UNNATURAL SELECTION

In 1998 Kevin Warwick, a cybernetic pioneer collaborating with biomedical signal processing operators, roboticists and sensor developers, had a silicon chip implanted in his arm. The aim was to investigate the possibilities of human/machine symbiosis. The initial test proved successful and after the first chip was removed a second device, connected to the nerve fibres of the scientist's body, was implanted. For Warcwick being born human was 'an accident of fate', so he found himself compelled to 'up-grade' [t]his body.

Recent achievements in intelligent systems research and their application in enhancing human performance have greatly influenced the development not only of the next generation of robots, but also the next generation humans. Research and development of tele-presence functions (the ability to feel and sense 3D virtual places, things and people) is potentially leading to a universal adoption of the Internet as our primary social environment, while developments in nanotechnology are close to producing nano-enhanced super humans—as implied by the Warwick experiment.

With the development of mindware capabilities of globally distributed human/machine networks, it is possible for computers made of synthetic neural networks and other Artificial Intelligence (AI) forms will allow them to perform as smartly as humans. It is also possible that the convergence of biotechnology and computer intelligence will lead to the genetic redesign of all living things.

The recent theories of fractals, complexity and emergence have challenged the scientific method of mind/body duality established during the Enlightenment, prompting investigations in to the challenging relationship between the body—individual and social—and the machine. The question now is not about who we are, but who we are becoming. This (Deleuzian) 'becoming—not through identification with something or someone but through the physics of molecular connections, rhizomes and flows[1] apparent in our everyday experience of networked intelligence and interactivity—has been for more than two decades a focal point of critical engagement for many artists around the world.

Unnatural Selection features some of the Australian artists who have contributed significantly to the development of electronic and new media art practice and theory throughout the past quarter century. The title of this publication and exhibition at Ars Electronica 2004 broadly describes the subjects explored and the works manifested by these artists that both question and expand upon the 'unnatural' conditions of our times. The exhibited works—Mari Velonaki and team's *Fish-Bird Circle B-Movement B*, Troy Innocent *lifeSigns* and Metraform's *Extasis*—and many of the other works discussed here, exemplify the diverse processes through which we are 'becoming' un-naturally.

During the past 30 years, Stelarc has radicalized the philosophical and cultural views on the future of the human species through live performances that critique the body and its relationship to machines, medical instruments, prosthesis, electronic networks, and virtual environments. From the early robotics

[1] Deleuz, G. and Guattari, F. *A thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi. Minneapolis: University of Minnesota Press, 1987

projects such as *Third Hand* in 1980, to the cyborg performances of *Fractal Flesh*, *Ping Body*, *Virtual Body* and *Parasite* in the 1990s, to his latest work with biomedical technology, 'the Stelard project has been focused on investigating and indeterminate bodily future that induces it into a state of hyper-mutability'.[2] Stelarc performs alternate possibilities of a post-human cybercultural body, suggesting that we can potentially explore or even occupy bodies, which differ in time and space.

Similar themes have been investigated by Company in Space (CiS), which has pioneered applications of new technology to movement in order to extend our visual, aural, and kinetic perceptions. CiS produced live ISDN telematics performances, interactive WebTV and VRML performative worlds, relayed from Australia to other places in the world, at a time when video conferencing was still a novelty and the Internet was not readily available. CiS has progressed to incorporate sophisticated real time motion capture technologies and game engine software to augment networked performances. Central to their practice for over a decade is the evocation of the poetics of technology and its relationship to body, space, time and culture, culminating in *The Light Room* (2002), one of the most ambitious new media performances yet staged in Australia. Composer and sound designer David Chesworth was a key collaborator on the project. A decade earlier, Chesworth had utilised emerging digital technologies to create is ground-breaking work *South-gate* (Ars Electronica 1993), a large-scale outdoor sound-scape for which real world sounds were sourced, sampled and modified through an Emax sampler and Sound Globs computer program.

Nigel Helyer also creates large-scale environmental sound sculptures that have been installed in public spaces, including an airport, a railways station, a supermarket, a churchyard, and a military compound. During his recent residency at Lake Technology (Sydney), he produced a series of major sound projects deploying the company's dynamic audio spatialisation systems. The space of *Sonic-Landscapes* (2000/2001), for example, is communicated as data sculpted into virtual acoustic architecture—'space, at large, is no longer space but rather means'[3] for experience and relatedness.

The orchestration of information for artistic purposes is not a new concept, although the technological means by which it is achieved today is groundbreaking. In the mid 1940s, Norbet Weiner founded cybernetics, and Warren McCulloch developed mathematical models for neural networks. In the early 1960s Marshall McLuhan observed that the invention of the computer would produce profound changes how we think, articulate language, relate to one another, and how the environments we inhabit will become translated into grids of information systems. Stephen Jones' *Brain Project* (1996) is a web and CD-ROM project that surveys the study of consciousness in western science and philosophy, incorporating cybernetics, complex systems, and AI. Jones' essay, 'Synthetics: A History of the Electronically Generated Image in Australia'[4] provides an important account of the techniques, processes and works ranging from analogue video synthesis to computer graphics (from the 1960s to the late 1980s), produced by Jones and other artists, including Peter Callas, Doug Richards, Warren Burt, John Gillies and Sally Pryor, whose early work *dream House* was the first Australian work to be selected for SIGGRAPH USA.[5]

[2] Massumi, B. 'The Evolutionary Alchemy of Reason', *Alternate Interfaces—Stelarc*, Monash University 2002, pp 25–40

[3] As discussed in *Art@Science*, Sommerer, C. and Mignoneau, L. eds, New York: Springer Wien, 1998

[4] Jones, S. 'Synthetics: A History of the Electronically Generated Image in Australia', *LEONARDO*, vol.36, No. 3, 2003, pp. 187–195

[5] For related information please see Pulse Friction, survey exhibition of art by the first

A 'first generation' video artist, Callas has progressively adapted to and adopted the new tools of moving production, from the half-inch reel-to-reel analogue video work to high-end digital platforms and software. His work, however, has consistently maintained a critical focus on media, politics, history and culture. Similarly, the critique and reformulations of socio and techno-politics has been the primary focus of Andrew Garton over the past 25 years. In addition to numerous creative online projects, Garton's early use of the Internet for cultural and political purposes positions him along the first net.activists in Australia—the body politic in a virtual space.

'Third generation' media artists working with the latest virtual reality (VR) technologies, Metraform investigate social interactions and experiences with the matrix of VR spaces. The group's influences include the theoretical writings and works of Simon Penny, Char Davies' seminal immersive environments *Osmose* (1995) *and Ephemere* (1998), artists Marcus Novak, and architectural theorists Sanfor Kwinter and Neil Spiller.

Simon Penny, and Australian cybernetic artist based in the USA, has cogently argued that the technological, or rather 'Engineering World View, does not necessarily dismantle the mind-body duality, but rather it further perpetuates it.'[6] For Penny, science determines as well as controls our experience of embodiment, thus shaping our relationship with technology through a colonizing and invasive rationalism. 'To me, VR seems to blithely reconstitute a mind-body split that is essentially patriarchal and industrialist. It would be an oversimplification to claim that the body is not present in VR interaction, for this would imply that the body is not the device through which we interface with the technology. But it would likewise be an oversimplification to claim that the body is in VR.'[7] His works *Fugitive* (1997) and *Traces* (Ars Electronica 1999) explored aspects of embodiment, allowing users' experiences of the work to be generated in real time according to the individual's own body movements.

The research and development of various mechanisms and apparatuses of image and spatial representation has long been central to Jeffrey Shaw's practice. Since the 1960s he has used technological means to expand perception and enhance experience, more recently developing interactive panoramas such as *Place—Ruhr* (2000) and *Eavesdrop* (2004), a collaboration with theatre and film director David Pledger. Shaw's *The Legible City* (Ars Electronica 1989) is widely cited among the first digital navigable virtual spaces, in which the participant undertakes a simulation journey through a cityscape of three-dimensional words along city streets by pedalling a real (stationary) bicycle.

Also investigating relationships between embodiment and technology, Mari Velonaki utilizes sensor-triggered interfaces that allow curious, moving image characters to 'come to life' or 'die' according to how we speak, move, eat and even breathe in their presence. *Amore Veneris A* (1998) is the first breath-activated installation in Australia, while *Pin Cushion* (2000) is created with unique electrostatic interface.

In Paula Dawson's renowned holographic artworks, embodiment is an illusion of light, achieved through precise arrangements of art, mathematics, physics, and technology. Dawson's spectral realities conjure the pure phenomena of impossible presences.

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wave of artists' access to media technologies throughout the 1960s and 70s. Curator Leigh Hobba, University of Tasmania, 1997

6 Penny, S., 'Artistic Practice: Body Knowledge and the Engineering World View', Conference Paper, Ars Electronica, Linz 1996

7 Penny, S. 'Consumer Culture and the Technological Imperative' in Penny, S. ed, *Critical Issues in Electronic Media*, New York: SUNY, 1995, p 61

Transmogrifications of the body through digital processes—the generated, wet, fleshly, desiring, and technologised body, as discussed by Donna Haraway and others—is the viscera of Linda Dement's work. Her 'subcutaneous nightmare landscapes' are 'at once physical, psychic and digital, a place created in order to make the unbrearable understandable, to give it form, with and through technology'[8]. From her first computer work, Typhoid Mary (1991), to more recent CD-ROMs such as IN My Gash (1999), Dement's works represent a gallery of virtual wounds, abject damages, and disturbance. Other early subverters of female stereotypes in the (male oriented) digital domain include VNX Matrix (Ars Elctronica 1996), widely recognised as the founders of cyberfeminism (*Cyberfeminist Manifesto*, 1991), and Jill Scott, whose video and digital media art over the past 25 years has explored issues of the female body in relation to illness, desire, history, technology and games, in works such as *Paradise Tossed* (Ars Electronica 1993) and *Interskin* (1997). Net.artist Melinda Rackham's online experiences involve viral bodies: 'my infectious agents are all about steaming open protoplasmic envelopes, penetrating cellular cores, crossing species boundaries, and shattering illusions of the discrete autonomy of ourselves, whereas the genome project seeks to classify and contain and control our bodies through the parameters of a data set.'[9]

Research and development in nanotechnologies, genetic engineering and bio-materials capable of regrowth; synthetic life capable of manifesting intelligent properties; the use of autonomous agents that respond to or interpret the organic world; and the options for gene therapy have posed ethical concerns about the rise of bio-colonialism. In response to these and other emerging trends in bio-science a unique laboratory, Symbiotica, dedicated to examining biological systems and biotechnologies from an artistic/humanistic perspective, was established at the University of Western Australia. The numerous collaborative projects undertaken by Symbiotica have made palpable and even more questioning the vexing issues surrounding the motivations for and applications of such research. Similar concerns have been raised through a disparate range of projects, including *One Trees* (1998) by Natalie Jeremijenko, and Australian artist, theorist and engineer based in the USA; and *Transformers* (2002/3) by Australian-US media artist Justine Cooper.

Unlike cellular re-generation, a biological process which alters 'natural properties—the long-term implications of which are not yet known—the field of Artificial Life (A-life) is a computerised simulation of living processes. A-Life has established a new discourse for the synthesis of biological phenomenon within the electronica space. Christopher Langton, a computer scientist, philosopher and original proponent of A-Life, has noted that: 'Artificial Life will ultimately reach beyond biology, into the realm[10] that we do not yet have a name for, but which must include culture and our technology in an extended view of nature.'

Langton's progressive ideas influenced the work of computer scientist and animation artist Jon McCormack, one of the few artists in Australia who creates his works primarily through writing computer software. McCormack has delved deeply into the computer space of A-Life. *Turbulence: a museum of unnatural history* (1994; Ars Electronica 1995), a

8 Dement, L., 'Monsters', online lecture by Linda Dement, discussing her work and that of three other Australian new media artists: Jasmine Hirst, VNX Matrix and Debra Petrovich

9 Thacker, E. 'Tech Flesh 6: An interview with M. Rackham', in *ctheory.net*, Kroker, A., and M., eds, September 2001

10 Langton, CG, ed, iArtificial Life: an overview, Cambridge MA: The MIT Press, 1997, p x

defining work in media art, is described by the artist as a 'menagerie of synthesised formes "evolved" within the computer using a process of artificial selection'. In *Eden* (2000) McCormack further develops his work in interactive self-generating artificial ecosystems. Troy Innocent also explores emerging new media ecologies. His most recent project, *lifeSigns* (Ars Electronica 2004), presents an evolving ecosystem of signs and symbols. The work builds upon the relationship between concepts of A-Life and computational semiotics (the study of systems of significations in digital media), through a process of syneasthetic performance between image and sound.

Through their respective practices, the artists represented here distil essences from our trans-millennial moment—our choices, our augmented capacities, our new inhabitable spaces, and our modalities of 'becoming' through processes of unnatural selection.

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