

Scientific Visualisations and Mixed Realities at the Art/Science Nexus

Dr. Trish Adams
Artist-in-Residence: Visual & Sensory Neuroscience Group
Queensland Brain Institute,¹ The University of Queensland, Australia.
digitalpla@telstra.com

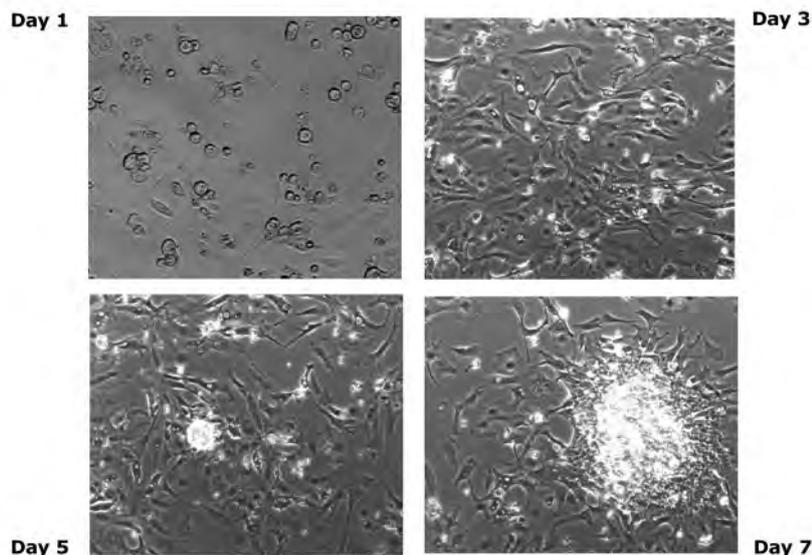
Art/Science

What is it, one might ask, that motivates an artist to position their practice at the art/science nexus — a random moment of eccentricity perhaps; or a more considered alignment with a discipline reputed to involve a systematically organised body of knowledge? Conceivably it could be argued that, if science is defined as knowledge gained by the study of the physical world, aware and interested individuals fall within the category of “scientist” in the manner of the erstwhile “natural philosopher”.²

Today however, the disciplines of art and science are habitually regarded as divergent. Realistically speaking, neither artists nor individuals customarily possess the acumen or have access to the high-end technologies with which the contemporary scientific researcher is, by definition, equipped. I entered the rarified laboratory

environment with the aim of exploring scientific constructs and research data from the perspective of a visual artist. My methodologies synthesised groundbreaking models and evolving outcomes; and I developed innovative collaborations which fore-grounded the artist/researcher as an active participant at the core of the experimental processes.

It is pertinent that one of my scientific collaborators described this pioneering construct as ‘something quite other’;³ a hybrid entity navigating the spaces of what might be regarded as a mixed reality that represents more than the sum of its parts. The three part ‘vital force’ series of artworks: *Temporal Intervals*,^{4,7} *Wave Writer*^{5,7} and *Machina Carnis*^{6,7} share an open-ended approach, empowered by the discrete use of technology. This enables the viewer to engage with the artworks from the position of a participant who brings them to life and completes them through his/her interaction.



Digital videomicrograph stills of the artist’s adult stem cells in culture. On Day 3 the chemical growth mix was added. Day 5 shows clusters of pulsing stem cells forming & Day 7 shows the large beating clusters of cardiac cells. (Digital videomicrograph stills courtesy Trish Adams)



Whilst locating his heart-beats a participant looks up at the digital videomicrograph image of the beating cardiac cells above him and sees his facial image superimposed there. (Documentary digital video stills Ben Wickes)

Corporeality

I have explored contemporary constructs of “humanness” by shifting the activity of viewing from a transparent relationship of meaning and expression to an immersive encounter with the “self”. My art/science research projects have examined expressions of corporeality and moments of perception which exceed habitual boundaries. Both *‘Temporal Intervals’* and *‘Wave Writer’* probe the ambiguity of data flow and bodily “presence” through the interplay between the real-time installation and remote Internet access. Via the feedback loops of the informational mode — through the space-time separation enabled by computer and communications networked forms of dispersal and interaction — the artwork experience becomes more participatory and widely accessible. The divergent characteristics of digital technologies lead to a deliberation on contemporary notions of virtual realities that are redolent with the so called ‘worlds within worlds’⁸ that revolutionised perceptions at the advent of the microscope.

Reflecting upon relativistic constructs of the observer that contravened accepted norms of “objective” scientific protocols I adopted the role of “human guinea pig”. In *‘Machina Carnis’* I experimented on my own adult stem cells in the laboratory and through this pioneering strategy I became both subject and object. In

the artwork: *‘Machina Carnis’* I probed the discourses surrounding genetic manipulation, the orthodoxies of “being”, and the intricacies of emerging technologies — both visual and procedural. Contemporary discoveries in stem cell research and the field of biomedical science led me to investigate the status of living systems and the characteristics of corporeality. The controversial and wide ranging implications of adult stem cell research have impacted upon perceived understandings of the structure of the human body and the ambiguous concept of “humanness” itself.

I questioned how we can differentiate between the machine and the human being if some attributes are shared by both. The computer, for instance, is a language system that is separated from the human but it also has characteristics that are identified with humans. In this case, developmentally and ontologically, we are ‘addressing the space in which the human comes into being... (that is) not only calling into question what language might be but also what it might be to be human’.⁹ Speculations such as these lead one to consider and interrogate notions of the posthuman, which instantiate the material body to such an extent that it is seen as informational patterns in which biological embodiment becomes accidental rather than inevitable.¹⁰

Visualisation

My associations with the advanced digital imaging technologies incorporated into scientific research and documentation led to my interrogation of the epistemological status of scientific imaging, computer-mediated representations and the effects of digital simulations. I became aware that ‘digitality provides a set of lived circumstances in which our senses encroach upon us in a different way’.¹¹ From an artistic perspective the scientific data resonated with photographic moments of perception in that it moved the activity of viewing from a transparent relationship of meaning and expression to a level in which significance seems to be there without the presence of subjectivity.

In this context the time-lapse videomicrograph cellular image data incorporated into *Machina Carnis* exceeded normal boundaries, creating an encounter with the “self” and other intensely individual associations. Consequently this interactive artwork was ‘characterised by complex interrelations of real and virtual entities’ with which the viewer/participant could ‘engage in a dialogue... of different expressions of mind and matter’.¹² Points of confluence occur when each participant combines their knowledge that the cardiac cells — represented in the image data — were cultured from adult stem cells, similar to their own. This awareness evokes intangible emotional and interpretative personal responses for each installation participant.

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- 1 “HOST”: <http://www.qbi.uq.edu.au/index.html?page=79764>
 - 2 Uglow, Jenny, 2002. *The Lunar Men: The Friends Who Made the Future 1730-1810*. London: Faber. Pre-nineteenth century investigators went by the term “natural philosopher”. Some natural philosophers met in groups that included such diverse individuals as provincial manufacturers, professional men and gifted amateurs; united by a love of science.
 - 3 Nurcombe, Victor. 2005. “E-interview by Patricia Adams.” In *The Implications for Artistic Expressions and Representations of Corporeality of the Experimental Techniques of Biomedical Engineering*. Doctor of Visual Arts Thesis, Adams, Patricia, Griffith University, appendix v.
 - 4 Carroli, Linda. 2003. “Temporal Intervals: Trish Adams.” In *Fine Art Forum*, Nov. <http://home.pacific.net.au/~lcarroli/text/temporal.htm>, accessed 18.04.08.
 - 5 Wallace, Linda. 2004. “E-interview with Patricia Adams”, accessed 18.04.08. <http://www.nettime.org/Lists-Archives/nettime-l-0407/msg00016.html>
 - 6 Zuvela, Danni. 2005. “Art from the Heart.” In *Real Time 68*, Aug-Sept, Sydney: Open City Inc, p.35, accessed 18.04.08. <http://www.realtimearts.net/article.php?id=7937>
 - 7 Further information available about *Temporal Intervals, Wave Writer & Machina Carnis* available at: <http://www.wavewriter.net> accessed 18.04.08.
 - 8 Cavendish, Margaret, Duchess of Newcastle. 1668. “Of Many Worlds in This World.” In *The Wadsworth Anthology of Poetry*, edited by Jay Parini. Boston: Wadsworth Thomson, 2006, p. 721.
 - 9 Biggs, Simon. 1998. “Question Our Question.” In *Shock of the View*, <http://www.artsconnected.org:8080/read?246,19> accessed 6/1/02.
 - 10 Hayles, Katherine N. 1999. “How we Became Posthuman: Virtual Bodies.” In *Cybernetics, Literature & Informatics*. Chicago & London: University of Chicago Press, p.2.
 - 11 Munster, Anna. 2004. “Digitality: Approximate Aesthetics”, <http://www.ctheory.net/printer.aspx?id=290> p. 5. accessed 15 June 2006.
 - 12 Sommerer, Christa. & Mignonneau, Laurent. 1998. Editors, *Art @ Science*, New York, Springer/Wein, p. 3.