabilities and technological evolutions. In the same way, Stelarc performs using his body as transducer by relaying the force of electricity into, through, and outside of his body, challenging its boundaries and making the human body a source of technological intervention.

As informational pathways become central to the construction of the cyborg, they provide it with a source of technology that seeks to extend itself beyond the current constraints, beyond the confines of a single computer within a local space. In 1995, Stelarc in *Fractal Flesh, An Internet Body Upload Performance*[26] (1995) (fig 8) extended his body, via the Internet into three remote locations, Paris, Helsinki and Amsterdam. In order to do this, Stelarc's performance required a dedicated network of modem-linked computers because the World Wide Web was, at that time, regarded as "in practice still too slow" (Massumi 2005:170).

[26] Stelarc, *Fractal Flesh, An Internet Body Upload Performance* (1995). Telepolis, Luxembourg (Stelarc:1994).

The body and Third Hand were positioned in Luxembourg and were wired up to a six-channel muscle-stimulator that controlled the left side of the body, the deltoids, biceps, flexors, thigh and calf muscles. In Paris, Helsinki and Amsterdam “other bodies” gathered at the specially networked terminals to remotely control the body’s movements. Each remote computer screen illustrated the places where the electrodes were connected to Stelarc’s body. As the left side of the body was moved by these “other bodies” touching the remote computer screens at the remote locations, 0-60 volts of electricity activated tilt sensors on the head, arms and legs which triggered signals and sounds that converted the body into a video switcher. The remote “other bodies” not only moved the body but also inadvertently composed the sound sequences and the video mixing of images that were transmitted back to them (Stelarc 1994).

Effectively, what was presented was an intimacy without proximity. Removed from the close confines of a single space, the “other bodies” performed within a relational feedback loop with the artist. As they were visible to the artist on video screens, the “other bodies” became an integral component of the performance, making them both remote and intimate at the same time. The collective audience touched Stelarc’s body as presented on the computer screen and this reflects Marshall McLuhan’s observation of his time which states: “Today after more than a century of electric technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet is concerned” (1964:3).

In 1995, some 30 years later, Stelarc metaphorically enacted McLuhan’s claim by connecting himself via electrodes into the dedicated World Wide Web performance. Stelarc’s performance is made up of the extension and projection of his inner nervous system outwards via informational pathways, beyond the limitations of the body into a reactive loop with other bodies. *Fractal Flesh, An Internet Body Upload Performance* (1995) (fig 8) confirms McLuhan’s belief that “[i]n the electric

age, when our central nervous system is technologically extended to involve us in the whole of mankind and to incorporate the whole of mankind in us, we necessarily participate, in depth, in the consequences of our every action" (McLuhan 1964:4-5). McLuhan writes that it is the principal aspect of the electric age that establishes a global network that has much of the character of our central nervous system. But our central nervous system is not merely an electric network, the brain is the interactive place where all kinds of impressions and experiences can be exchanged and translated, enabling us to react to the world in our own individual ways (1964:380).

In the performance of *Fractal Flesh, An Internet Body Upload Performance* (1995) (fig 8), Stelarc's internal nervous system comes together with the global external nervous system forming a single system containing many parts. This fusion of organism and technology demonstrates the developing cyborg that extends beyond its own constraints and transcends itself as hybrid across space and time. Stelarc, as an evolutionary guide to the future, describes what he imagines a cyborg to be: a multiplicity of bodies spatially separated but electronically connected to other bodies in other places with the Internet as a crude external nervous system. Constructed in this way, a cyborg becomes an extended operational system of collaborating parts (Melanitis 1999). This space of intense interaction and feedback which emerges between biological organisms and intelligent machines is experienced daily in the more prosaic electronically mediated mergings that we perform when we answer our cellphones, use our credit cards and log on to the Internet to exchange e-mails, speak in chat rooms and gaming rooms and play in multi-user dungeons (MUDS). Space and time have been bridged by the mere click of a mouse, and have become webs of personal interactions pulsating through cyberspace. The organically constructed nervous system has extended itself beyond the confines of the biological body and has experienced communal and communicational possibilities previously unknown.

2.8 Virtuality: projected “extended” body

“Virtual transmission” (Massumi 2005:168).

Whereas *Fractal Flesh, An Internet Body Upload Performance* (1995) (fig 8) needed a dedicated network of modem-linked computers, touch screens and the intervention of “other bodies” to complete the performance, *Ping Body an Internet Actuated Performance* (1996) (fig 9) demonstrated the effects of electronic technology on the organic body with no human intervention. As the Internet infrastructure rapidly extended globally, Stelarc in his performance of *Ping Body an Internet Actuated Performance* (1996) (fig 10) uses the force of Internet activity, the external ebb and flow of data to stimulate the body’s proprioception and musculature. In this case, the body was not moved by its internal nervous system but by the intervention of “ping” which is a program that allows users to determine how fast networks are handling information. The name originates from the Unix “ping” command which measures the echo time for a signal to return from a remote computer to a local computer.

With the machine connected to the body randomly “pinging” to over 40 Internet domains during the performance and measuring the reverberating signals, it was possible to map these signals to the body’s muscles with the Muscle-Stimulation System, directing the returning 0-60 volts to the body. This caused the muscles to move in an involuntary “data dance” which became a barometer of Internet activity as the ping data was transduced as electrical shocks. The larger the ping value, indicating a greater Net activity, the more the limbs were activated. The arms and legs also had sensors attached that produced sounds reflecting the position of the arms and legs by using their bending and velocity. The performance was based on activity produced by the Internet which was used to compose and choreograph the performance. The Internet became not merely a mode of information transmission, but also a transducer of physical action (Stelarc 1994).

Stelarc described his performance as “a kind of synergistic symbiosis” which caused him to lose a sense of self and become just a body which was part of the operating system (Melanitis 1999). Confirming Stelarc’s claims that “*information is the prosthesis that props up the obsolete body*” (Stelarc 2000:561) (italics mine), *Ping Body an Internet Actuated Performance* (1996) (fig 10) finds the body “profoundly obsolete in the intense information environment it has created” (Stelarc 1994). This performance has shown that the body can become a vessel which can take in external information and react to it. The body “obsolete” can be literally plugged into the Internet and with the Third Hand attached, emerges as cyborg amalgamated into cyberspace[27] and consequently it emerges as posthuman.

N Katherine Hayles in “The condition of virtuality” (1999b) defines “virtuality” as “material objects [that] are interpenetrated by informational patterns” (1999b:69). This definition expresses a Cartesian duality which consists, not of mind and body, but of matter on one side and information on the other. Hayles explains the difference between matter and information as a historical construction that emerged in the wake of World War II when the theorist Claude Shannon defined a mathematical quantity he called information. Shannon’s definition of information as a *pattern* rather than a *presence* supported the distinction between matter and information that was becoming central in molecular biology during this same period. Richard Doyle in his analysis of the discourse of molecular biology shows that the gene contains the original informational pattern that produces the body, even though the gene is contained within the body and not outside of it. This “impossible inversion” as Doyle calls it, was used by Richard Dawkins in his famous book *The Selfish Gene*

[27] Shilling (2005:174) refers to William Gibson’s book *Neuromancer* (1984) (New York: Ace) in which Cyberspace has been described as a ‘consensual hallucination’, which is the broad term that refers to computer or electronically mediated communications which generate virtual places in which information is accessed and people can interact without having to be physically co-present with others.

(1976). Dawkins said that the genes are “informational agents that control the ‘lumbering robots’ called human beings” and that “informational pattern triumphs over the body’s materiality – a pattern achieved first by distinguishing between pattern and materiality and then by privileging pattern over materiality”. This privileging of pattern or information over materiality meant that information was free-floating, unaffected by changes in context. This emerged as constructed informational virtuality (Hayles 1999b:69-74).

Weiner in *The human use of human beings: cybernetics and society* (1954) explains that a pattern is a message, and therefore it may be transmitted as sound or light in a radio or television, for instance. Weiner then considers what would happen if “we were to transmit the whole pattern of the human body, of the human brain with its memories and cross connections, so that a hypothetical receiving instrument could re-embody these messages in appropriate matter, capable of continuing the processes already in the body and the mind” (1954:95-96). Hayles describes how Moravec argues that human beings are essentially informational patterns rather than bodily presences. The proposal implies that a human being is a message instantiated within a biological substrate but not intrinsic to it. Extract the information from the medium, and there is a pattern that can be encoded and reconstituted in another medium. Information, therefore, is conceived as pattern divorced from a material medium and which is therefore free to travel across time and space. The idea of telegraphing a person in the 1950s as envisaged by Weiner had, by the 1990s, achieved the status of a cultural icon. “Beam me up Scotty” as quoted by Hayles, reflects the same operation but with different “imaginary” technology (1999b:75).

Separating information from material is an alignment with the Cartesian body-mind dualism. The belief that an immaterial essence, which is the individual’s true nature, can be extracted from its material instantiation and can live free from that body, reflects a much older and

more traditional duality, that of spirit and matter which assigns a soul to the human being. The matter/information duality as outlined creates the human being from patterns of information (Hayles 1999b:73).

The *Ping Body an Internet Actuated Performance* (1996) (fig 9) allows for the transcendence of the material body; not by traditional religious beliefs but by technology. Technology has made it possible to leave the body behind and transcend beyond its corporeal limitations. *Ping Body an Internet Actuated Performance* (1996) (fig 10) has shown that technology has enabled a qualitative leap in the evolutionary process of the human being by incorporating the biological body with disembodied intelligence found in the space of virtual reality, and extending it as the posthuman. Virtual reality makes it possible for the "self" through technical interventions to enter and leave the world of cyberspace as a disembodied prosthesis, as an "extended" body. In *Ping Body an Internet Actuated Performance* (1996) (fig 10), the body is once more suspended, but now through the external electronic nervous system of the Internet. It defies once more the force of gravity and extends itself beyond the "obsolete" body into a realm that seeks to overcome death and mortality, into the realm of virtuality.

The word "virtual" means: almost, but not the actual thing[28]. Historically, the notion of the virtual has long been culturally significant, existing in the form of rituals and in the built form of architectural fantasies, simulations and environments. Rob Shields outlines in *The*

[28] The 'virtual' is defined by the Oxford English Dictionary as: "Anything that is so in essence or effect, although not formally or actually; admitting of being called by the name so far as the effect or result is concerned" (Shields 2003:2). Rob Shields explains how debates arose during the Reformation concerning the mystical transubstantiation of the Christian Eucharist – the conversion of bread and wine into the body and blood of Christ. The Church insisted on the "actually real, material body and blood", whereas the Reformation theologians argued for "virtually real". As religious debates continued, the doctrine of 'Virtualism' raised questions concerning the way presence was understood – must it be concrete and embodied or was "essentially present" good enough? Was there anything there if it was virtual? (Shields 2003:5-6).

virtual (2003) that the elaborate virtual environments found in the interior decoration of churches, would be another historical era celebrating the virtual. Baroque architecture and decoration created dramatic spaces of swirling movements in paint, plaster, and marble. Religious Baroque church ceilings with their scenes of heavenly delights were designed to draw the viewer into a space which allowed them to transcend the temporal world but at the same time reminded him/her that he/she was a "fallen mortal". In Cartesian terms, the mind and the soul could escape the daily grind but the body was the dead weight which pulled the mortal back to earth (Shields 2003:7-8).

These religious virtual environments separated the mind and the body into the virtual and the material which in religious terms denotes the soul and the flesh. There is a difference between the religious philosophy that assigns a soul which transcends the human body and the technology that merely requires a computer interface to transcend the boundaries of the body. In the religious context of the virtual, the soul reaches out to communicate with a higher spiritual being, whereas in the technologically enhanced space of virtual reality, the body aspires to communicate with cyberspace. Whereas the traditional religious beliefs have spiritual meaning for many people, the virtual spaces of technology make it possible to leave the corporeal behind and enter a new kind of space where transcendence means, not God, but the electronic space of virtual reality.

Technology has provided prostheses as substitutes for the real. Virtual reality is the promise of an ideal world not unlike "heaven" where we can enter and leave at will, where we become our own creators and can control our own existence. Technological virtual reality seems to make possible a world that bypasses the mortality of the body.

In *Ping Body an Internet Actuated Performance* (1996) (fig 9), Stelarc presents computer interfaces and informational technologies as

the means to leave the body behind and emphasise the virtual human-as-information which can occupy a disembodied space. Technology becomes the force that makes it possible to project the “inner space” of the body into an “outer space” thereby becoming a prosthesis. In *Ping Body an Internet Actuated Performance* (1996) (fig 10) the visible boundary of the flesh is reconstructed and not pierced as in the suspension events, but the embodiment of the subject transcends the inner space and is projected into an outer space, detaching itself from the mortal body. The body thus transcends itself through the disembodied prosthesis.

In this way, the computer user becomes the creator of his/her own existence, and can choose to be projected as any gender, class, race or age. Social and cultural norms can be changed and rechanged at will. In the context of the virtual environment, the projected prosthesis questions the relationship between the human body and the chosen “virtual” identity and it becomes clear that this relationship can no longer be taken for granted. A new type of relationship is constructed between the traditional body/self and the new disembodied transformed self of virtual reality.

This new relationship between the body and virtual reality is illustrated by the creation of “Julie”. Allucquere Rosanne Stone, cultural theorist, emblematic transsexual and cyber theorist/performer wrote “Will the real body please stand up? Boundary stories about virtual cultures”, where he/she described Julie, a totally disabled woman who could only communicate by pushing the keys of a computer with her headstick. In 1985 Julie, on a computer conference in New York, projected her personality onto the Internet as extroverted and her warm greeting of “Hi!” gave the impression of a person who had a natural affinity with other women. Her disability became invisible and irrelevant. In her intimate electronic relationships with women whom she had never met, they shared their deepest thoughts. Julie, trapped inside her ruined body,

sharp and perceptive, thoughtful and caring, offered them advice that changed their lives.

After several years, Stone describes how something happened that shocked the conference to the core. It was revealed that “Julie” did not exist. “She” was a middle aged male psychiatrist who, whilst logging on for the first time, had accidentally begun a discussion with a woman who mistook him for a woman. “I was stunned” he had later said. He had explained that he “hadn’t known that women talked amongst themselves that way. There was so much vulnerability, so much depth and complexity. Men’s conversations on the Nets were much more guarded and superficial, even among intimates. It was fascinating, and I wanted more.” Spending weeks he developed the “right persona” which was that of a totally disabled single older woman who would not be expected to have a social life. Her existence only as a Net *persona* would therefore seem natural. “Julie” worked this way for several years until one of her admirers tracked her down in the hope of meeting her in person. As the news of “Julie’s” unmasking was uncovered, the news spread through the Net. Reactions, as Stone records, ranged from humorous resignation to blind rage. Most deeply affected were those women who had shared their innermost feelings with Julie. It is reported that one said, “I felt raped. I felt that my deepest feelings had been violated”. Several felt that the progress they had made in their personal and emotional lives had been predicated on deceit and trickery (2000:505).

“Julie” is an example of a relationship between a personality created by the Internet, a “virtual *persona*” and actual human beings. Race, gender, and social standing are no longer confined to an actual person but can be virtually created to occupy a space which transcends beyond the boundary of the corporeal body by computer technology.

2.9 Biotechnology: “living” prosthesis

Early in his career Stelarc said that “[t]he 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” (Clarke 2005:210). For almost six years after *Ping Body an Internet Actuated Performance* (1996) (fig 10), Stelarc pursued his next evolutionary step. Not merely a cosmetic modification or anatomical adjustment to the existing body structure (Stelarc 1994), Stelarc pursued a “living” prosthesis to the body. The development of *Extra Ear ¼ Scale* (2003) (fig 11) using tissue engineering techniques was the result.

Stelarc, together with the Tissue Culture and Art (TCA) project hosted by SymbioticA, in collaboration with a German laboratory, grew a tissue-engineered ear, a semi-live entity which he hoped would one day be attached to his arm as an example of a new kind of attachment or extension to the body, a partial life form, partly constructed and partly grown, a soft prosthesis. The ear was cultured using Stelarc’s cells combined with a donor’s human cells in a rotating microgravity bioreactor that kept the nutrients washing over the ear and allowed the cells to grow (Smith 2005b:240). This prosthesis could be regarded as “flesh of my flesh” and is projected as a possibility by Stelarc in *Ear on an Arm Visualization* (2003) (fig 12).

Stelarc chose an ear because he believes that an ear is a “beautiful and complex structure”, and that an ear “not only hears but is also the organ of balance (Stelarc 2000:563). The ear hears by collecting soundwaves from the external environment around the body and then transmits these soundwaves to the eardrum to be transferred into nerve impulses to the brain.

In *Ping Body an Internet Actuated Performance* (1996) (fig 9), information technology extended the nervous system into a virtual

prosthesis. In this performance, in contrast, Stelarc does not project his nervous system and internal organs outwards into the virtual nervous system of the Internet and cyberspace but *Extra Ear ¼ Scale* (2003) (fig 11 and 12) challenges the balance between the organic and technology. This performance shows that living tissue can be sustained, grown and is able to function outside the body, as life would be created outside the uterus. *Extra Ear ¼ Scale* (2003) (fig 11) shows the increasing ability to manipulate living systems that have been enabled by advances in biotechnology, genetic engineering, *in vitro* fertilisation and transplant surgery. These developments have all made possible the reconstruction, replacement or formation of living organisms. *Extra Ear ¼ Scale* (2003) (fig 11 and 12), rather than the replacing of a missing limb or organ, acts as an addition to the body by altering its organic structure. *Extra Ear ¼ Scale* (2003) (fig 11 and 12) can never be able to replicate the original function of an ear but Stelarc, in a new development, has spoken of inserting a chip into the ear that would create an additional bodily function.

Extra Ear ¼ Scale (2003) (fig 11) focuses attention on the notion of creating life. Orlan Catts, who leads the TCA team, makes reference to the "most striking images of the late 20th Century – that of the ear on the back of a mouse" (Sandhana [S.a.]). The ear on a mouse is grown as replacement parts to treat victims of disease or accident, whereas Stelarc's *Extra Ear ¼ Scale* (2003) (fig 11) is grown from the desire to transcend the corporeal body. But the prosthesis as partial life form points back to the importance of the body. Virtual reality presents the hope of existing beyond the mortal body, whereas *Extra Ear ¼ Scale* (2003) (fig 11 and 12) presents the reality of the flesh but offers us the possibility to become our own creators and extend our mortal life.

The body, no matter how transformed through prosthesis, virtual reality or biotechnology, never seems to escape the state of "obsolescence", according to Stelarc. This state of obsolescence is the motivating factor that makes Stelarc seek the technologised body as the

source of its own transcendence. Evidence of this is seen as the selected artworks of Stelarc are seen in chronological order. These artworks have positioned the body both as “obsolete” in the technological environment it has created and also as the source of its own transcendence. As technology has advanced, so Stelarc has used it to further prove his point that boundaries can be challenged and broken through.

Throughout this chapter there has been the developing emergence of the mechanical prosthesis as an addition to the body, making the body closer to what is classified as a cyborg. Reacting to electrodes and the Internet, the body emerged as the cybernetic hybrid which was able to embrace electronic communication structures that bridged space and time. As information technology developed, the body was able to extend itself as a virtual prosthesis, as posthuman, into cyberspace, just as the spirit desired in Western religion to transcend itself into an afterlife in “heaven”. Virtuality has enabled the body to be left behind in a space where the material body is not needed but it becomes obvious that it is impossible to leave the body behind totally. The self always has to return back to itself, the body returns to its own “flesh” and Stelarc becomes Stelarc once more.

Chapter Three: Reclaiming the body

Chapter Two positioned the body as a bounded "obsolete" "object" whose boundaries were altered, extended, redesigned and transcended by technological advancements. Living in an environment in which technology and electronics have become an integral part of our existence has brought about changes in embodied and disembodied experiences. The Cartesian notion[29] of separating the mind from the body and placing the mind in a superior position above the body has influenced the concept of virtuality. Virtuality, as the construct which privileges pattern or information over materiality, has emerged as the belief or digital fantasy that an immaterial essence, the individual's true nature, can live free from the material body. Technical intervention has made it possible for the immaterial "self" to transcend the boundaries of the material body into cyberspace.

Acknowledging that evolving technology has moved the body to incorporate the cyborg and/or the posthuman, I will in this chapter reclaim the "obsolete" body as the lived, experiential body by exploring the importance of the body's corporeality and embodiment as necessary to exist within and make sense of our surrounding world. I will position Stelarc against himself by exploring the contradiction that exists between Stelarc's performances and his rhetoric. To verify my argument I will substantiate the importance of the body's corporeality as outlined by theorists and researchers within the fields of philosophy, Artificial Intelligence (AI), and neuroscience. I will use the work of Simon Penny, Hubert L Dreyfus, and Antonio Damasio who all reflect Merleau-Ponty's phenomenology that contests the logic of Cartesianism.

[29] Cottingham references Descartes: "The thinking thing that is 'me' is 'really distinct from the body and can exist without it'" ("Cottingham" 1992a:236).

3.1 The importance of the body marginalised

Before reclaiming the obsolete body I need to briefly show why the desire to claim the body as obsolete in the hope of transcending this obsolete body, is so appealing. This negative view of the physical flesh dominant in Western thought can, as Shilling says, be traced as far back as ancient Greece. Socrates argued that lasting happiness came not from the "perishable" body but through the "immortal soul". Shilling agrees with Socrates by saying that "Greek ethics held that the soul's aspirations should be guided by a self-control termed 'healthy thinking' which opposed itself to the inevitable 'sufferings' of the bodily instincts and emotions" (2005:7-8). Christianity, moving on from Greek ethics, has given meaning to the striving for transcendence by raising the spiritual above the corporeal. Christians live by the belief in the abstract concept of the life everlasting in the world to come. Thus the importance of the body was marginalised by the suggestion that it was the mind that made us truly human.

Elizabeth Grosz in *Volatile bodies: toward a corporeal feminism* (1994) also notes that some of the key features we have inherited in our current conception of the body can be traced to the fact that the body has been regarded as a source of interference in, and a danger to, the operation of reason. Grosz relates how Plato sees the body as a prison for the soul, reason, or mind. For Plato, it was evident that reason should rule over the body and over the irrational functions of the soul. Grosz outlines how Descartes, by extending Greek philosophy, not only enforced the idea of the separation of the mind from the body, but also the separation of soul from nature. Descartes distinguished two kinds of substances: mind (*res cogitans*) from an extended substance body (*res extensa*). Only the latter, he believed, could be considered part of nature, governed by its physical laws and ontological exigencies. The body as a self-moving machine, a mechanical device, in his view, functions according to causal laws and the laws of nature. The mind, the thinking substance, the soul or consciousness, has no place in the natural world.

Grosz concludes that this exclusion of the soul from nature, this evacuation of consciousness from the world, is the prerequisite for the founding of a science of the governing principles of nature, a science which excludes and is indifferent to, considerations of the subject. Descartes succeeded in placing the mind in a position of hierarchical superiority over and above nature, including the nature of the body. The subject or consciousness is separated from and can therefore reflect on the world of the body, objects, and material qualities (Grosz 1994:5-6). Descartes instituted a dualism which, up to the present time, still exerts intellectual influences.

Antonio R. Damasio, a professor of neurology at the University of Iowa College of Medicine, points out that, by the middle of the twentieth century, the Cartesian idea of a disembodied mind seems to have been the source for the metaphor of mind as a software program which is run in a piece of computer hardware called “the brain”. The same Cartesian disembodiment may also be behind the thinking of neuroscientists who insist that the mind can be fully explained solely in terms of brain events, leaving by the wayside the rest of the organism and the surrounding physical and social environment.

Damasio points out that the disembodied mind seems to have shaped the way Western medicine approaches the study and treatment of diseases. The Cartesian split pervades both research and practice, resulting in the fact that the psychological consequences of diseases are usually ignored in favour of the so-called real diseases of the body. Also neglected, says Damasio, is the reverse, the body-proper effects of psychological illnesses (1994:250-251). For the past three centuries, the aim of biological studies and of medicine has been the understanding of the physiology and pathology of the body proper. The mind, according to Damasio, was largely left as a concern for religion and philosophy, and even when it later became the focus of the discipline of psychology, it still did not gain entry into the fields of biology and medicine (1994:255).

3.2 Stelarc's contradiction: the body's affective materiality

Stelarc, in unyielding Cartesian rhetoric, claims "*the body is obsolete*" (italics mine). In this chapter, I want to call attention to the body's affective materiality and in doing so, demonstrate that his claims are often contradictory to his performances. Stelarc, in no uncertain terms, performs with the "body". It is the body that is suspended, extended, penetrated, shocked, in pain and bleeding and it remains the focal point of his performances. Stelarc's utopian desire for bodily transcendence is belied by the evidence of his work. His explicit statement that calls directly for the transcendence of the human body: "My events are involved with transcending normal human parameters, including pain" (quote in Jones 2005:89), contradicts his bodily experiences of pain. Comparing his pain to that of a woman in childbirth, Stelarc says: "A woman goes through tremendous pain to give birth and it's worth it. I identify with that. The pain is inevitable" (quote in Jones 2005:97). This points to Stelarc's acknowledgement of physical pain. Likewise, it is this pain, this sensation of self-inflicted pain and the automatic response to this perception of pain that provokes a response from the spectator, even if it is an empathetic identification. It is in anticipation of this pain, that a personal, visceral and affective response is generated from the act of Stelarc's performance. It is this response that provides the performance with the power to provoke new ways of thinking about the body and embodiment. If there were no sensation of pain in Stelarc's performances, they would not provoke the same response from an audience. This is a direct contradiction with Stelarc's theory of obsolescence. By reconciling and comparing his self-inflicted pain in art-making to the natural process of a woman giving birth, he clearly emphasises the body as corporeal, embodied and capable of feelings and suffering.

It is my contention that Stelarc's visceral performances and the obvious materiality of his body, contradict his rhetoric. The body refuses to disappear or to become obsolete as Stelarc claims. The body performance which leaves it pierced, bleeding, invaded, shocked, feeling

and perceiving rather than questioning its obsolescence, I believe, questions its anxieties about mortality.

In the performance *Hollow Body / Host Space: Stomach Sculpture* (1993) (fig 13), Stelarc says that "*the hollow body becomes a host, not for a self or a soul, but simply for a sculpture*" (italics mine) (Stelarc 2000:565). In order to illustrate his theory of the "hollow" body, he designed a sculpture which would penetrate the boundaries of the body. With the assistance of a jeweller and a microsurgery instrument maker, a capsule structure that would transform itself by extending in size once inside the stomach, was designed. The closed capsule with a beeping sound and flashing light was inserted down the oesophagus and approximately 40cm into the stomach by means of a flexidrive cable attached to a control box outside the body (Stelarc 1994). Documenting the whole performance using video endoscopy equipment, the "hollow" body ironically had a problem with excess saliva and the probes had to be hastily removed on several occasions (Atzori & Woolford 1995). Viewing the gleaming stomach walls and its contents moving about on a video screen, this work displays the internal body as vulnerable and wet, porous and enmeshed in the flesh of this world rather than a hollow construction. This is confirmed by the microfilm image of the inside of the artist's stomach (1973) (fig 14). Once again, Stelarc contradicts his own theory.

In contrast to Stelarc's statement that he strives "to hollow, harden and dehydrate the body to make it more durable and less vulnerable" (Stelarc 1994), the British-Palestinian artist Mona Hatoum engages the body as corporeal, wet and mortal, by questioning the boundaries between interior and exterior within the dualistic logic of the Cartesian thought that differentiates the body from the self. In her 1994 project

Corps Étranger [Foreign Body and Strange Body] [30] Hatoum makes use of arthroscopic photography and ultrasound to make visible the wet, swilling folds of the body's interior, revelling in its viscosity. Amelia Jones describes the video footage imagery as "… viscous, tunnelling, wet, pulsating …" (2005:108).

In Hatoum's installation, the viewer enters a small circular white booth to loom over a 5 foot circular screen built into the floor. Accompanied by the eerie sounds of the body's internal workings, the pulsating rhythms of Hatoum's breath, heartbeat, and gurgling viscera, the video footage of the arthroscopic camera moves across the body's surfaces and penetrates all the orifices and passageways. At one point it is oesophageal, at another nasal, at another it shows the smooth surface of the stomach. It moves from arm to head to throat, through intestines, anus and the vaginal cavity (Jones 2005:108).

Art historian Christine Ross describes the most disturbing images of *Corps Étranger* as those that show the visceral body scanned by the endoscope and coloscope. The body's deep cavities are illuminated and examined by the camera in its probing search for orifices, moving deeper and deeper, as if compelled to go on blindly without beginning or end, re-emerging and then seeking elsewhere. Ross describes how viewers feel themselves absorbed by what they are so intently looking at, as if they themselves were being pulled down into the profound darkness of the body's cavities (Ross 2003:516-517).

Hatoum, by merging interior and exterior, draws us in through an identification with the flesh that points to the impossibility of identifying with the body as transcendent. The body in her work is seen as organic

[30] Mona Hatoum, *Corps Étranger [Foreign Body and Strange Body]* (1994). Centre Georges Pompidou Musée national d'art modern. *Corps Étranger* was originally produced for a 1994 exhibition at the Centre Georges Pompidou's Musée national d'art moderne, and was subsequently shown at the Venice Biennale and at the Tate Gallery in an exhibition entitled *Rites of Passage* ("Ross" 2003:516).

and mortal. The flow of bodily fluids exposes the vulnerability of human existence.

Another powerful counterexample to Stelarc's "obsolete" "Hollow Body" is Orlan's suffering body. Orlan, the French body artist, has plastic surgeons cut into the flesh of her face, lifting the skin to reconfigure its contours while she is completely awake but numbed by local anaesthetics. Through these performances, for instance, *Omnipresence* (1993)[31], which are carefully staged in operating rooms, Orlan performs the "brute, bloody, there-ness" of the body (Jones 1998:227). Orlan does not transcend the bloody flesh of her body, she rather points to the fact that plastic surgery, the piercing and cutting of the skin, rather than allowing us to gain control over our bodies, emphasises our subordination to their vulnerabilities and mortality. Jones concurs by saying that "Orlan returns us to the inexorable corporeality of the self" (1998:227-228).

Orlan, by having her skin peeled away from her body, "strips away the ideological assumptions underpinning the notion of the Cartesian subject (that this subject is pure interiority, her body simply a container that can be transcended through thought)" (Jones 1998:227). Both Orlan and Hatoum's artworks confuse the boundaries between interior and exterior, those boundaries that differentiate the body from the self within, the seat of the dualistic logic of Cartesian thought. Hatoum and Orlan portray art as a performance that is premised on bodily knowledge which implicitly contradicts the mind/body duality and therefore contradicts Stelarc's theory of transcendence.

3.3 Reclaiming the "obsolete" body

Technotheorist Simon Penny points to recent neurological research that places his argument against the mind and body dualism that

[31] Orlan, *Omnipresence* (1993). Sandra Gering Gallery, New York. Performed in a carefully staged operating room and projected by video around the world through satellite relay (Jones 1998:227).

privileges the abstract and transcendent over the embodied and concrete. Pointing to recent neurological research that has shown that the stomach is far more neurally complex than has been supposed[32], Penny questions why we believe that consciousness is exclusively located in the brain, when we place so much faith in our "gut feelings" and other bodily responses (1997:34).

Penny describes that early in embryogenesis, a formation called the "neural crest" splits. Half forms the brain and the spinal cord, and the other half becomes the nervous system of the gut. Under the strong influence of the Cartesian thought, it was presumed in medical science that the gut, like the rest of the body, was a "kind of meat puppet, a slave of the master brain" (Penny 1997:35). The entire intestine is sheathed in two concentric sleeves of neural tissue, isolated with an equivalent of the blood / brain barrier which has over one hundred million neurons (many more than the spinal cord) (Penny 1997:35).[33] Penny believes that if the gut were wired to a PET scan machine, we would find that it had a form of consciousness, or neural activity. He concludes that although the revelations of recent neurophysiology leave no doubt that the multiple organs of the brain interpret sense data, formulate concepts and leave traces from which memories are reconstructed, this does not mean we should necessarily subordinate the body's consciousness to that of the brain (Penny 1997:35).

Penny's position is supported by Hubert L Dreyfus who maintains that we have a "human mind by virtue of having a human body" (Dreyfus in Penny 1997:34)[34]. Penny observes that long before the era of

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[32] Penny refers to research done by Terrence Powley et al, at Purdue University, reported in *Discover*, May 1995.
[33] Penny refers to "Complex and Hidden Brain in the Gut," *New York Times* in January 1996.
[34] Dreyfus, as one of the first researchers to enter into AI discourse, has since 1965, claimed the importance of the body within the field of AI and within the field of epistemology.

European transoceanic exploration, Polynesians in wooden canoes were successfully navigating vast distances between the tiny islands that lie in the Pacific. It is said that they could, without compass, sextant or chronometer, sense the location of islands over the horizon by the effect of the ocean swell on their canoes and therefore on their bodies. This kind of intelligence is inseparable from the body and supports Dreyfus' argument that we understand the world through our bodies as well as our minds (Penny 1997:34). Artificial intelligence, Dreyfus believes, is a "machine without a body" and therefore "would never understand the world as we do" (Dreyfus in Penny 1997:34). Penny notes that the limitations of AI also impair the development of basic common sense and motor skills among young children who continuously use computers, video games and watch television. Certain German insurance companies now sponsor summer schools where children are taught the basics of bodily functions such as the fact that open flames can cause burns and pain, and that falling off a bicycle hurts[35] (Penny 1997:36).

Maurice Merleau-Ponty's phenomenology suggests that "our bodies provide us with our 'opening onto' our 'vehicle of being in', and our 'means of communication with' the world" (Shilling 2005:7-8). Merleau-Ponty rejected the idea that bodies could be seen only as objects and consequently he saw bodies as sites of subjectivity and consciousness. Merleau-Ponty believed that the "structure and meaning of the world and the integrity of objects are 'achieved through the medium of body experience'" (Shilling 2005:7-8). Embodied subjects develop purpose and direction on the basis of the practical engagements they have with their surroundings and "through the intentionality they develop as a result of the situatedness of embodied existence"[36] (Shilling 2005:55).

[35]Helen Michaelson, Media Museum, Zentrum feur Kunst and Mediatechnologie, Karlsruhe. Interview, personal notes.
[36] Shilling quotes from Merleau-Ponty, M. 1945. *The Phenomenology of Perception*. 1962. London: Routledge.

Reflecting Merleau-Ponty's phenomenology, a growing number of theorists and researchers within the fields of philosophy, neuroscience, and AI have contested the logic of Cartesianism. In contrast, to the transcendent body, this chapter indicates that we cannot be disembodied beings and choose to leave our bodies behind and live in cyberspace as pure minds free of our messy bodies. Reclaiming the "obsolete" body, the body presented by Dreyfus and Damasio draws attention to the importance of the body as central to our existence.

Emphasising the importance of our bodies in making sense of the world, Dreyfus gives examples of how we acquire skills through bodily involvement and presence. These examples demonstrate how feelings and bodily coping skills are necessary to understand language and to locate ourselves in space, and that the body is central to aspects of imagination, perception and social interaction (Dreyfus 1992:ix-xxviii). In his book *What computers still can't do: a critique of artificial reason* (1992), Dreyfus explains how it is an everyday commonsense understanding of both mind and body which allows us as humans to experience what is relevant to us as we deal with life. The Cartesian dualism of mind and body makes it difficult to process the feelings, interests, motivations and bodily capacities that make up human beings. To separate the mind from the body and build a device that could capture both our humanity and be able to act and learn in our world, is therefore improbable (Dreyfus 1992:ix-xxviii). Contesting the Cartesian mind/body duality, Dreyfus presents recent neuroscientific findings that defend Merleau-Ponty's claim that "our body is not an object for an 'I think', it is a grouping of lived-through meanings that moves towards its equilibrium" (Dreyfus 2005:138-142).

Antonio R. Damasio in his book *Descartes' error: emotion, reason, and the human brain* (1994), presents his research and findings on

Descartes' error[37]. Damasio contests Descartes[38] by relating the error in Descartes' theory of duality. He says that the error is:

> the abysmal separation between body and mind, between the sizable, dimensioned, mechanically operated, infinitely divisible body stuff, on the one hand, and the unsizable, undimensioned, un-pushpullable, nondivisible mind stuff; the suggestion that reasoning, moral judgment, and the suffering that comes from physical pain or emotional upheaval might exist separately from the body. Specifically: the separation of the most refined operations of mind from the structure and operation of a biological organism (Damasio 1994:249-250).

Clinical and experimental work over two decades with a large number of neurological patients (Damasio 1994:xi-xii) has led Damasio to suggest that feelings are a powerful influence on reason, and that the brain systems required by feelings are enmeshed in those needed by reason, and that these systems are interwoven with those that regulate the body (Damasio 1994:246).

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[37] Damasio describes how one could reproach Descartes for having other errors in his theories. Descartes persuaded biologists to adopt clockwork mechanics as a model for life processes (1994:248). Other errors that he made confirm that his theories were unsound. For instance, Descartes believed that heat made blood circulate, and that tiny fine particles of the blood distilled themselves into "animal spirits", which could then move muscles. Damasio states that the mind, brain and body duality notions remain influential even though he discredits them (Damasio 1994:250).

[38] For Damasio the statement which first appeared in the fourth section of Descartes' *Discourse on Method* (1637), in French, and then in the first part of the *Principles of Philosophy* (1644) in Latin ("*Cogito ergo sum*"), taken literally, illustrates precisely the opposite of what Damasio says he believes to be true about the origins of mind and about the relationship between mind and body (1994:248).

Damasio relates how Descartes imagined thinking as an activity quite separate from the body, celebrating the separation of the mind, the "thinking Thing" (*res cogitans*), from the nonthinking body, that which has extension and mechanical parts (*res extensa*) (Damasio 1994:248). Damasio cites Descartes who wrote: " … and remarking that this truth '*I think, therefore I am'* was so certain and so assured that all the most extravagant suppositions brought forward by the sceptics were incapable of shaking it, I came to the conclusion that I would receive it without scruple as the first principle of the Philosophy for which I was seeking".

Descartes clarifies this statement as follows: "From that I knew that I was a substance, the whole essence or nature of which is to think, and that for its existence there is no need of any place, nor does it depend on any material thing; so that this 'me,' that is to say, the soul by which I am what I am, is entirely distinct from body, and is even more easy to know than is the latter; and even if body were not, the soul would not cease to be what it is." Damasio cites Descartes from R Descartes (1637) *The Philosophical Works of Descartes,* rendered into English by Elizabeth S Haldane and G R T Ross, vol. 1, page 101. New York: Cambridge University Press (1970) (Damasio 1994:249).

The facts Damasio presents about feelings and reason, along with those he discusses about the interconnection between brain and body proper, support his idea that

> the comprehensive understanding of the human mind requires an organismic perspective; that not only must the mind move from a nonphysical cogitum to the realm of biological tissue, but it must also be related to a whole organism possessed of integrated body proper and brain and fully interactive with a physical and social environment (Damasio 1994:252).

What Damasio means is that when we, as a whole person, see, hear, touch, taste or smell, the body and the brain participate in the interaction with the environment (1994:224-225).

The whole person which Damasio speaks of is the very “real mental construction” which Damasio calls “self”, and this “self” is based on activities initiated by both the body and the mind. The “self” to Damasio is a continuously reconstructed biological state; it is not “a little person, the infamous homunculus, inside your brain contemplating what is going on” (1994:227).

Stelarc, as a performance artist, obsessively manipulates the brute materiality of the body as artwork. The body performs whilst full of hooks, stretched, bleeding, in pain, with prosthetics added, by being shocked, controlled and controlling, having mechanisms inserted into it and having flesh grown. These manipulations shift our understanding of Stelarc’s work because we begin to understand that the obstinate refusal of the materiality of the corporeal body to disappear in Stelarc’s performances is aligned with the obdurate refusal of the corporeal body to fade into “obsolescence” in our daily living. It is our bodies that allow us to engage with the world around us.

Conclusion

"He thinks of his performances … as a direct 'physical experience of ideas.' In performance, 'expression and experience join,' making the body an 'actual manifestation of a concept'" (Massumi 2005:125).

Since the 1960s, Stelarc has consistently aligned his performances with evolving technology through the medium of performance art. In these performances, his body is yoked with technology and this demonstrates and emphasises the influence of technology on the reality of his body. Through Stelarc's rhetoric and performances, the body is positioned as both obsolete/limited as well as the source of its own transcendence.

Stelarc places the body into unnatural situations that demonstrate the body's limitations in order to prove his claim that "the body is obsolete". The body as suspended becomes the manifestation of its own obsolescence because it has reached its limitations. The technologised body is unable to function normally and becomes unable to fulfill its purpose as a bipedal human body. This proves Stelarc's theory that we have arrived at a point where we cannot effectively adapt ourselves as a purely biological species in the technological environment we have created.

But the outcome is ambiguous. Considering the skin as a boundary of the body, the deliberate breaking and stretching of that boundary becomes the metaphorical act of breaking through boundaries of the body through the use of technology. The technologised body performs both the state of being bounded and the transcending of that boundary, despite the fact that this seems to present a logical contradiction. The suspended body as the transcendence of boundaries makes it therefore the source of its own transcendence. The suspensions reflect the desire to explore the body as extended beyond the limitations of itself as boundary.

Technological developments have contributed to the human experience of expanding the boundaries of its world. There tends to be a certain relational-loop between the body and technology. New technology generates new perceptions, and altered perceptions generate new technologies. Stelarc expresses the interrelationship interactions that emerge between the body and technological advancements.

Embracing evolving technology, Stelarc transforms the “obsolete” body by extending his body beyond it’s own capability by attaching technology to the body in the form of the robotic Third Hand. With the addition of this prosthesis, Stelarc challenges the body-technology relationship by transforming the suspended “bounded” body into a manipulator of technology. The vulnerable suspended body emerges as an extended technologised cyborg. This cyborg, a combination of machine and organism, regards the addition of the prosthesis, not as a substitution for a missing body part, but as an addition to its functioning capability. The boundaries of the organic mortal body are now extended with this prosthesis, into the world of technology.

Stelarc, by enabling the human body to embrace technology and thereby altering its physicality, demonstrates the relational-loop that exists between body and technology. In its own evolutionary process, technological developments have contributed to the human experience of expanding the boundaries of its world. Stelarc’s performance *Split Body: Voltage In / Voltage Out* (1995) (fig 7) demonstrates this body/technology interrelationship and shifts the cyborg from an autonomous bionic organic/mechanical construction into incorporating digital information as an integral component of its construction. Electricity was transduced by the body into organic movement and organic movement was transduced back into the mechanical Third Hand. Stelarc, using his body as transducer by relaying the force of electricity into, through, and outside the body, challenges its boundaries and makes the human body a source of technological intervention.

Living in an environment in which technology and electronics become an integral part of our existence has brought with it shifts in the way we experience the world. As informational pathways become central to the construction of the cyborg, they provide the cyborg with a source of technology that abolishes both space and time. In the performance *Fractal Flesh, An Internet Body Upload Performance* (1995) (fig 8), the networking of computers enables bodies in remote places to communicate intimately with one another. Connecting himself via electrodes into the dedicated World Wide Web, Stelarc's performance is made up of the extension and projection of his inner nervous system outwards, via informational pathways, beyond the limitations of the body into a reactive loop with other bodies. This space of intense interaction and feedback which emerges between biological organisms and intelligent machines is evident in our daily experiences of electronically mediated mergings when we log on to the Internet, exchange e-mails, use our credit cards, and answer our cellphones. The organically constructed nervous system has extended itself beyond the confines of the biological body and experiences communicational possibilities previously unknown.

As the Internet infrastructure rapidly extended itself globally, Stelarc in his performance of *Ping Body an Internet Actuated Performance* (1996) (fig 10) demonstrates the effects of electronic technology on the organic body with no human intervention. This performance metaphorically shows how the human via informational technologies, emerges as posthuman into cyberspace. The Cartesian notion of separating the mind from the body, influences and allows for the transcendence of the material body through the medium of virtual reality. Virtual reality makes it possible for the immaterial "self" through technical interventions to enter and leave the world of cyberspace as a disembodied prosthesis. Technology has made it possible to leave the body behind and transcend beyond its corporeal limitations.

The dynamic interplay that exists between technology and the body enables Stelarc to pursue the evolutionary performance of a "living" prosthesis. Stelarc performs *Extra Ear ¼ Scale* (2003) (fig 11) using tissue engineering techniques. In *Ping Body an Internet Actuated Performance* (1996) (fig 10), information technology extended the nervous system into a "disembodied" virtual prosthesis. In contrast, *Extra Ear ¼ Scale* (2003) (fig 11) shows that living tissue can be grown, sustained and function outside the body, as an organic prosthesis. As the ear not only hears but is an organ of balance, *Extra Ear ¼ Scale* (2003) (fig 12) challenges the balance between technology and the body. It may appear that the digital fantasy of leaving the body behind to exist in a space where the material body is not needed may be possible, but this boundary is challenged by the fact that the material living body cannot be discarded. *Extra Ear ¼ Scale* (2003) (fig 12) indicates that no matter how much technology and the body enact on one another, the self cannot live without the body as a living entity and must always return to the "flesh" of the corporeal body.

Contesting the Cartesian mind/body duality that has influenced the digital fantasy that the individual's true nature can live free from the material body, reclaims the "obsolete" body. Stelarc's utopian desire for bodily transcendence is belied by the evidence of his work. My contention is that Stelarc's literal visceral performances and the obvious affective materiality of the body, contradict his rhetoric. The body refuses to disappear or to become obsolete as Stelarc claims but insistently remains the focal point of his performance. Stelarc's artworks that leave the body suspended, extended, penetrated, shocked, in pain and bleeding, rather than question its obsolescence, question the body as corporeal, embodied, capable of feelings, suffering and anxious of its mortality.

Stelarc's *Hollow Body / Host space: Stomach Sculpture* (1993) (fig 13) makes visible the obvious contradiction between Stelarc's rhetoric and his factual artwork. Rather than being "hollow", the body suffers a problem

with excess saliva. Viewing the gleaming stomach walls and its contents on a video screen displays the internal body as porous and enmeshed in the flesh of the world, not as a hollow construction that Stelarc wishes us to see.

Mona Hatoum interrogates the body as corporeal, wet and mortal, questioning the boundaries between interior and exterior within the dualistic logic of the Cartesian thought that differentiates the body from the self. Hatoum, by merging interior and exterior, draws us through an identification with the flesh that points to the impossibility of identifying with the body as pure object which is transcendable. The body is seen as organic and mortal, exposing the vulnerability of human existence.

Orlan, by having her skin peeled away from her body, emphasises our subordination to our body's vulnerabilities and mortality. Rather than allowing us to gain control over our bodies, Orlan's projects confuse the boundaries between interior and exterior, those boundaries that differentiate the body from the self within the dualistic logic of Cartesian thought. Hatoum and Orlan portray art as a performance that is premised on bodily knowledge that implicitly contradicts the mind/body duality and contradicts also Stelarc's theory of transcendence.

Theorists and researchers within the fields of philosophy, neuroscience, and AI have contested the logic of Cartesianism, the mind and body dualism that privileges the abstract and transcendent over the embodied and concrete. Reflecting Merleau-Ponty's fundamental presumption, not of a Cartesian dualism of mind and body, but of their necessary interrelatedness, these theorists and researchers claim the importance of the body as central to our existence.

Calling our attention to how important our bodies are in making sense of the world, Dreyfus gives examples of how, without bodily involvement and presence, we cannot acquire skills. He explains that

bodily coping skills and feelings are necessary to understand language and locate ourselves in space, and that aspects of imagination, perception and social interaction are central to the physical body. In addition, the facts Damasio presents about the interconnection between feelings and reason, and between brain and body proper, support his idea that the human is a whole integrated body and brain and that both participate in the interaction with the external environment.

The contradictions evident in Stelarc's work point to the fact that, while Stelarc claims the body is obsolete, he manipulates the brute materiality of his own body as the medium for his artwork. He cannot do anything else but use his own body as the basis for his artwork. His body remains stubbornly suspended, extended, invaded whilst our understanding of Stelarc's work shifts because of this body. The obstinate refusal of the corporeal body to disappear in Stelarc's performances is aligned with the stubborn refusal of the corporeal body to fade into obsolescence.

Stelarc's artworks confirm the interrelational-loop that emerges between the body and technology. The body-technology interrelationship questions the changes evident between evolving technology and the body. Boundaries are crossed as the body emerges transformed through prosthesis, virtual reality or biotechnology. The body, though, can never be discarded and can never be regarded as obsolete. This is because the corporeal body with all its limitations is the stumbling block to the fantasy which Stelarc has of leaving his body behind and living as a disembodied mind in immortality. Stelarc's living body exists to remind us, his viewers, of our own body/mind interconnectedness and our own mortal embeddedness within our surrounding world so that we understand that "to be a person, one needs to stand in relation to other bodies" (Stelarc quoted in Smith 2005b:216).

Appendix 1: Timeline of relevant artworks

1972-1975: Sensory-deprivation events and body suspensions with harness, Japan, Australia (not illustrated).

1976-1988: Body suspensions with insertions into the skin, Japan, Europe, United States, Australia:

Event for Lateral Suspension (1978) (fig 1).

Event for Inclined Suspension (1979) (fig 2).

Seaside Suspension: Event for Wind and Waves (1981) (fig 3).

Prepared Tree Suspension: Event for Obsolete Body, No.6 (1982) (fig 4).

Street Suspension (1984) (fig 5).

Event for Stretched Skin / Third Hand (The Last Suspension) (1988) (fig 6).

Hollow Body / Host Space: Stomach Sculpture (1993) (fig 13 and fig 14).

Split Body: Voltage In / Voltage Out (1995) (fig 7).

Fractal Flesh, An Internet Body Upload Performance (1995) (fig 8).

Ping Body an Internet Actuated Performance (1996) (fig 9 and fig 10).

Extra Ear ¼ Scale (2003) (fig 11 and fig 12).

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Illustrations

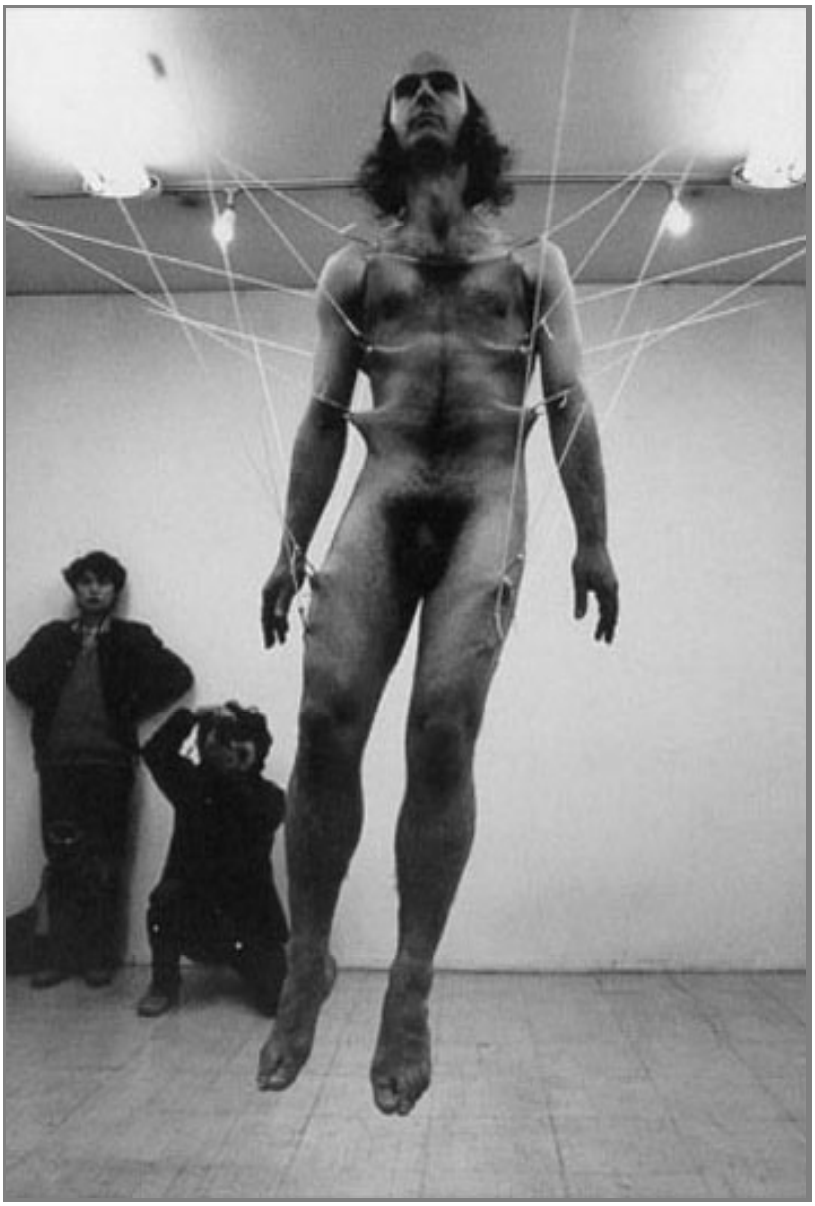


Fig 1. Stelarc, *Event for Lateral Suspension* (1978).

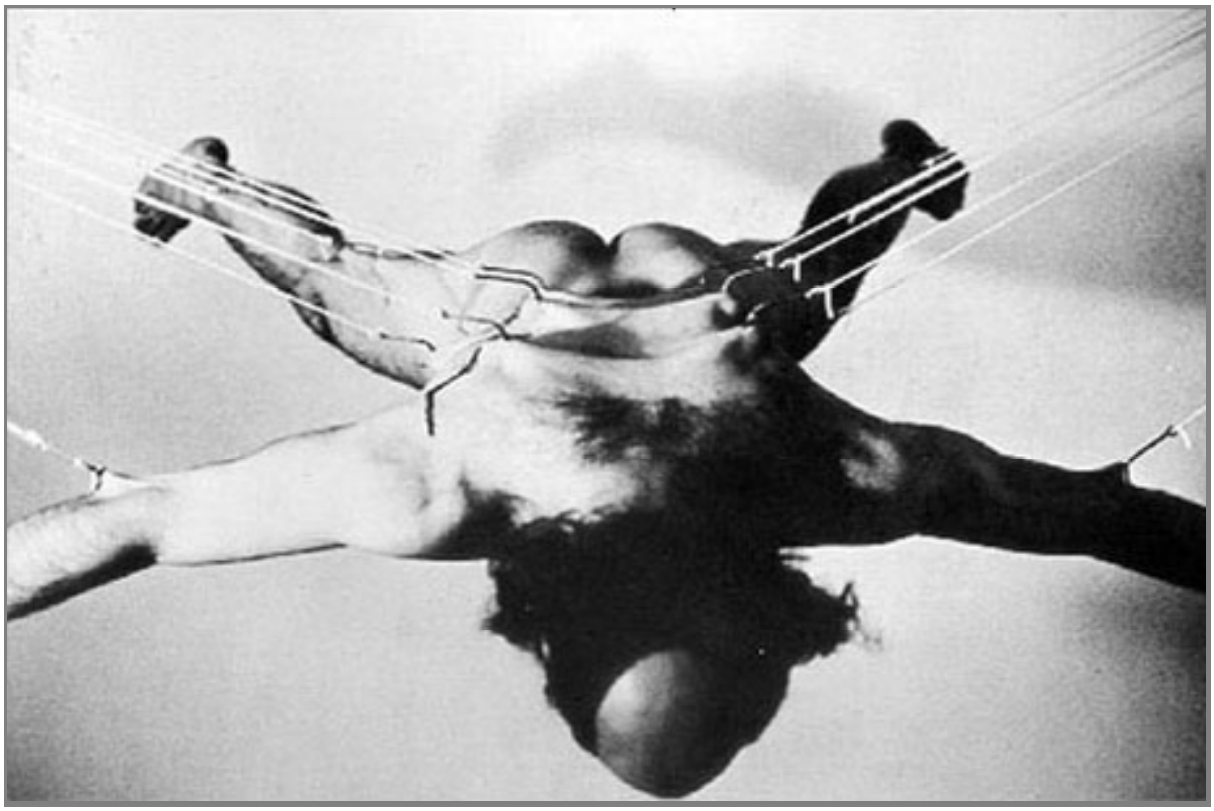


Fig 2. Stelarc, *Event for Inclined Suspension* (1979).

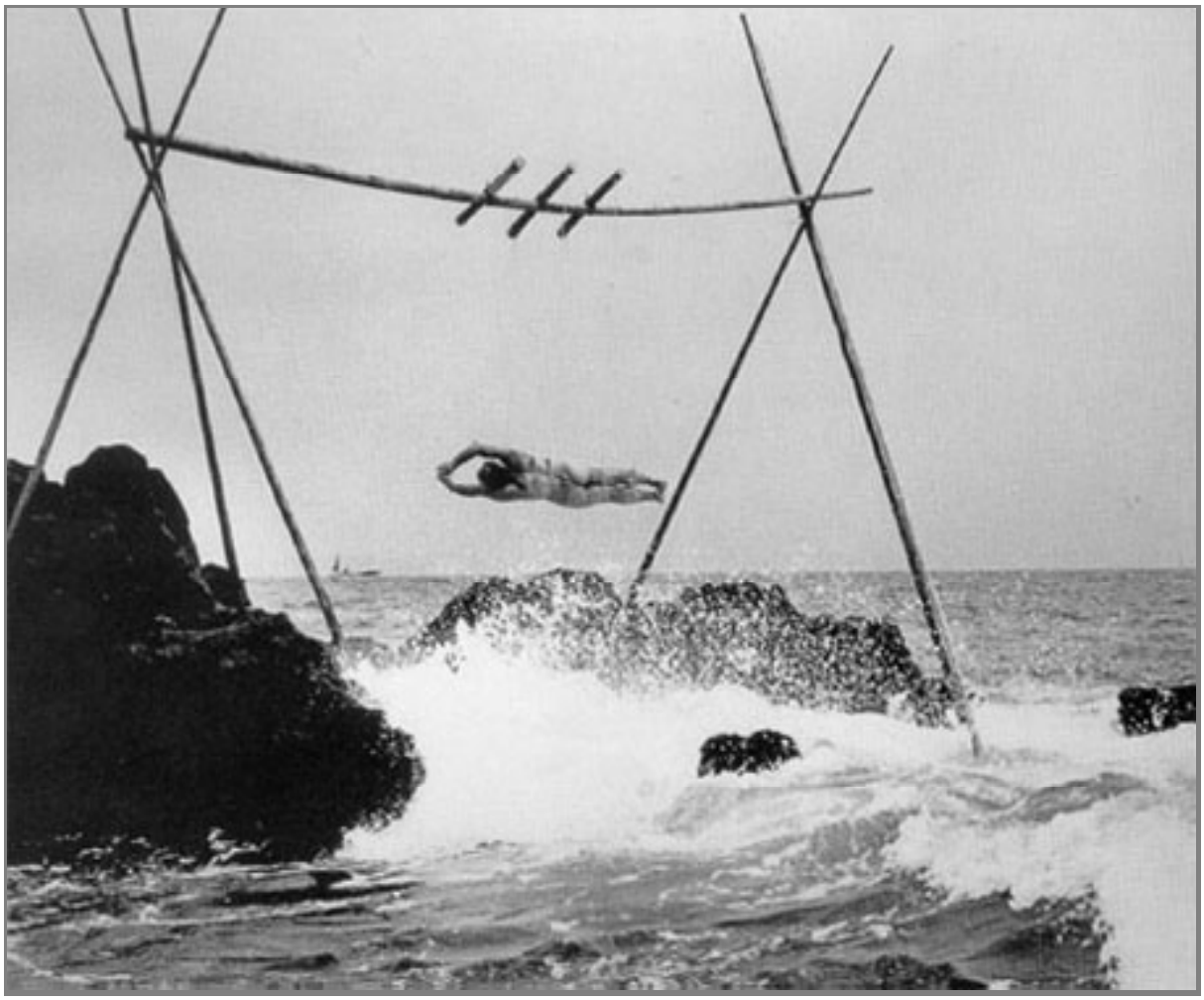


Fig 3. Stelarc, *Seaside Suspension: Event for Wind and Waves* (1981).

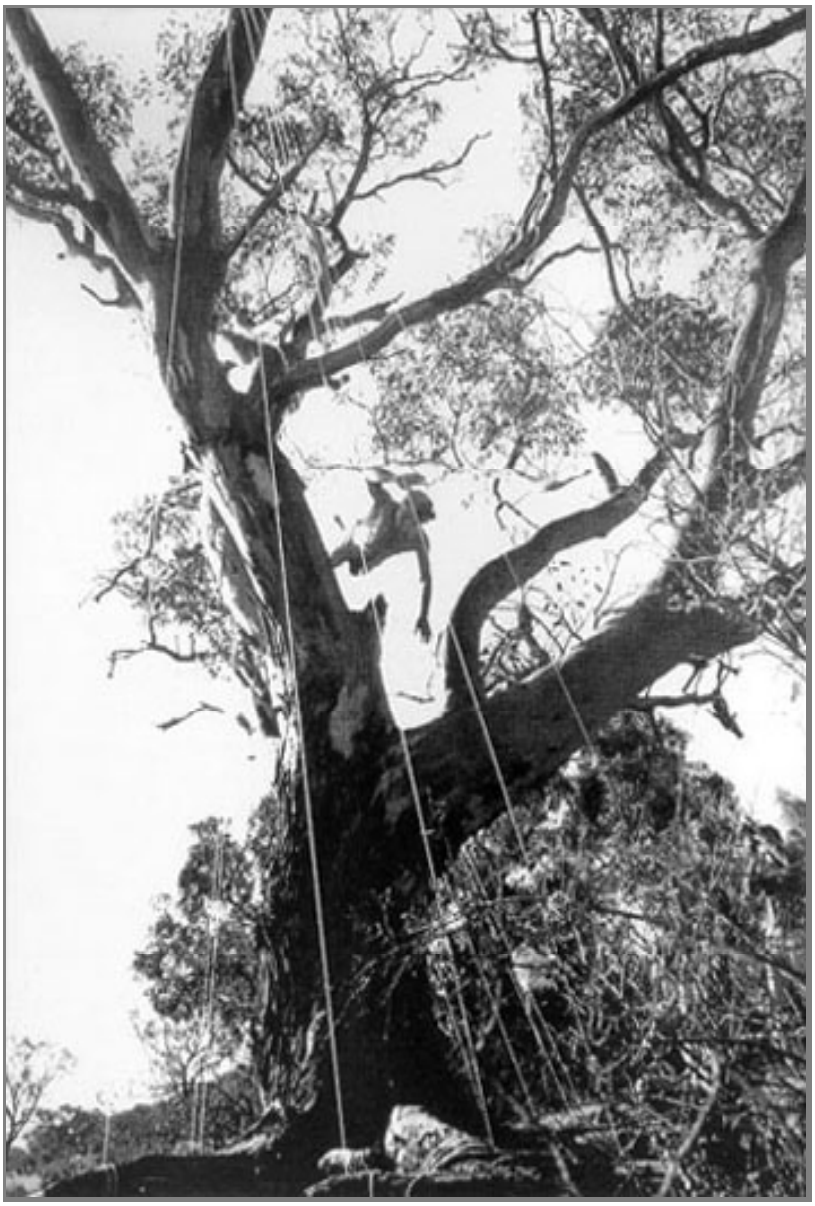


Fig 4. Stelarc, *Prepared Tree Suspension: Event for Obsolete Body, No.6* (1982).



Fig 5. Stelarc, *Street Suspension* (1984).



Fig 6. Stelarc, *Event for Stretched Skin / Third Hand (The Last Suspension)* (1988).

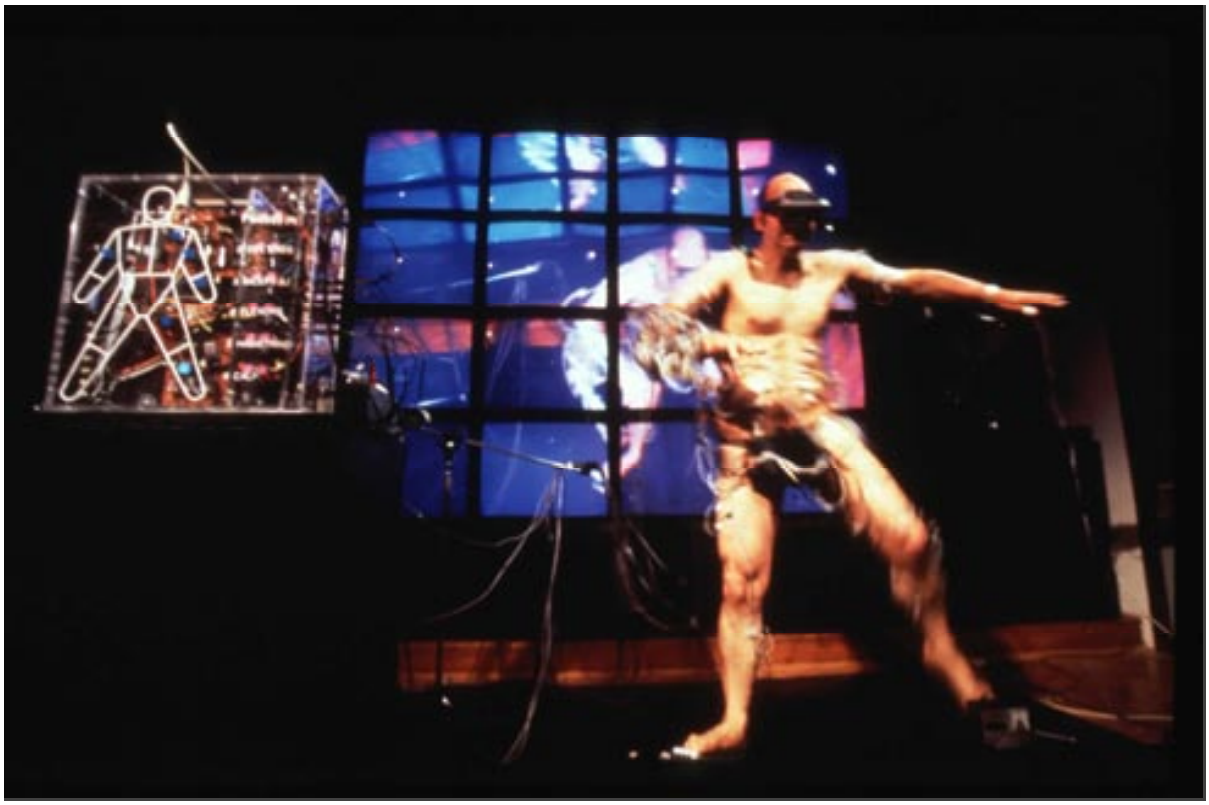


Fig 7. Stelarc, *Split Body: Voltage In / Voltage Out* (1996).

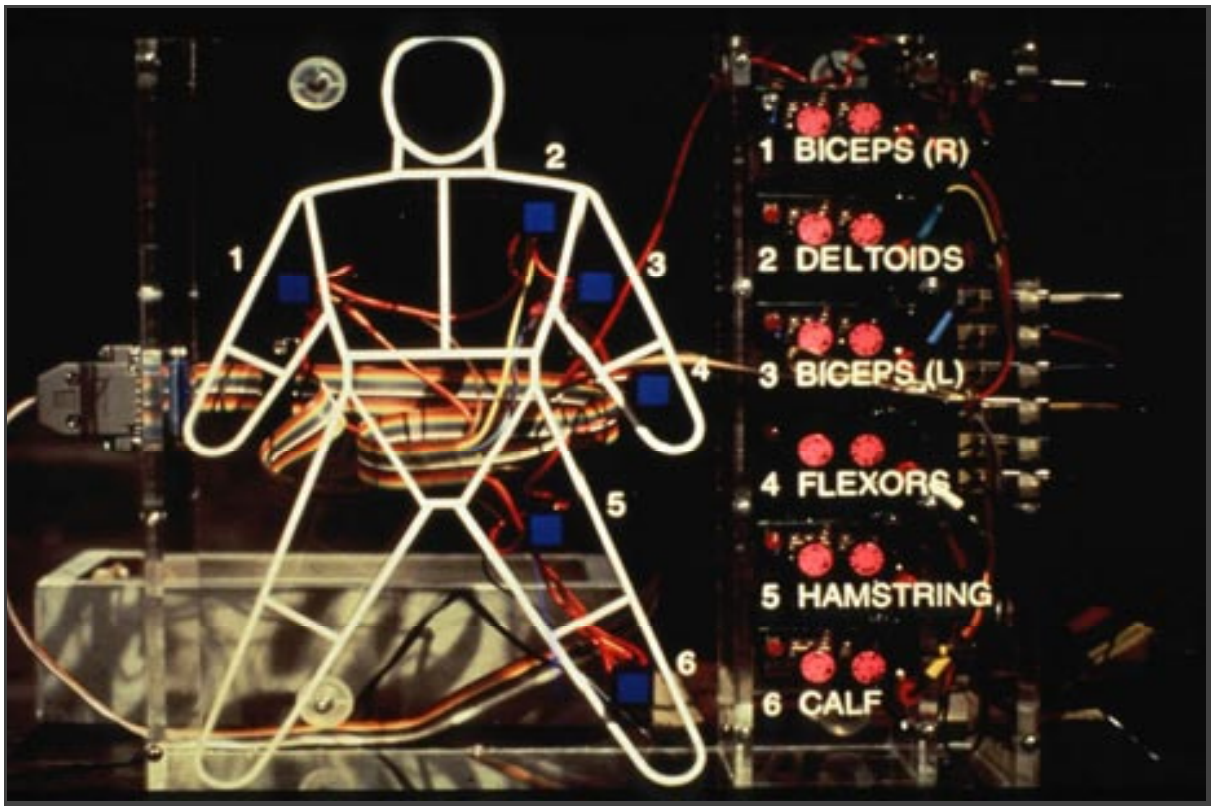


Fig 8. Stelarc, *Muscle Stimulation System* (1995). The system is a component of the *Fractal Flesh, an Internet Body Upload Performance*.

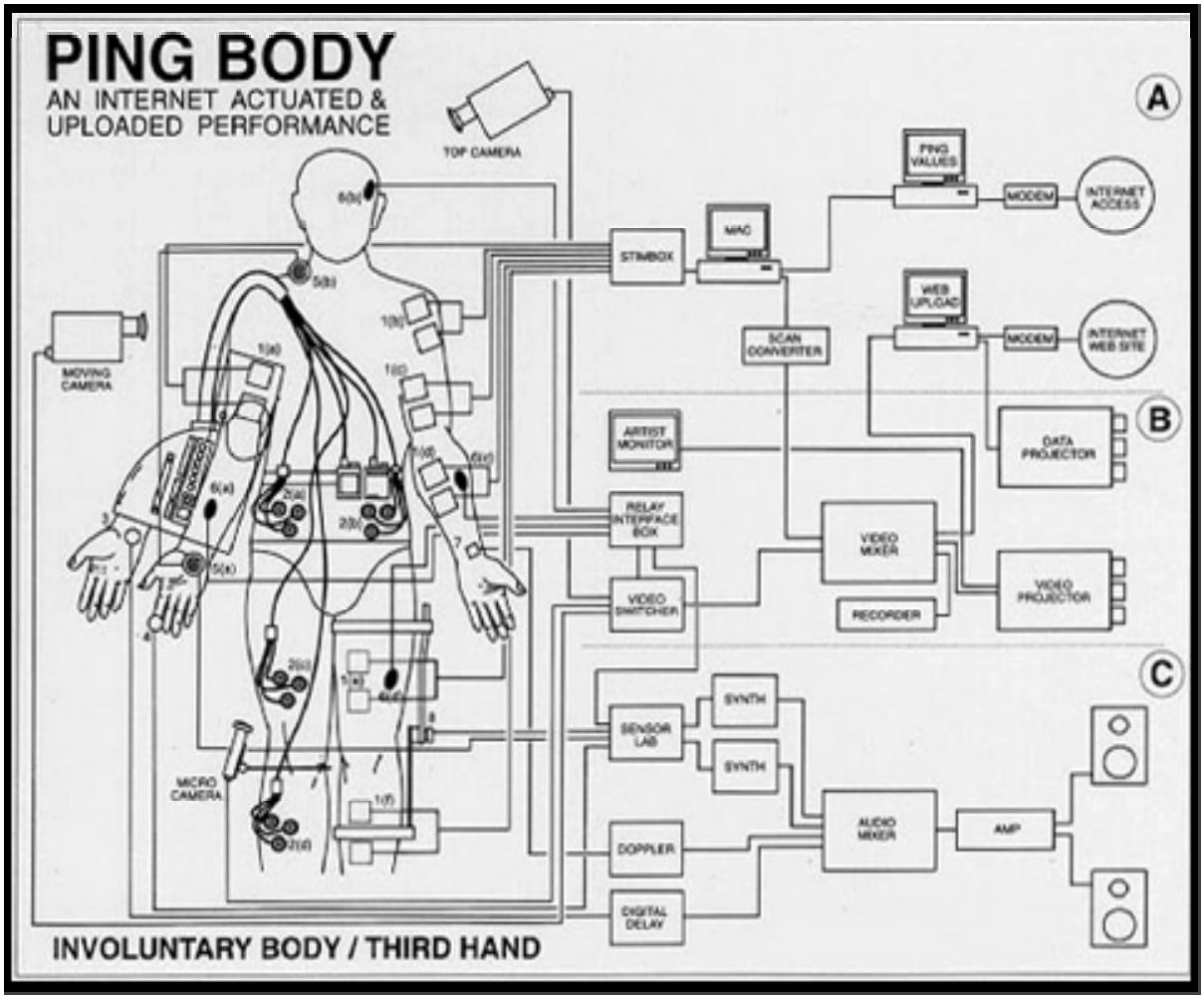


Fig 9. Stelarc, *Ping Body an Internet Actuated Performance* (1996).



Fig 10. Stelarc, *Ping Body an Internet Actuated Performance* (1996).
Video frames taken during the performance and uploaded to the internet.



Fig 11. Stelarc, *Extra Ear ¼ Scale* (2003).



Fig 12. Stelarc, *Ear on an Arm Visualization* (2003).



Fig 13. Stelarc, *Stomach Sculpture* (1993).

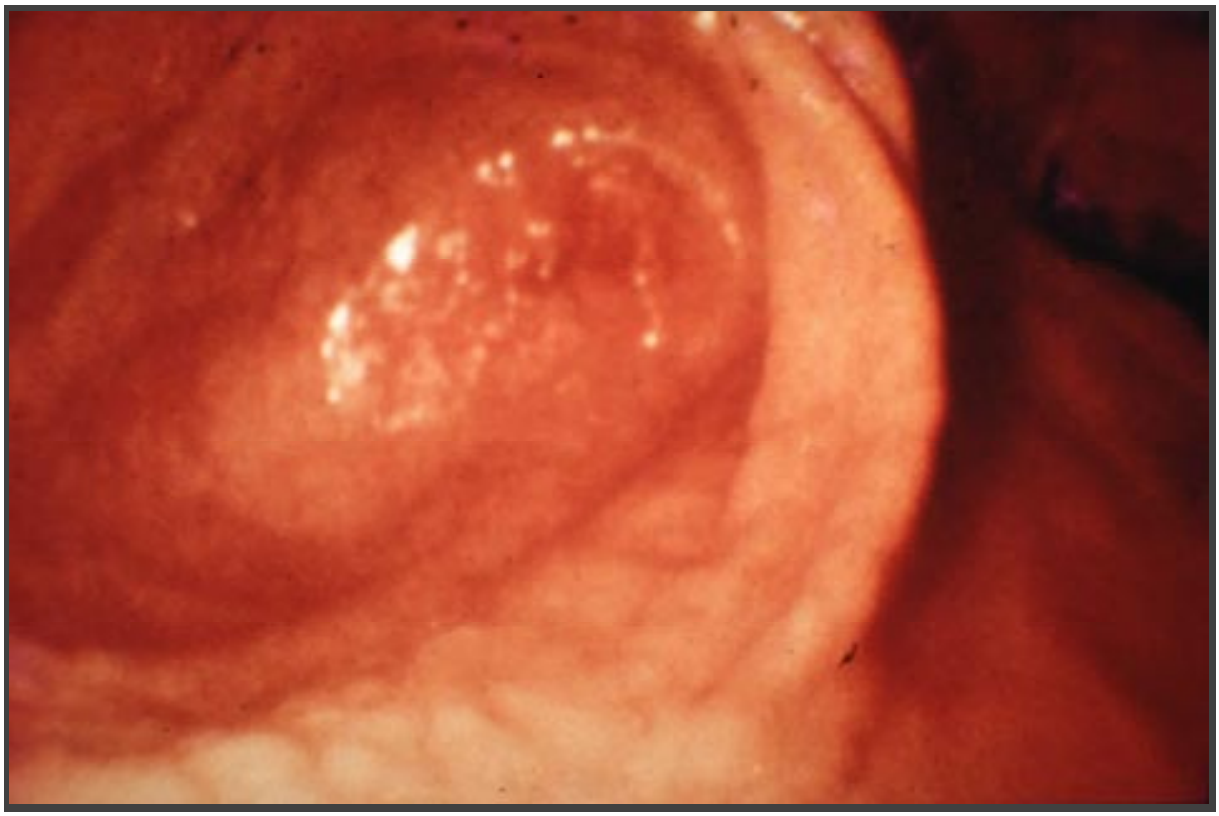


Fig 14. Stelarc, Microfilm image of the inside of the artist's stomach (1973).