

New Constellations: Art, Science and Society

Museum of Contemporary Art, Sydney Australia
Friday 17 – Sunday 19 March 2006

New Constellations: Art, Science and Society is a three day conference that will chart the ways in which art and science gravitate towards one another within contemporary culture. Although these two great intellectual and creative forces in society are often perceived as opposites, how stable is this opposition? What are their common roots and shared goals? How do their embedded cultural and ontological differences generate creative tension? How do these differences stymie collaboration? The Conference will examine how the worldwide trend towards engagement between scientists and artists is changing the definitions, methodologies and practices they use and how they view the social implications of their work.

The Organising Committee comprises representatives from the arts and the sciences and the Session Chairs are drawn from a range of disciplines. The Conference is intended for those with a potential interest in the synergies between the sciences and the arts such as artists, academics, writers and educators in new media; international research and higher education funding agencies; associations and industry groups in the sciences, technology and engineering fields; and philosophers and other scholars in the humanities. Accepted papers will be published in the Conference Proceedings, and will be considered for publication in *Leonardo* – the print journal of the International Society for the Arts, Sciences and Technology – ensuring a high standard of papers and that the Conference contributes to international discourse and scholarship.

The MCA provides an ideal backdrop for the Conference with its international reputation as a site for debate, interrogation and focus on innovation, research and development. The MCA will provide facilities that will encourage flexibility and lively debate, with spaces for plenary addresses, break-out sessions, social events and networking. New Constellations: Art, Science and Society aims to bring together leading practitioners and thinkers in the field to stimulate discussion, debate and national and international collaborations.

Plenary Addresses

Professor Elizabeth Grosz, *Vibration*

This paper is an exploration of the connections and resonances between philosophy, science and the arts, which share a common relation to chaos, the forces of the cosmos. If science orders chaos through the construction of formulae, and the arts frame chaos through the extraction of sensations, philosophy orders chaos through the constitution of concepts: each maintains and provides a mode of provisional order for chaos. Through creating a genealogy or ontology of music (and other art forms), this paper explores the sexual, bodily and artistic impact of vibration.

Elizabeth Grosz is Professor of Women's and Gender Studies at Rutgers, the State University of New Jersey, and Visiting Professor of Architecture at Princeton. She is a philosopher by training and has worked in English, Comparative Literature, French, Visual Arts and Architecture Departments in Australia and the USA. Her research has focused on rethinking the body and its relations to the ways we conceptualise space and time. She is the author, most recently, of *The Nick of Time: Politics, Evolution and the Untimely* (Allen and Unwin 2004) and *Time Travels: Feminism, Nature, Power* (Allen and Unwin 2005).

Professor Steve Kurtz, *Crossing the line*

This lecture will explore the factors that make critical interventions within the intersection of art, science, and politics such a treacherous undertaking. Using the work of Critical Art Ensemble as a grounding focus, Kurtz will address issues such as the privatization of scientific knowledge and the militarization of scientific and medical institutions. He will go on to show that if these issues are used as framing devices for interventionist projects, they beckon a broad variety of disciplinary agencies.

Steve Kurtz is a founding member of Critical Art Ensemble (CAE). CAE is a collective of tactical media practitioners of various specialisations, including computer graphics and web design, wetware, film/video, photography, text art, book art, and performance. Formed in 1987, CAE's focus has been on the exploration of the intersections between art, critical theory, technology, and political activism. The collective has performed and produced a wide variety of projects for an international audience at diverse venues ranging from the street, to the museum, to the Internet. Critical Art Ensemble has also written five books, and is about to release its sixth work *Marching Plague: Germ Warfare and Global Public Health*. Kurtz is an Associate Professor of Art at the State University of New York at Buffalo.

Professor Ruzena Bajcsy

Information technology in service to humanities and social sciences

In this presentation I shall outline the opportunities and challenges for collaboration between information technologists (IT) and humanities and social science.

Opportunities arise for IT researchers as follows: The humanities and social sciences are generating more and more data (terabytes and petabytes) that need to be archived, preserved and searched based on content; there is a need for fast networking, visualization of large data sets in real time; there is big problem with security and privacy and intellectual property of the information that will be considered.

Opportunities for humanists and social sciences are as follows: The ability to preserve and archive multimodal information for future generations; the ability to share widely data/information with researchers and users around the world; the ability to examine/analyse spatial and temporal evolution of the historical and present data available and make lessons learned.

The challenges for both communities are the cultural divide. I will discuss two concrete technologies that demonstrate all the above problems and opportunities. One example is on the use of interactive technology for virtual museums and other is about the use of tele-immersive environments to collaborate with dance performers who may be local but also geographically distributed across some distances.

Professor Ruzena Bajcsy is Founding President of CITRIS, the Centre for Information Technology Research in the Interests of Society, and a Professor in the Electrical Engineering and Computer Department of the University of California, Berkeley. A pioneering researcher in machine perception, robotics and artificial intelligence, she is renowned not only for her research contributions but for her cross-disciplinary leadership in the fields of engineering and cognitive science.

Paper Sessions

The Conference will explore six interrelated themes – each moderated by a respected practitioner or theoretician drawn from around Australia, with papers selected through peer review and invited speakers.

Beyond Boundaries: Theory

Chaired by Dr Mitchell Whitelaw

Senior Lecturer, School of Creative Communication, University of Canberra

Mitchell Whitelaw is an academic, writer and artist with interests in new media art and culture, especially complex generative systems and digital sound and music. His work has appeared in journals including *Leonardo*, *Digital Creativity* and *Contemporary Music Review*. In 2004 his work on A-life art was published in the book *Metacreation: Art and Artificial Life* (MIT Press, 2004). His current work spans generative art and sonic and visual data-aesthetics. He is currently a Senior Lecturer in the School of Creative Communication at the University of Canberra.

Session Themes – However we combine them, Art and Science are loaded categories; they sometimes seem locked in an awkward embrace. This session will consider ways in which we can rethink their relationship. Between synthesis and antithesis are a realm of more complex and pragmatic negotiations, asymmetrical relationships, mutualities and symbioses. The role of theory here is not abstract, but serves to map out possibilities, and to challenge and provoke, as well as analyse, art/science practice.

Presentations

Karen Ingham, *Descartes' eye: Theorising the art and science of observation*

This paper postulates that contemporary collaborations between art and bioscience are stimulating new discourses on the nature of subjectivity and vision in an era of rapidly changing medical imaging technologies and genetic transformation, and that these discourses are challenging the very epistemological foundations of knowledge itself, particularly with regard to the theorising of science and art. I cite Descartes' experiments with optics and vision as an example of how the act of observation is capable of rupturing the oppositional binary stances of objectivity and subjectivity, being mutually inscribed in both art and science. Filtered through my experience of working as an artist and theorist in the field of bioscience/arts collaboration, I argue that theoretical differences between science and art need not necessarily be destructive but can, through rigorous and inventive contexts, act as a source of creative tension and interdisciplinarity.

Karen Ingham is a lens-based artist, writer, lecturer and is currently the Arts & Humanities Research Council's 'Sciart Research Fellow' at Cardiff UK School of Biosciences. Her work has been exhibited internationally and published widely. Her Wellcome Trust sciart project 'Anatomy Lessons' (2004) was published by Dewi Lewis Publishing and was exhibited as a series of site-specific installations across Britain and Europe. Karen was 'Artist in Residence' at the Waag Media Society in Amsterdam in 2005, and is presently Gulbenkian Foundation 'sciart' awardee (2005-6); 'Engaging Science' referee for the Wellcome Trust; lecturer in medical arts collaboration. Forthcoming sciart essays include: *Vanitas* (Ffotogallery/IRIS 2005) and 'Theatres of science' (Rodopi 2006).

Chris Henschke, *Broken symmetries in art and science*

Although the disciplines of art and science have diverged since the 1700s, with rationalist and logocentric scientific practice being the dominant tradition. Art practice that uses the technologies ultimately created from physics theories is a continuing tradition of examining science and its connections with scientific ideas and processes. Although lauded as being logical and empirically dogmatic, the mathematical and physical sciences have foundations in uncertainty and irrationality. Artwork that can communicate with scientists may bring their acceptance and formalisation of creativity, thus opening up new possibilities in scientific research and art / science collaborations.

Chris Henschke, born in 1972, is a Melbourne-based artist who has been working with digital media since 1993. His main areas of research are in sound and visual relationships, interactivity, and

art/science hybrids. His artworks have been shown in many venues including the National Gallery of Australia (2004), the Australian Centre for Contemporary Art (2001), the National Gallery of Victoria (2000), *MILIA 99* (Cannes, France, 1999) and the Fifth Australian Contemporary Art Fair (1996). Articles on his work have been published in *Interzone: Media Arts in Australia* by Darren Tofts (2005), *Symmetry* magazine (vol. 2 no. 4), *Desktop* magazine (nos. 174 & 200), and the Australian Film Commission's *Digital Australia 99* showcase book. Henschke has been in a collection of bands since 1990, including the noise-rock-punk-funk outfit 'Crank' (1992-96), and has composed several film soundtracks. He studied science at Melbourne University and multimedia at RMIT University, and is a lecturer in the Bachelor of Arts Multimedia program at RMIT University.

Jules Moloney, *Architectural science: Literal and notional force fields*

The use of science in the art of architecture alters between literal transfer and interpretations based on analogy and metaphor. Direct applications of science can be seen as disciplinary colonization, where functional performance overrides the role of architecture as a form of public art. Are the literal application of science as functional determinism, and a public art responsibility mutually exclusive? Is the use of analogy, metaphor or other notional interpretations of science by the arts, more likely to stimulate innovative practice? These issues are considered here in relation to a particular case – the concept of field forces – which transformed the physical sciences at the turn of the nineteenth century. Contemporary interpretations of the idea of the field, together with Brian Massumi's approach to literal appropriation, offers a positive 'mis-use' of science within the arts, that in the case of architecture simultaneously address art and environmental science agendas.

Jules Moloney – After 10 years of architectural practice in London, Jules was appointed in 1997 as lecturer in design and computing at the University of Auckland. In 2006 he takes up the position of senior lecturer in digital architectural design at the University of Melbourne. His research focus is the impact of digital design methodology on architectural theory and practice. This agenda is being investigated via innovative design studio teaching, funded research in collaboration with computer scientists and historians, and creative works.

Beyond Boundaries: Practice

Chaired by Professor Ernest Edmonds

Artist; Professor of Computation and Creative Media;

Director, Creativity and Cognition Studios, University of Technology, Sydney

Session Themes – This session will expose important practicalities of interdisciplinary collaboration. It reports on the pragmatics of collaborative art practice by reporting on specific case studies. A number of important questions are addressed: Can we identify protocols for successful collaboration? What is the role of trust in the development of shared languages? How can scientists and artists deepen their engagement and advance models of working? What are the implications for art practice? What are the new emerging art forms? What new science is being enabled? Can collaboration offer more both to scientists and to artists than each obtain in isolation?

Ernest Edmonds first used computers in his art practice in 1968. He has exhibited throughout the world, from Moscow to LA, and published widely in the area, undertaking many international speaking engagements. He is Professor of Computation and Creative Media at the University of Technology, Sydney where he runs a multi-disciplinary practice-based art and technology research group, the Creativity and Cognition Studios. His research with Linda Candy into collaborative art practice was reported in their Springer Verlag book *Explorations in Art and Technology*. Artists Bookworks has recently published his book *On New Constructs in Art*.

Presentations

Trish Adams, *Experiments for vital force: A productive art/science collaboration*

Issues relating to the potentials and practicalities of meaningful art and science convergences and intersections are addressed in this paper through the articulation of a productive art/science collaborative model between a visual artist and a biomedical scientist. The methodologies described exemplify the hybrid amalgamation of research practice and research subject that transpired in conjunction with the constantly evolving collaborative art/science model. Particular emphasis is placed on the conceptual rationale underpinning the artist's use of her own stem cells in an immersive strategy that contravened the accepted norms of so called objective research practice. The sequential processes are outlined and discussed in relation to the concerns and protocols of the disparate disciplines and the specialties and aims of the artist and the scientist that contributed to the productive collaborative paradigm.

Trish Adams has been working at the nexus of art and science since 1998. She recently completed her Doctor of Visual Arts at Griffith University. Her thesis explored the impact on expressions and representations of corporeality of experimental techniques in biomedical engineering and took the form of a three-part quasi-scientific parody of the nineteenth century search for the 'vital force'. This research involved changing stem cells from the artist's blood into beating cardiac cells in vitro through a pioneering, productive art/science collaboration with a biomedical scientist at the School of Biomedical Sciences, University of Queensland.

Petra Gemeinboeck & Andy Dong

Discourses of intervention: A language for arts collaboration

This article explores how two different kinds of subjects, an architect/digital media artist and an engineer, tease out and negotiate ideas from alien contexts. Brought together by a desire to explore the cybridity of physicality through artistic expressions, we recognise the need for a new language and ways of speaking that open potentials for the creation of new realities. Postcolonial discourse and the concept of vertical and horizontal discourses theorised by educational sociologist Basil Bernstein will provide the lenses by which we describe our collaboration, which is partially performed herein through language. We propose to describe our discourse of intervention as discourses in which each dialogue is a deliberative "language game" played out through the metonymy of ideas in our fields (e.g., belonging and fuzzy membership functions) to produce a subject always different to itself. By interjecting interventions between and among our respective territories of knowledge, we hope to create a new mode of practice that is neither trapped by our territories nor a duplex copy of them, but rather multidimensional transmissions reinterpreting our meaning structures.

Petra Gemeinboeck is an architect/media artist and a Lecturer in Digital Media at The University of Sydney. Her artistic practice and theoretical research bring together the fields of architecture, computer science, media art and visual culture. Her interactive installations and virtual environments have been exhibited internationally at venues such as Archilab 2004, Orléans, the Ars Electronica Center, Linz, the Museum of Contemporary Art Chicago, and the InterCommunication Center, Tokyo, and have been featured in magazines such as *ARCHIS* and *Computer Graphics World*. Petra has published widely on the interrelations of physical and virtual spaces and issues of embodied negotiation in virtual environments.

Andy Dong is a Senior Lecturer in Design Computing and Cognition in the School of Architecture, Design Science and Planning at The University of Sydney. His research focuses on philosophical and computational studies on how design text comes to give an account of design practice and designed works and developing mobile design studios that create authentic contexts for designing.

Alexa Wright & Alf Linney, *The art and science of a long-term collaboration*

In this paper we consider some aspects of the historical relationship between science and art, and look at some implications of these historical precedents for contemporary art-science collaborations. From our experience we identify some of the important elements of a successful collaboration, including: creativity and risk taking; the development of a common language; external endorsement in the form of funding and public recognition. We look at a number of practical considerations that face scientists and artists working together and then present a range of issues relating to our own collaborative projects. We conclude that creative collaborative partnerships open up a space in which individual artists and scientists can gain a new perspective on their own work and together can acquire new tools to reflect on some of the bigger issues that concern us all.

Alexa Wright is a visual artist working with photography and digital media. She is a Senior Research Fellow and Lecturer at the Centre for Art, Research and Technology Education at the University of Westminster in London. Alexa has recently been awarded an AHRC/Arts Council Fellowship to work on a new project in the Centre for Auditory Research at University College London, where she has collaborated with Professor Alf Linney since 1998.

Alf Linney is a Professor of Medical Physics at the Centre for Auditory Research, University College. Over the past 25 years he has developed methods of applying computer graphics and augmented reality techniques to surgery. He had a long standing interest in the relationship between art and science and has exhibited his sculpture internationally.

Risk, Failure and Legitimacy

Chaired by Professor Stuart Bunt

Scientific Director, SymbioticA;

Professional Fellow, School of Anatomy and Human Biology, University of Western Australia

Stuart Bunt is Professorial Fellow, Co-Founder and Scientific Director of SymbioticA, School of Anatomy & Human Biology, University of Western Australia, a research lab for the artistic exploration of primarily biological scientific knowledge and technologies. D. Phil, developmental neurobiology, Oxford, anatomist and medical teacher, vice president NTEU, founder and MD of Paradigm Diagnostics, designing expert systems software for medical diagnostics. Increasingly involved with bio-art, is part of the SymbioticA research group responsible for 'Fish and Chips' and later MEART, the "creative" robot; and has consulted and collaborated with numerous artists such as Stelarc, Boo Chapple and Nigel Helyer in the production of bio-art works.

Session Themes – The use of ever increasing complexity in sci-art works has led to new difficulties. In this emerging and still immature field questions are raised about its legitimacy, is it art or science? Does its very existence, no matter how critical, increase the acceptability of the science? Given its complexity, can mystery and doubt be maintained while still communicating meaning? What do we make of 'fake' works – can we even tell fake from real without specialist knowledge – does it matter? If the works involve (as they should) controversial and cutting edge techniques – failure becomes a very real option.

Presentations

Boo Chapple, *Sing dem dry bones, sing*

This paper explores questions of risk, legitimacy and failure through reference to a current research project directed towards making audio speakers out of pig bone. 'Sing Dem Dry Bones, Sing' articulates the different, and sometimes contradictory, requirements for legitimacy that operate in the sciences and the arts and investigates the risks involved in making interdisciplinary work that potentially satisfies neither. It questions how work that straddles disciplinary boundaries should be

understood and asserts the importance of sharing the research process, including its frustrations and disappointments, with the wider community. Finally, the paper expresses a belief in the importance of pursuing difficult visions and novel combinations despite the problems that may arise from conflicting disciplinary agendas.

Boo Chapple has recently completed a Masters of Design at RMIT University, where she studied in the Spatial Information Architecture Laboratory, and is a practicing artist and researcher. She was awarded the 2005-06 Australia Council for the Arts SymbioticA Art and Science Residency and is currently a researcher in the School of Anatomy and Human Biology, at the University of Western Australia. Previous work has been presented at the Beijing Biennale of Architecture, commissioned by ABC radio, included on a compilation in the Australian Music on Disc series and in an exhibition of Australian sound art at the San Francisco MOMA. Her essay 'Journeys to the Other Side of the Navel' has been published in an upcoming book *Art of the Biotech Era*.

Shawn Bailey & Jennifer Willet, *Biotechnica: Soft experiments from the laboratory*

BIOTEKNICA is an umbrella art/research project posing as a fictitious biotech corporation in which designer organisms are generated to meet consumer demand. However, the organisms produced by BIOTEKNICA do not adhere to the structures and functionality normally manifest in nature. They are irrational and grotesque. They are modelled on the Teratoma, an unusual cancerous growth containing multiple tissues like hair, skin, and vascular systems. Monstrous as this may seem, scientists today see the Teratoma as an instance of spontaneous cloning, and are conducting research on the Teratoma with the goal of developing future technologies. BIOTEKNICA both embraces and critiques evolving biotechnologies, considering the deep contradictions and complexities that these technologies offer the future of humanity.

In the past, BIOTEKNICA has manifest as a purely multimedia production. However, we are now bringing our theoretical specimens out of their virtual environment and into the laboratory. In summer of 2004 we worked as Research Fellows at the SymbioticA Art/Science Laboratories at The University of Western Australia, where we began preliminary investigations into growing tissue prototypes to serve as representations of our product line. Here we commenced research with tissue culture protocols in the production of artwork as pioneered by Oron Catts and Ionat Zurr, of the internationally recognized Tissue Culture and Art Project, and SymbioticA founders. In 2006, we have returned to SymbioticA to work in Collaboration with TC&A to complete our tissue prototypes.

Our paper will focus principally on notions of legitimacy (and illegitimacy) as critical tropes in the production of artistic and scientific representations. We will investigate the deterioration of legitimacy in instances of interdisciplinary production with an emphasis on our experience as non-scientists working in the SymbioticA laboratories, and our status as pseudo-specialists in peer based ethics review procedures for scientific research involving the use of animal and human research subjects. We will explore models of 'soft experimentation' that highlight our liminal status as critic/practitioners working in contemporary biological art practices and the realm of scientific technologies and discourses – and the methodological foundation of BIOTEKNICA.

Jennifer Willet is an artist, a part-time faculty member in Studio Arts at Concordia University, and a PhD student in the Interdisciplinary Humanities program at the same institution. Her work explores notions of self and subjectivity in relation to biomedical, bioinformatics, and digital technologies with an emphasis on social and political criticism. She has exhibited, and presented her research extensively across Canada and internationally. Since 2002, she has collaborated with Shawn Bailey on an innovative computational, biological, artistic, project called BIOTEKNICA. www.biotechnica.org

Shawn Bailey is a practicing artist working with digital print media, video and installation. His current research explores notions of authority, control structures, media and international biotech and pharmaceutical policies. He is an Associate Professor at Concordia University in Studio Arts

(Print Media) and an artist-researcher with the Hexagram Institute. He embraces a professional art practice rooted in interdisciplinary considerations manifest in exhibitions, publications, public lectures and multi-media/web projects across Canada and internationally. Since 2002, he has collaborated with Jennifer Willet on an innovative computational, biological, artistic, project called BIOTEKNICA. www.bioteknica.org

Mari Velonaki, David Rye, Steve Scheduling & Stefan Williams,
Sharing spaces: Risk, reward and pragmatism

This paper presents observations on the nature of interdisciplinary collaboration drawn from our work together on a three-year art-science project. Several interpersonal attributes that appear to contribute to a successful collaboration are identified. A model of collaboration based on scholarship is presented. A number of risks associated with moving into fully-engaged collaboration with people from other disciplines are outlined together with the undoubted rewards that can flow from such engagement.

Mari Velonaki is a media artist working in the field of interactive installation. During the last ten years her work has been engaging spectators with digital characters in interplays activated by sensory triggered interfaces (breath activated, electrostatic charge measurements, artificial vision systems, robotics). Her principal contribution in the field of Media Arts is the creation of experimental interfaces extending well beyond the standard mouse-keyboard-screen, which allow for a more haptic and immersive relationships between the participants and the artwork. In 2003 she was awarded a PhD in Media Arts at the College of Fine Arts, University of New South Wales and is the current recipient of an Australian Research Council Postdoctoral Fellowship at the Australian Centre for Field Robotics¹, University of Sydney. Velonaki's installations have been exhibited nationally and internationally, exhibitions include: Beijing New Media Arts Biennial 2005; Ars Electronica 2004; Biennale of Electronic Arts Perth 2004, *Converge Where Art and Science Meet*, 2002 Adelaide Biennial of Australian Art; *Heterosis – Digital Art From Australia*, Arco, Madrid; European Media Arts Festival, Ösnabruck; *Start-Up*, Te Papa Tongarewa Museum of New Zealand; *Primavera*, Museum of Contemporary Art, Sydney.

David Rye works in embedded and applied control of machinery, and in the design and implementation of computer-controlled systems. Although his background is in mechanical engineering (BE, University of Adelaide 1981; PhD, The University of Sydney 1986), he now works principally on computerised machinery, electronics, software and systems design. Dr Rye has conducted a number of industrial research and development projects related to automation and control of machinery, including methods for reduction of load sway in shipboard cranes; reeving arrangements for cranes used for container handling; and the system design of an autonomous cargo handling vehicle. David is internationally recognised as a pioneer in the introduction and development of university teaching in mechatronics, having instituted the first Australian Bachelor of Mechatronic Engineering in 1990.

Steve Scheduling's research concentrates on the acquisition, representation, interpretation and visualisation of three-dimensional environmental data. He has used disparate sensors, such as laser, radar, cameras and multi-spectral sensors for capturing data from outdoor terrains. The data include information such as range, reflectivity etc., as well as terrain properties such as colour and plant health. Steve's innovative software enables the acquisition-representation-visualisation pipeline to

¹ The Australian Centre for Field Robotics (ACFR) is a partner in the ARC Centre of Excellence in Autonomous Systems. Dr David Rye, Dr Steve Scheduling, Dr Mari Velonaki and Dr Stefan Williams form the core art/science collaboration at this institution. Areas of research include robotics, distributed and decentralised systems and human/machine interaction.

operate in real-time. Dr Scheduling has a PhD (1998) and a BE (1995), both in Mechatronics from The University of Sydney. Apart from his work in representation and visualisation, Steve has conducted extensive R&D work on the automation of land vehicles and mining machinery.

Stefan Williams' current research focus deals with architectures for autonomous systems. He is interested particularly in the area of distributed and decentralised data fusion, and in how systems can be designed to enable autonomy. An important research question arises from the interaction of autonomous systems with an audience. How can people be integrated into these systems, either as an audience or from the point of view of control? Stefan has a PhD in Field Robotics from The University of Sydney (2001), and a BAsC in Systems Design Engineering from the University of Waterloo (1998). He is currently working on demonstrating multi-vehicle Simultaneous Localisation and Mapping using a newly created indoor robotics facility at the ACFR. This work will be adapted to field environments as it matures. His field work focuses on the area of marine systems, where he is deploying an Unmanned Underwater Vehicle for surveying marine habitats, including coral reefs.

New Languages: Communicating with the Public

Chaired by Dr Anna Munster

Senior Lecturer; Deputy Director Centre of Contemporary Art and Politics,
College of Fine Arts, University of New South Wales

Session Themes – Both the arts and sciences possess increasingly specialised vocabularies, syntaxes and techniques that seem accessible only to experts within the field. How, then, do public audiences engage with emerging creative intersections such as bioart, new media environments and robotics? Is it necessary or even possible to create a common language through which art-science endeavour can engage with a non-specialised public? This session asks whether art and science do indeed share a common language or whether shared communication is even necessary for aesthetic engagement.

The three speakers examine the place of art within public scientific arenas such as museums, the incompatibility of art-science communication and the role of metaphor in both the scientific and artistic imagination.

Anna Munster is a new media theorist and artist and a senior lecturer at the College of Fine Arts, University of New South Wales. She is the author of a new book, *Materializing New Media* (University Press of New England, 2006), and has published for the journals *CTheory*, *Culture Machine*, *Australian and New Zealand Journal of Art* among others as well as contributed to anthologies on new media and contemporary art. She works in sound, video and new media and has recently exhibited at the Australian Museum and at Eyebeam Gallery, New York. She is a member of the editorial committee of the online journal *fibreculture*. She was the recipient of an Australian Research Council Discovery Grant from 2003-2005.

Presentations

Michael Goldberg, *The Butterfly Effect*

The Butterfly Effect was produced for the Australian Museum in January 2005. It was the third in series of installation projects that I've curated in sites of historic significance in Sydney. The exhibition, featuring sculpture, video, audio and interactive computer works, comprised the contributions of 13 artists: Brook Andrew, Tom Arthur, Michele Barker, Leon Cmielewski, Jackie Dunn, Joan Grounds, David Haines, Nigel Helyer, Joyce Hinterding, Anna Munster, Josephine Starrs, Louise Weaver, and myself. The Australian Museum, founded in 1827 is the country's oldest museum. This was its first exhibition on this scale, involving artists responding to and intervening

in its displays. The paper deals with the established inclusion of artists in the curatorial strategies of 'non-art' institutions such as ethnographic and natural history museums; and public response to the presence of art in these venues. The relationship between art and science is central to the paper's theme, and the subject is teased out through speculation and anecdote.

Michael Goldberg has made work and produced curatorial projects for sites of historic significance in Sydney. His interest is the cultural bias present in historical displays presented for public viewing. His site-specific installations have featured in Elizabeth Bay House, Tusculum, The Royal Botanic Gardens and the AGNSW. Goldberg has also produced work dealing with the representation of global finance on the Internet (*NCM – open/high/low/close*, Bathurst Regional Gallery, and *catchingafallingknife.com*, Artspace,). Curatorial projects, *Artists in the House!*, *Swelter* and *The Butterfly Effect* were produced for Elizabeth Bay House, The Royal Botanic Gardens and the Australian Museum. Goldberg teaches at Sydney College of the Arts.

Jane Quon, *Synergies and tensions in the application of irreducible communicative paradigms to issues of marine ecology*

Art-science collaborations are frequently bedevilled by imbalances in the structural power of the two pedagogies and by tacit misunderstandings on the part of scientists of the nature of art as a unique and potent communicative medium. It is argued that the two constitute languages that are irreducible to each other, and that it is precisely from this irreducibility that the synergistic potency of art-science partnerships stems. The communicative demands of art-science collaboration militate against gallery exhibition and in favour of democratic presentation in high-traffic public space. A case is made for the communicative efficacy of 'difficult' art, even within 'democratic' space, and a project involving the authors of this paper and the Malaysia-based NGO, the WorldFish Center, to test the validity of these ideas within the context of WorldFish's social justice and marine ecological science agenda, is described.

Jane Quon is an installation artist whose principal objective is to communicate marine ecological issues. She is currently engaged as a Post Doctoral Fellow in an Australian Research Council project under the auspices of the University of Tasmania and the WorldFish Center, a non-government scientific research organisation committed to contributing to food security and poverty eradication in developing countries.

The principals of the ARC research group comprise Reader in Geography and Environmental Studies and policy specialist, Peter Hay; Senior Lecturer in Drawing at the Tasmanian School of Art, artist and art educator, Lindsay Broughton; and WorldFish Deputy Director-General, Jamie Oliver.

Michele Barker, *Exchanging information: metaphors of computation in neuroscience, genetics and new media*

This paper addresses the impact that the field of the life sciences has had upon the work of visual artists over the past two decades and identifies a significant shift in a variety of new media arts practices. The work undertaken by many digital artists from the early 1990s was closely associated with research and development in the field of artificial life. The underlying conceptual and methodological reasons for the adoption of evolutionary biological metaphors within artificial life, as well as for the development of a digital artistic practice using these metaphors are explored. This paper discusses the metaphorical relationship between the digital computer and the living organism in new media artistic practice dating from this period. It also looks at the use of biological metaphors in the current artistic shift into neuroaesthetics within art-science practice.

Michele Barker has been working and exhibiting within the area of new media for over a decade, exhibiting extensively in Australia and overseas. Barker's work integrates photographic, video and interactive practices. Her work is concerned with conceptually addressing issues relating to

perceptions of identity through an exploration of genetics and neuroscientific research. She recently completed a PhD that addresses notions of corporeality and otherness within the paradigms of medicine and science. Barker is a lecturer in New Media Art at the College of Fine Arts, University of New South Wales.

Panel Discussion – *For the Benefit of Society?*

Facilitated by Ms Linda Cooper

Project Director, Bragg Initiative, Government of South Australia

Linda Cooper is a consultant for public and policy developments in the arts, sciences and cultural activities. She has worked for museums and science centres nationally and in the Asia Pacific region, developing and producing exhibitions and programs. Linda was the Chair of the Australian Network for Art and Technology for four years, and was a member of the New Media Board of the Australia Council of the Arts and the Australia Council's Multicultural Arts Committee, 2000-2003. Linda has a degree in chemistry and English literature, postgraduate qualifications in science communication. She is presently working with neuroscientist Baroness Professor Susan Greenfield and the South Australian Government in developing an implementing a somewhat unique policy for science and society, a result of Susan's time as Adelaide's 'Thinker in Residence' Program, 2005. She is currently Deputy Chair, Experimental Arts Foundation.

Session Themes – Artists and scientists influence, and are influenced by, the societies within which they orbit. New insights and new research breakthroughs challenge our assumptions and ethical deliberations. At the same time, new creations that result from science and art collaborations often have ethical implications of their own. In addition, the translations of this work to a broader audience, and therefore its ability to affect change, involves some level of responding to these ethical dimensions.

This session will be run as a conversation between invited participants and the audience. The discussions of this session will explore, but are not limited to the following questions:

- Who should assume responsibility for critiquing and evaluating the ethical implications of artists and scientists work?
- What is the role of the media in translating these ideas?
- How can artists and scientists influence agendas for society?

Panel contributors are:

Oron Catts, Artist and Director, SymbioticA,
Department of Human Anatomy, University of Western Australia

Janne Ryan, Producer, ABC Radio National

Wilson da Silva, Editor, Cosmos magazine

Oron Catts is Artistic Director of SymbioticA, an Artist/Researcher, and curator. Founded the Tissue Culture and Art Project (TC&A) in 1996. Co-Founder and Artistic Director of SymbioticA - The Art & Science Collaborative Research Laboratory at The School of Anatomy & Human Biology, University of Western Australia. Curated *Biofeel* and *BioDifferences* exhibitions (BEAP 2002 and 2004). Was a research fellow at The Tissue Engineering & Organ Fabrication Laboratory, Massachusetts General Hospital, Harvard Medical School (2000-2001). Trained in product design and Visual Art, Oron exhibited and presented his work in North America, Europe and Asia including in Ars Electronica, The Boston Cyberart Festival, Adelaide Biennale of Australian Arts,

L'Art Biotech France, Tate Modern. His papers have been published widely in academic and general publications.

Janne Ryan – To her role as Producer for ABC Radio National – currently for the program *By Design* – Ryan brings a deep interest in politics and culture. She has extensive experience as a radio producer, having worked as executive producer for many of Radio National's flagship shows, including *Late Night Live*, *Breakfast* and *Arts Today*. Other Radio National programs she has produced include *Counterpoint* and *Big Ideas*. For ABC TV Ryan co-produced the award-winning architecture series *In the Mind of the Architect*, which has been screened worldwide. For ABC2 she recently co-curated *Boo Hooray*, dedicated to video art. Ryan writes on culture for the *Australian Financial Review* and is an occasional critic on Richard Glover's ABC 702 Sydney's Critic's Panel segment. She has a Bachelor of Arts in politics and philosophy, and is currently working with UK historian Theodore Zeldin on the role of conversation in our lives.

Wilson da Silva is Editor of *Cosmos* magazine. He has worked in newspapers, magazines, television and online. A former on-air reporter for ABC TV's *Quantum* science show, he has served as editor of the magazines *Newton* and *21C*, was science editor of ABC Online, has been a foreign correspondent for the newswire Reuters, and is a former journalist on *The Age* and *The Sydney Morning Herald*. The winner of 15 journalism and film awards - including the Human Rights Award, the Michael Daley Award and the AFI Award for Best Documentary - he is currently president of the World Federation of Science Journalists and is a former president of The Australian Museum Society and the Australian Science Communicators.

Value and Success: Collaboration and the Market Place

Mr Chris Powell, Chair, National Endowment for Science, Technology and the Arts, UK,
in conversation with

Dr Mandy Thomas, Executive Director for the Humanities and Creative Arts at the Australian Research Council.

Chris Powell is Chair of NESTA and of the Think Tank of The Institute of Public Policy Research, UK. He also chairs the creative industries advisory group of the British Council and is a board member of United Business Media PLC and Riverside Studios. Chris spent his career in advertising, joining the advertising agency, BMPDDB, at its inception in the late 60s, before going on to become its Chief Executive and then Chairman. He continues as a Director of the Agency. From 1995, he was Deputy Chairman of Riverside Community Healthcare NHS Trust and from 2000-02, the Chairman of Ealing and Hounslow Health Authority.

Dr Mandy Thomas is the Executive Director for the Humanities and Creative Arts at Australian Research Council. She is a social anthropologist with extensive multi-disciplinary experience which has involved research, consultancies and publications in the areas of Indigenous Australia, multicultural Australia, and Asian studies. More specifically, Dr Thomas has conducted research into: Indigenous languages; Asian migration to Australia; Asian and Middle Eastern youth in urban Australia; youth cultures, and social and political change in Vietnam; cultural traffic in the Asian region; and Asian-Australian art.

Group Dialogue Sessions

On Saturday following the paper presentations, delegates will be invited to select a discussion group of their choice relating to one of the Conference themes. In five flexible groups, session Chairs and contributors will lead more informal discussions arising out of the conference presentations.

Dialogue Session/ Summing Up

Professor Hugh Durrant-Whyte, Director, Australian Centre for Field Robotics, The University of Sydney, and

Ms Lisa Colley, Strategist, will lead a general dialogue and summary session at the conclusion of the Conference.

Hugh Durrant-Whyte is Director, Australian Centre for Field Robotics, University of Sydney, where he leads the ARC Centre of Excellence in Autonomous Systems. His research work focuses on autonomous vehicle navigation and decentralised data fusion methods. He has published over 300 technical papers and has won numerous awards and prizes for both his academic work and his commercialisation activities. Durrant-Whyte has previously held the positions of Senior Lecturer in Engineering Science, the University of Oxford, U.K., and Professor of Mechatronic Engineering at University of Sydney. In 2002 he was awarded an inaugural Australian Research Council (ARC) Federation Fellowship.

Lisa Colley has over 20 years experience working across the arts, community organisations and government sectors. Lisa was the first Manager of the New Media Arts Board of the Australia Council for the Arts from 1996 – 2001. During this time she developed an interdisciplinary performance incubator, *Time_ Place_ Space*, and the Australia Council's Art and Science strategy. This strategy resulted in the Art/Science initiative *Synapse*, enabling collaborations between the arts and sciences. From 2001 to mid 2005 Lisa was the Executive Director of Policy Communication and Research at the Australia Council for the Arts. Currently Lisa is undertaking a Masters in Community Management and working as a consultant in the non-profit and tertiary sector.

Affiliated Event: *Syren for Port Jackson*

Syren is an immersive sound experience of Sydney Harbour aboard the ferry *Regal*, which departs from Commissioner Steps adjacent to the MCA throughout the New Constellations conference. A collaboration between artist Nigel Helyer and scientists Chris Rizos and Daniel Woo of the University of New South Wales, *Syren* is open to the public. Each tour is 90 minutes in length and limited to 30 participants.

Bookings essential (Mon – Fri): +61 2 9245 2484 or education@mca.com.au

For more information visit <http://www.mca.com/events>

Conference Organising Committee

- Ms Judith Blackall, Head Artistic Programs, Museum of Contemporary Art;
- Professor Hugh Durrant-Whyte, Professor of Mechatronic Engineering and Director, Australian Centre for Field Robotics, The University of Sydney;
- Ms Anneke Jaspers, Museum Studies, Faculty of Arts, The University of Sydney;
- Ms Lizzie Muller, Creativity and Cognition Studios, Faculty of Information Technology, University of Technology, Sydney;
- Ms Julianne Pierce, Visual Arts Coordinator and Curator, Artists' Week, Adelaide Bank Festival of Arts 2006;
- Dr Melinda Rackham, Executive Director, Australian Network for Art and Technology;
- Dr David Rye, Roboticist, Australian Centre for Field Robotics, The University of Sydney;
- Dr Steve Scheduling, Roboticist, Australian Centre for Field Robotics, The University of Sydney;

- Ms Jasmin Stephens (Chair), Senior Manager, Education and Access, Museum of Contemporary Art;
- Dr Mari Velonaki, Artist and Postdoctoral Research Fellow, Australian Centre for Field Robotics, The University of Sydney;
- Dr Stefan Williams, Roboticist, Australian Centre for Field Robotics, The University of Sydney.

Links for Supporting Organisations

Australian Network for Art and Technology

<http://www.anat.org.au/>

Australian Centre for Field Robotics

<http://www.acfr.usyd.edu.au/>

Artspace

<http://www.artspace.org.au/>

Australian Research Council – Australia Council for the Arts

http://www.arc.gov.au/arc_home/default.htm

Creativity and Cognition Studios

<http://research.it.uts.edu.au/creative/ccrs/>