

FERAL EXPERIMENTAL



new design thinking

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Dingo Logic:

Feral Experimental and New Design Thinking

Feral Experimental: New Design Thinking brings together leading international practitioners and researchers who create new possibilities for design. By exploring the boundaries and overlaps between design thinking, speculative design, co-design, participatory design and exploratory experimentation, the exhibition, symposium and workshops that make up *Feral Experimental* highlight the impact of design methods that are currently being developed in universities and research centres. The *Feral Experimental* exhibition sets out to explore state-of-the-art strategies for negotiating significant contemporary challenges, from preparations for extreme weather events to energy conservation and the preservation of cultural heritage.

Experimental approaches to design thinking that are included in the exhibition engage with user experiences via cultural probes and tangible interactions.¹ They are informed by design ethnography, design anthropology, sociology, new combinations of technology, as well as reflections on what these mean by designers and artists. This introduction describes aspects of these methodologies and other forms of creative production related to design. The objective is not to box-in the works included in the exhibition into definitive categories. People don't think that way. Furthermore, the definitions of speculative design, co-design, participatory design and exploratory experimentation are hotly contested.² The descriptions provided here do not seek to simplify these terms but are intended to provide provisional definitions for methodologies used in design research contexts for non-specialist audiences. As provisional definitions they introduce the terms used in the *Feral Experimental* exhibition catalogue and open up specialist terminology for wider discussion.

Speculative design aims to provoke debate in design. Design is a field that has historically addressed industry requirements. As a form of reflexive design that is critical of industry norms, speculative design is sometimes seen as external to the core concerns of design. It is associated with radical design, adversarial design and critical design.³ Speculative design proposes that engaging people to think critically about their interactions with design is necessary. Often exhibited in galleries and museums, speculative design reflects on what might now be possible with science and technology. As a design team recognised for their contributions to speculative design, Anthony Dunne and Fiona Raby recently described it as a number of approaches to design that can be characterised as “fictional worlds”, “what-if scenarios” and “cautionary tales”.⁴ They see these approaches as distinct from design thinking because of the latter's focus on, in their words, “the limits of reality as it is”.⁵ Speculative design is often seen as a conflation of art and design, but Dunne and Raby prefer to locate it within the realm of alternative scenarios of what may occur in the near future.⁶ They suggest that speculative design is “thinking through design” in that it challenges how technology influences and is imposed on everyday life.⁷

Co-design is a collaborative endeavour between the users of designed products and services, and designers. Its purpose is to design with rather than for stakeholders and it is a method that is emphasised in user-centered design, service design and UX (user experience). Elizabeth Sanders, an early advocate of co-design, describes it as “social or collective creativity”.⁸ A key principle of which, in Sanders's words, is that “all people are creative” and it sees utility as design's first priority.⁹ This combination reframes design as a process that must draw on the creative resources of all stakeholders for a design to be effective.

¹ For an early account of cultural probes, see Bill Gaver, Tony Dunne and Elena Pacenti, ‘Cultural Probes’, *Interactions* 6.1 (January 1999): 21–29.

² For an example of the sometimes heated debate in design research communities, see *Design and Violence*, <http://designandviolence.moma.org/republic-of-salivation-michael-burton-and-michiko-nitta/> (accessed June 2014).

³ Andrea Branzi, *The Hot House: Italian New Wave Design* (London: Thames & Hudson, 1984); Carl DiSalvo, *Adversarial Design* (Cambridge, Mass: MIT Press, 2012); and Anthony Dunne, *Hertzian Tales* (Cambridge, Mass: MIT Press, 2005).

⁴ Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge, Mass: MIT Press, 2013): 3.

⁵ Dunne and Raby, 12.

⁶ Christina Cogdell, ‘Design and the Elastic Mind’, Museum of Modern Art (Spring 2008), *Design Issues* 25.3 (summer 2009); Dunne and Raby, 14.

⁷ Dunne and Raby, 35, 134.

⁸ Elizabeth Sanders and Pieter Jan Stappers, *Convivial Toolbox: Generative Research for the Front End of Design* (Amsterdam: BIS, 2012): 7, 58, 7.

⁹ Sanders and Jan Stappers, 8.

Co-design has a strong focus on drawing out tacit knowledge, or what people know without being fully conscious of it. Co-design is opposed to speculative design, and what Sanders and Pieter Jan Stappers call “an expert mindset” that they claim characterises people as consumers.¹⁰ They argue that co-design engages with end-users of design as equal partners in developing design as a creative act. A leading proponent of co-design, Bill Gaver, describes co-design projects as built on the principles of “communities of practice”.¹¹

Participatory design also explores design as a collaborative practice. It shares with co-design a focus on utility and prioritises the design user as a key stakeholder. Like co-design, it emphasises tacit knowledge and one of its guiding principles is to expect controversy rather than consensus.¹² Founded on the principle of creating legitimate participation for all stakeholders during periods of technological change, participatory design explicitly engages with ethical issues in social intervention. It differs from co-design in that it includes manufacturers and commissioning agencies and clients in design.¹³ Also known as Scandinavian design, it is informed by the writings of Bruno Latour who argues that design research includes not only design users and commissioning clients, but also non-human actants, such as objects and devices that influence design activities.¹⁴ The aim of participatory design is to engage the imagination of participants rather than merely collect their data.¹⁵ To do this, participatory design often uses design games and workshops to imagine scenarios with people and rehearse alternative ways of doing things.

Exploratory experimentation is a research approach shared between artists and designers. The *Feral Experimental* exhibition includes artworks that explore design themes and processes. These works re-create devices, sometimes invent new ones and demonstrate that design innovation is often collaborative.

They draw from historical precedents and contemporary peers, rather than the visionary insights of heroic designers in the popular imagination. Seeing invention as emerging from exploratory re-creation and experimentation with existing designs, as well as new combinations of ideas, technology and processes, exploratory experimentation crosses the borders of art, design and other fields of practice. The term experimental is often associated with science, but in this context it draws from art history and the radical practices of artists who focused on new approaches in visual art in the 1970s.¹⁶

It is not possible, let alone desirable, to reconcile the differences between the works by the designers, design teams and artists in *Feral Experimental*. The exhibition does, however, present some of the differences, overlaps and intersections between a range of approaches to design research. These approaches are extended by data collection methods that incorporate sensors, cameras and GPS tracking to measure the affect of cycling in *Veloscape*, for example, and ecologically sensitive proposals for agriculture in *Avena+ Test Bed*. Other works, such as *Double Fountain* and *The Phenology Clock*, draw on historical inventions to comment on the connections between complex contemporary social and environmental issues or, in *If We Never Meet Again*, deploy new technologies to explore narrative and design. Significant issues are addressed by some of the designers, including the depletion of energy resources in *Energy and Co-Designing Communities (ECDC)*, while *Community-Centred Innovation* focuses on how to prepare for extreme weather events in remote parts of Australia. Contemporary challenges extend as well to *Kindred Spirits'* design approach to negotiating drug rehabilitation, and *An Empathic Adventure* devises methods for increasing the mobility of elderly people.

¹⁰ Sanders and Jan Stappers, 18.

¹¹ William Gaver, 'Making Spaces: How Design Workbooks Work', *CHI 2011*, Vancouver (7–12 May 2011).

¹² Erling Bjögvinsson, Pelle Ehn and Per-Anders Hillgren, 'Design Things and Design Thinking: Contemporary Participatory Design Challenges', *Design Issues* 28:3 (2012): 101–16, 103.

¹³ Pelle Ehn researched the transition to digital production for newspapers in a combined framework of sociology, human-computer interaction, design and democracy. See Pelle Ehn, *Work-Oriented Design of Computer Artifacts* (Sweden: Department of Information Processing, Umeå University, 1988). See Jesper Simonsen and Toni Robertson (eds), *Routledge International Handbook of Participatory Design* (New York and Oxford: Routledge, 2013) for an account of current engagements with information technologies in participatory design.

¹⁴ A. Telier (Thomas Binder, Giorgio De Michelis, Pelle Ehn, Giulio Jacucci, Per Linde and Ina Wagner), *Design Things* (Cambridge, Mass: MIT Press, 2011); Bjögvinsson, Ehn, Hillgren, 101–16, 103.

¹⁵ Ilpo Koskinen, John Zimmerman, Thomas Binder, Johan Redstrom and Stephan Wesnveen, *Design Research through Practice from the Lab, Field, and Showroom* (Walham, MA: Morgan Kaufmann/Elsevier, 2011): 76.

¹⁶ The Experimental Art Foundation, Adelaide, South Australia, <http://aeaf.org.au/about/aboutaeaf.html> (accessed June 2014).

Playful approaches to imagining new devices are seen in *The Imaginary App* in its presentation of a sample of different apps proposed by app users, and in design responses to everyday hiccups like power shortages in works such as *Flamp*. Often invisible to the naked eye are the research methodologies underpinning such projects. Provocative prototypes, including *Sensitive Aunt*, draw from systems theory and combine aspects of both speculative and participatory design. Another example of an overlap or intersection between these approaches to design are the dolls and rehearsals of design interactions presented in the *Design-Anthropological Innovation Model (DAIM)*. *The Machine to be Another* draws on the principles of open source and combines imaginative engagements with neuroscience and anthropology by allowing people to explore seeing through someone else's eyes. Likewise, neuroscience technology developed by *Emotiv* is applied to real world applications, including the *Attention Powered Car*, while the mobile app *Run That Town* makes urban design a game. Participatory and interaction design is combined in *Circus Oz Living Archive* to preserve significant cultural heritage that was previously stored in legacy media now redundant with digitisation.

By bringing these diverse approaches together, the exhibition shows that the influence and impact of design is now so extensive it has infiltrated every facet of everyday life. Design has gone feral. Like a dingo searching for holes in a fence or a domesticated animal gone wild, *Feral Experimental* shows the convergence of design thinking with the environmental impacts of design, new combinations of technology, and human desires and interaction.¹⁷ One approach for engaging with the works in the exhibition is to consider their differences and identify the overlaps between their approaches and methodologies. Who benefits from exhibiting speculative design as art is a question worth asking. Another

is to compare the internal dynamics of each work with the stated aims of the practitioners. Yet another is to ask whether the principle of empowerment in co-design increases a sense of personal autonomy and, by default, supports the redistribution of responsibility aligned with the withdrawal of funding to statutory authorities in user-pays schemes? And, finally, in what ways are the nuanced debates about and between speculative design, co-design, participatory design and exploratory experimentation opening up or ghettoising design?¹⁸

Katherine Moline

¹⁷ Merryl Parker has attempted to rescue the dingo from its bad rap for treachery in 'The Cunning Dingo', *Society and Animals* 15 (2007): 69-78.

¹⁸ For this question the author would like to thank Noam Toran, whose work, *If We Never Meet Again*, is included in *Feral Experimental*.

Feral Experimental

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Avena+ Test Bed — Agricultural Printing and Altered Landscapes, Benedikt Groß (2013)
Avena+ Test Bed — Agricultural Printing and Altered Landscapes, video
Avena+ Test Bed — Process, video

Circus Oz Living Archive, David Carlin, Lukman Iwan, Adrian Miles, Reuben Stanton, Peta Tait, James Thom, Laurene Vaughan, Jeremy Yuille (2011–2014)
Circus Oz Living Archive, video

Community Centred Innovation: Co-designing for disaster preparedness, Yoko Akama (2009–2014)
Playful triggers
Social Network Map
Community in Emergency Management, video
Southern Otways pilot program, video

Design-Antropologisk Innovations Model / The Design Anthropological Innovation Model (DAIM), Joachim Halse, Eva Brandt, Brendon Clark and Thomas Binder (2008–2010)
Rehearsing the Future (2010), video
Co-Creation of In-Shop Battery Machine (2010), video
Inspiration i en boks: Brugerdreven Innovation på Affaldsområdet (2010)
Toolbox containing print in various formats, digital video, and raw game materials
Joachim Halse, Eva Brandt, Brendon Clark and Thomas Binder,
Rehearsing The Future (Copenhagen: The Danish Design School Press, 2010) (English)
Three magazines (2010) (Danish)

Double Fountain: Schemata for Disconnected-Connected Bodies [after a wWater-clock design by the Arab engineer Al-Jazari 1136–1206], Julie Louise Bacon and James Geurts (2014)
Video

Emotiv Epoc+ and Emotiv Insight, Emotiv Inc. (2010–2014)
Emotiv headset
Emotiv Insight - Optimize Your Brain Fitness and Performance, 2014, video

The Attention Powered Car, Royal Automobile Club, Western Australia (RAC WA) (2013–2014)
The State of Inattention–RAC Webisode 1, September 2013, video
The Brains of the Attention Powered Car–RAC Webisode 2, September 2013, video
Creating the Attention Powered Car–RAC Webisode 3, January 2014, video
Attention Powered Car Test Track Webisode 1–Passengers: Friend, December 2013, video
Attention Powered Car Test Track Webisode 2–In car killers, December 2013, video
Attention Powered Car Test Track Webisode 3–Emotions, December 2013, video
Attention Powered Car Test Track Webisode 4–Tunes vs. Talkback, January 2013, video
What we learnt–Webisode 16, February 2014, video

An Empathic Adventure, Grey But Mobile, Heather Daam with Maartje van Gestel (2013–2014)
An Empathic Adventure, video
An Empathic Adventure, body suit
An Empathic Adventure, photographs

Energy and Co-Designing Communities (ECDC), Bill Gaver, Mike Michael, Tobie Kerridge, Liliana Ovale, Matthew Plummer-Fernandez, Alex Wilkie and Jennifer Gabrys (2010–2014)
ECDC Workbook 1 and Workbook 2
ECDC Cultural Probe Packs
ECDC Energy Babble
ECDC participant photographs
ECDC video

Flamp, Martí Guixé (1997)
Resin light, 16 cm
Cartoon

If We Never Meet Again, Noam Toran (2010)
Two monitors, video

The Imaginary App, Paul D. Miller (aka DJ Spooky) and Svitlana Matviyenko (2012–2014)
40 posters

Kindred Spirits, G-Motiv, Susana Cámara Leret (2013)

Kindred Spirit Model 1, 27 x 26 x 44 cm

Kindred Spirit Model 2, 22 x 12 x 11 cm

The Molecules That Matter: Smell-memory kit, 30

ML glass bottles: 10 x 4 cm; packaging kit (cardboard

& paper), 30 x 9 x 5 m

Photographs

The Machine to be Another, BeAnotherLab: Philippe Bertrand, Christian Cherene, Daniel González Franco, Daanish Masood, Mate Roel, Arthur Tres (2013–2014)

The Machine to be Another, video

The Machine to be Another: Youssoupha Diop, video

The Machine to be Another: Dancing on the Feet -

Embodied Dance, video

The Machine to be Another: Gender Swap, video

The Phenology Clock, Natalie Jeremijenko, Tega Brain, Drew Hornbein and Thiago de Mello Bueno (2014)

Two clocks, New York and Sydney

Run that Town: A strategy game with a twist, The Australian Bureau of Statistics, Leo Burnett Sydney, and Millipede Creative Development, Canberra and Sydney (2013)

Run that Town: A strategy game with a twist

Mobile app, iPads

Poster

Sensitive Aunt Provotype, Laurens Boer and Jared Donovan (2012)

Two prototypes, each 18 x 18 x 10 cm

Photograph

Veloscape v.5, Volker Kuchelmeister (2014)

Bicycle fitted with sensors

Video

Avena+ Test Bed: Agricultural Printing and Altered Landscapes Benedikt Groß (2013)

Avena+ Test Bed: Agricultural Printing and Altered Landscapes by Benedikt Groß is a speculative design that explores the possibilities of “agricultural printing”. The experiment applies algorithms to partition and create an environmentally beneficial structure into a standard biomass/energy production field.¹⁹ The *Avena+ Test Bed* field was used to plant over 11.5 hectares (320 x 920 metres) in Unterwaldhausen, southern Germany. Eighty-five per cent of the field was planted with oats (*Avena Sativa*) and 15 per cent of the field was planted with 11 different flowers and herbs.²⁰ The field was harvested for biogas in July 2013. It illustrates how digitisation in farming can support biofuel production, and sustain diverse habitats for native flora and fauna. Groß proposes that it can also provide an income stream to farmers via a leasing system to building developers as part of the new EU regulations for land development.

The title of the design recognises the similarities in agricultural data analysis for field preparation in precision farming and digital production. In other words, the design transforms a tractor into something like a desktop printer. Designed as an exploration of agriculture and digital fabrication, *Avena+ Test Bed* relies on wide-ranging collaborations with agriculture experts, engineers, a tractor driver, a videographer and a pilot. *Avena+ Test Bed* was developed for the Design Interactions postgraduate program at the Royal College of Art, London. It won Best Concept and Best Student Project in the 2014 IxDA Interaction Awards and received an Honorary Mention at Prix Ars Electronica 2014. As an example of speculative design, Groß’s work addresses a contemporary challenge and engages people to think critically about their interactions with design, as well as providing a viable model for sustainable agriculture.



Benedikt Groß, *Avena+ Test Bed: Agricultural Printing and Altered Landscapes* (2013). Photograph: Florian Vögtle/Stefan Eigner (photographer); Hermann Benkler (pilot). Image courtesy the designer.

Credits: Groß acknowledges the generous support of: Maximilian Count of Königsegg-Aulendorf, administrator Hofgut Stefansreute Herbert Geser, project engineer Lorenz Riegger, Roland Groß, tractor driver Stefan Riegger, farming contractor LU Peter Boos and, for agricultural advice, Norbert Menz, Professor Dr Klaus Schmieder and Professor Dr Martin Dieterich. Groß also thanks Florian Vögtle for aerial footage, and Hermann Benkler, pilot. The agricultural machinery was generously provided by AGCO, Massey Ferguson, HORSCH Maschinen GmbH and Agrom Agrar and Kommunaltechnik GmbH.

¹⁹ David Herring, ‘Precision Farming’, *Earth Observatory* (January 2001), <http://earthobservatory.nasa.gov/Features/PrecisionFarming/> (accessed June 2014).

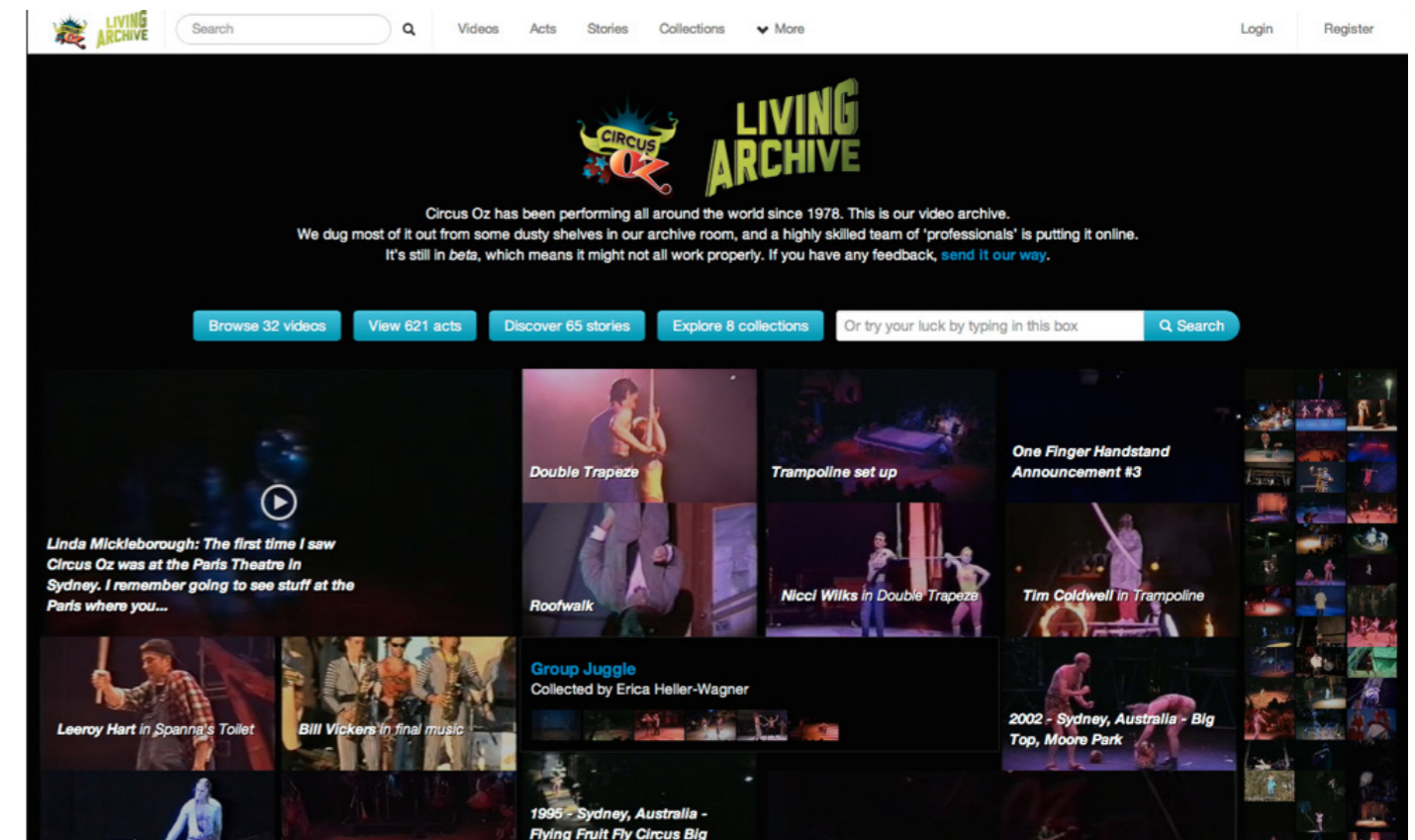
²⁰ http://benedikt-gross.de/log/2013/06/avena-test-bed_agricultural-printing-and-altered-landscapes (accessed June 2014).

Circus Oz Living Archive

David Carlin, Lukman Iwan, Adrian Miles, Reuben Stanton, Peta Tait, James Thom, Laurene Vaughan, Jeremy Yuille (2011–2014)

Circus Oz Living Archive brings together participatory design and interaction design in an extensive experimental process. The design celebrates the performances, rehearsal documentation and advertisements of Circus Oz since the group's inception in 1978. The *Living Archive* digitises legacy video formats made redundant by technological change. It is an experimental prototype for a searchable archive that investigates the connections between innovation, repertoire development, performance and audience interaction. As a participatory interaction design, the *Living Archive* involved a wide range of stakeholders, including circus performers who have contributed to Circus Oz over 35 years. The archive is the result of a collaboration between RMIT University, Circus Oz, the Australia Council for the Arts, La Trobe University and the Arts Centre Melbourne, and was funded by an Australian Research Council (ARC) grant.

Examining assumptions and questioning conventions are intrinsic to experimental design projects. Laurene Vaughan describes the interdisciplinarity and participatory design process of large-scale projects such as the *Circus Oz Living Archive* as reliant on “understanding and engaging with the socio-historic politics, and the pre- or misconceptions, or assumptions that are present when disciplines and practitioners embark on the design of a collaborative project”.²¹ Vaughan suggests that the design was based on the twin ambitions of increasing the accessibility of the culturally significant organisation Circus Oz, and re-conceptualising connections between time, authorship and place in contemporary performance. Addressing these aims through technology demanded an examination of terms much used in participatory design projects. For example, *Circus Oz Living Archive* is described as typical of interdisciplinary projects in its calibration of relationships between whole and part, and as an exploration of how creative practice is increasingly recognised as both research methodology and content.²² The connections between process and meaning in this participatory interaction project saw the research team adopt the white coats of lab scientists in a carnivalesque performance of research in meetings with the circus. As a group they redefined participation and interaction while creating an accessible archive.



David Carlin, Lukman Iwan, Adrian Miles, Reuben Stanton, Peta Tait, James Thom, Laurene Vaughan, Jeremy Yuille, *Circus Oz Living Archive* (2011–14), <http://archive.circusoz.com/>. Image courtesy the designers.

Credits: RMIT University: project director/lead researcher David Carlin, lead researchers Adrian Miles, Peta Tait (La Trobe University), James Thom, Laurene Vaughan, Jeremy Yuille; interaction designer and developer and PhD candidate Reuben Stanton; video server administrator, database designer and PhD candidate Lukman Iwan; project manager Laetitia Shand; video digitisation and research associate Kim Baston; research assistants Ana Vaz and Melissa Toh; and research associate/project co-founder Jane Mullett. Circus Oz: Mike Finch, Linda Mickleborough, Tim Coldwell, Peter Williams (Deloitte Digital), Robyn McGregor, Clare McKenzie, Anni Davey, Mel Fyfe, Jaclyn Booton, Olivia Blackburn, Erica Heller-Wagner, Jono Hawkes and Scott Grayland.

²¹ Laurene Vaughan, 'Designing, Juggling, Balancing and Performing', *Proceedings of the Collaboration in Experimental Design Research Symposium* (Red Objects Research Group, College of Fine Arts, University of New South Wales, Sydney, 5–6 August 2011): 35.

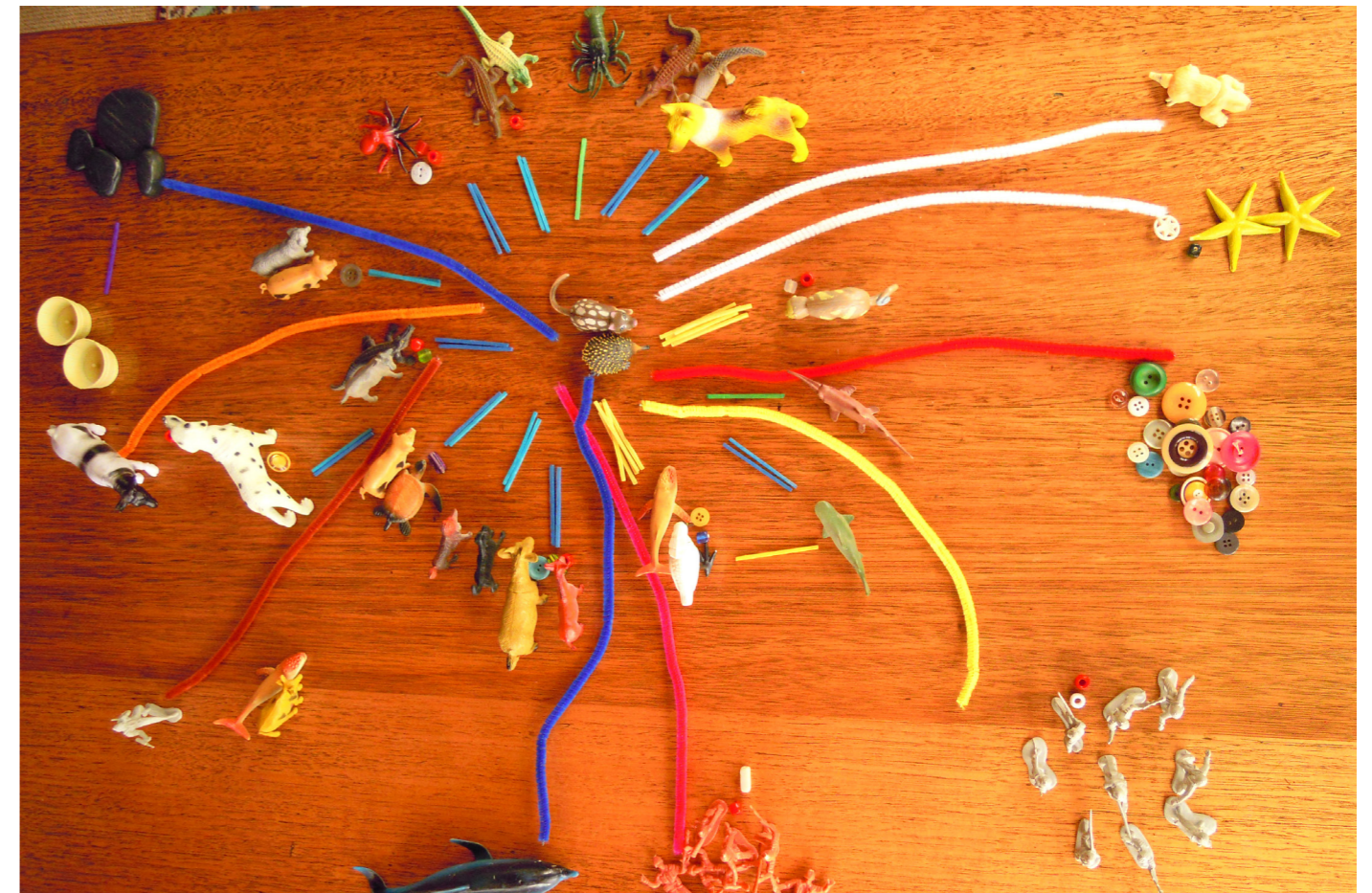
²² Vaughan, 37; Laurene Vaughan, Reuben Stanton, David Carlin, Adrian Miles, Jeremy Yuill, James Thom, Peta Tait and Kim Baston, 'Performing the Living Archive', *New Scholar: International Journal of the Humanities, Creative Arts and Social Sciences* 2.1 (2013): 41.

Community-Centred Innovation: Co-designing for Disaster Preparedness

Yoko Akama (2009–2014)

The Community-Centred Innovation project addresses the predictions by many scientists that extreme weather events and natural disasters are anticipated to become more frequent and severe. *Community-Centred Innovation* explored a suite of innovative co-design methods to facilitate engagement with communities and emergency agencies in Australia. It builds adaptive capacities for collective and continuous development in strengthening resilience. The design approach uses “visual and tactile artifacts that trigger thinking, catalyse discussion, heighten awareness to risks, and collectively devise emergency plans”.²³ The research is funded by the Bushfire Co-Operative Research Centre at RMIT University.²⁴ Its methodology is incorporated as a training tool by the Australian Emergency Management Institute (AEMI) and has been used by a number of communities. The wide application of the methods demonstrates its adaptability in community planning for localised and multi-hazard contexts across Australia.

Akama describes the project as addressing a ‘wicked’ problem comprised of fractured networks among communities, and their dependence on disaster management authorities. To overcome social and psychological barriers for preparedness, the *Community-Centred Innovation* project required a radical redesign of power dynamics between fire authorities and communities to strengthen social relations among residents. For Akama, strengthening a community’s autonomy and interdependency for disaster preparedness averts the need to depend on emergency services alone. Instead of solving this problem through the provision of a new service, the project developed a co-designing method in partnership with relevant authorities, councils and community organisations. This enabled communities to devise solutions for themselves and take collective action necessary to strengthen resilience among co-located groups in rural regions of Australia who are at risk of extreme weather and natural disasters. The *Community-Centred Innovation* project was a finalist in the Victorian Premier’s Design Award (2012) and won two Good Design Awards (2014), including Service Design and the Patron’s Prize for Australian Design, which recognises design that “has the potential to shape the future economic, social, cultural and environmental aspects of our planet”.²⁵



Yoko Akama, *Playful Triggers for Community-Centred Innovation: Co-designing for Disaster Preparedness* (2009–14). Photograph: Yoko Akama. Image courtesy the designer.

Credits: The Community-Centred Innovation co-designing workshops have been coordinated for the Southern Otways, Victoria; Kingborough, Tasmania; Ku-ring-gai Council, NSW; the Aboriginal and Torres Strait Islander (ATSI) community in Cherbourg, Queensland; and the City of Greater Bendigo, Victoria. The workshops are supported by the Australian Emergency Management Institute.

²³ <http://www.gooddesignaustralia.com/awards/past/entry/community-centred-innovation-co-designing-for-disaster-preparedness/?year=2014> (accessed June 2014).

²⁴ Yoko Akama and Susan Chaplin, ‘What is the Role of Social Networks in Fire Preparedness?’, poster (2012), http://www.bushfirecrc.com/sites/default/files/managed/resource/yoko_akama_susan_chaplin.pdf (accessed June 2014).

²⁵ <http://www.gooddesignaustralia.com/awards/other-awards/> (accessed June 2014).

Design-Antropologisk Innovations Model / The Design-Anthropological Innovation Model (DAIM)

Joachim Halse, Eva Brandt, Brendon Clark and Thomas Binder
(2008–10)

The Design-Anthropological Innovation Model (DAIM) is a large-scale research project developed in the Scandinavian model of participatory design. It investigated user-driven innovation in waste disposal and recycling services in Herlev, Høje Tåstrup and Brøndby, three suburbs of Copenhagen. Subtitled 'Rehearsing the Future', *DAIM* was informed by anthropological field studies. These included documenting observations about waste practices by garbage collectors in their daily work and by community residents who use domestic waste management. *DAIM* developed the *User-Driven Innovation Box* with which Vestforbrænding and other utility companies can reflect on and renew recycling processes and customer communication. One result of the project is that it foregrounded how small changes in consumer practices – such as the introduction of clear garbage bags to replace black ones, for instance – can reduce the amount of garbage destined for incineration.²⁶ As well as such practical outcomes, the value of *DAIM* is that the *Innovation Box* is sufficiently flexible to be appropriated by other communities wishing to increase recycling practices in garbage disposal.

DAIM is an example of the productive networks forming around practice and research. A shift has occurred in research where interdisciplinary networks of multiple stakeholders have superseded discrete research units centralised around specialisation.²⁷ Networked collaborations between design and anthropology in studies of social practices were extended in *DAIM* with the introduction of speculative research practices of re-conceptualising the future imaginatively.²⁸ Joachim Halse suggests that the *User-Driven Innovation Box* addressed the absence of tools for exploring “an ethnography of the possible”, by which he means the “articulate yet tentative forms” with which the possible is conceptualised and made material.²⁹ Halse cites anthropological research into the social imaginary and technologies of the imagination that are defined as “the social and material means by which particular imaginings are generated”.³⁰ Focusing on lived design experiences, he recommends exploratory design research with prototypes in everyday situations. These experiments aim to explore an issue with users of the product or service before the designer more definitively resolves the idea. As Halse attests, participatory design engages with the imagination and, in his words, “a fictive reality”, but one moderated by “present resources and constraints”.³¹ *DAIM* was funded by the Danish Government's program for user-driven innovation and was selected by INDEX AWARD (2009) as an example of Danish design that aims to improve life.³²



Joachim Halse, Eva Brandt, Brendon Clark and Thomas Binder, *Design-Antropologisk Innovations Model / The Design-Anthropological Innovation Model (DAIM): waste disposal documentation* (2008-2010). Image courtesy the designers.

Credits: DAIM is the result of interdisciplinary collaboration by the Danish Design School, the Sønderborg Participatory Innovation Research Centre (SPIRE) at the University of Southern Denmark, the waste incineration company Vestforbrænding, Danish design studios including 1508, 3PART and Arkitema, and international partnerships with MakeTools, SWECO FFNS and Ergonomidesign.

²⁶ Irene Houstrup, 'User-Involvement Leads to More Sustainable Waste Management', *Mind Design* 23 (2009), <http://www.dcdr.dk/uk/menu/update/webzine/articles/user-involvement-leads-to-more-sustainable-waste-management> (accessed June 2014).

²⁷ Thomas Binder cited in Mads Nygaard Folkmann, 'Future Design Knowledge – Research and Practice in a Productive Dialogue', *Mind Design* 31 (2010), <http://www.dcdr.dk/uk/menu/update/webzine/overview-all-issues/mind-design-31-2010> (accessed June 2014).

²⁸ Joachim Halse, 'Ethnographies of the Possible', *Design Anthropology: Theory and Practice*, (eds) Wendy Gunn, Ton Otto and Rachel Charlotte Smith (London: Bloomsbury, 2013): 180–96.

²⁹ Halse, 181, 184.

³⁰ David Sneath, Martin Holbraad and Morten Axel Pederson, 'Technologies of the Imagination', *Ethnos* 74:1 (2009), cited in Halse, 180–96.

³¹ Halse, 'Rehearsing: Just How Far from Implementation?' (27 April 2010), <http://chokobar.wordpress.com/> (accessed June 2014).

³² Index: Design to Improve Life, <http://designtoimprovelife.dk/democratic-waste-management/> (accessed June 2014).

Double Fountain: Schemata for Disconnected-Connected Bodies
[after a water-clock design by the Arab engineer Al-Jazari 1136–1206]
Julie Louise Bacon and James Geurts (2011)

Double Fountain: Schemata for Disconnected-Connected Bodies [after a water-clock design by the Arab engineer Al-Jazari 1136–1206] is a collaborative work developed at the Madatech/National Museum of Science in Israel by Julie Louise Bacon and James Geurts. The video installation was first exhibited in 2011 at the Center for Contemporary Art in Tel Aviv as part of the culmination of Bacon and Geurts's artist residency in Israel/Palestine. It was then installed on a 16 x 9 foot scaffold structure at South Battery Pier in Halifax Harbour, Nova Scotia, Canada and featured in the 2011 edition of that city's *Photopolis* festival.

Double Fountain re-creates the ancient device of a water clock, transforming an engineering innovation into an interdisciplinary experiment in sculptural-video aesthetics and public art practice. Reworking Al-Jazari's historical design, the work focuses experimental processes operating on the border of art, design and science. As art critic Lizzie Hill notes, *Double Fountain* draws attention to the current "frenzied relationship with time in the digital age".³³



Julie Louise Bacon and James Geurts, *Double Fountain: Schemata for Disconnected-Connected Bodies* [after a water-clock design by the Arab engineer Al-Jazari 1136–1206], (2011). Image courtesy the artists.

³³ Lizzie Hill, '3x3x3: Triple Effect', *Canadian Art* (March 2012), <http://www.canadianart.ca/reviews/2012/03/29/3x3x3-eyelevel-gallery/#sthash.w4Ixp9nq.dpuf> (accessed June 2014).

Emotiv Epoc+ and Emotiv Insight Emotiv Inc (2010–2014)

Emotiv is a bioinformatics company offering a unique platform for crowd-sourced brain research. Emotiv's mission is to empower individuals to understand their own brain and to accelerate brain research globally. The best way to achieve this is by making the enabling technology more affordable and easier to use, and to foster continued innovation by offering a development platform for developers and researchers. Emotiv leverages cloud computing, big data and mobile technology to offer valuable personal insights and progress international brain research. The technology tunes into electric signals produced by the brain to detect the user's thoughts, feelings and expressions in real time. Emotiv offers a software development kit (SDK) to developers and researchers and a wide-ranging number of applications.

The *EPOC+* and *Insight* interfaces connect wirelessly to smart phones, PCs, laptops and tablets running Windows, Linux, or MAC OS X, IOS. Once familiar with the Emotiv interface, users can train their focus and effect changes in their environment by means of sheer concentration. The *Emotiv Cognitiv Suite* has been deployed so that wheelchair users can navigate and control their mobility independently using mental commands. This application combines an electric wheelchair, a laptop computer, an Arduino, an interface circuit, an EEG headset, and instructions on how to complete the brain-controlled wheelchair integration.³⁴ Another application of Emotiv's technology includes the *Emotiv Expressiv Suite* to change the facial expressions of digital avatars simply by detecting the user's facial movements. The *Affectiv Suite* translates the user's emotions and results in various creative events, such as the performances by the Music in Neural Dimensions ensemble (MIND).³⁵ This range of applications demonstrates that Emotiv developers can create enjoyable human-computer interactions and shows promising results for affective computing.³⁶

In Australia, Emotiv co-founder and chief technology officer Dr Geoff MacKellar, in collaboration with the Royal Automobile Club, Western Australia (RAC WA), helped develop the *Attention Powered Car* to address the high percentage of fatal accidents attributed to driver inattention. The *Attention Powered Car* combines customised software and an Emotiv EEG neuro headset with a car engine. The car was tested in Western Australia over several months and raised drivers' awareness of the danger to public safety when they are distracted. In a number of videoed experiments of a car fitted with an Emotiv neuro monitoring suite, the speed of the car mirrored the driver's concentration and slowed down and stopped when the drivers' focus dispersed. In this way, drivers were shown the effects on driving of listening to music, chatting with passengers and talking on a mobile phone. Applications of Emotiv, such as the *Attention Powered Car*, demonstrate the life-changing impact of exploratory research.



Emotiv Inc, *Emotiv Epoc+ and Emotiv Insight*, (2010–2014). Image courtesy Emotiv.

³⁴ Jerkey, 'Brain-Controlled Wheelchair', Instructables (2011), <http://www.instructables.com/id/Brain-Controlled-Wheelchair/> and <http://emotiv.com/ideas/brain-controlled-wheelchair-6.html> (accessed June 2014).

³⁵ Music in Neural Dimensions ensemble (MIND), Premier performance (2011), <http://www.themindensemble.com/tag/emotiv-epoc/> (accessed June 2014).

³⁶ Grant S. Taylor and Christine Schmidt, 'Empirical Evaluation of the Emotiv EPOC Headset for the Detection of Mental Actions', *Proceedings of the Human and Ergonomics Society Annual Meeting* (2012), 53: 193–97; Javier Gonzalez-Sanchez, Maria Elena Chavez-Echeagaray, Robert Atkinson and Winslow Burleson, 'ABE: An Agent-Based Software Architecture for a Multimodal Emotion Recognition Framework', *Ninth Working Conference on Software Architecture Proceedings* (2011): 187–93.

An Empathic Adventure Heather Daam with Maartje van Gestel (2013)

An Empathic Adventure is a co-design project developed with carers and elderly people in Eindhoven, the Netherlands. As part of *Grey But Mobile* (2011–15), a large-scale government-funded research project that explores care-related mobility services for the elderly, *An Empathic Adventure* supports independent living and social connectivity. The aims of *An Empathic Adventure* are twofold. One is to offer new ways to tell the stories of elderly people in order for organisations to innovate how they support them. A second aim is to design tools, methods and strategies that care professionals can use to leverage their knowledge and skills and find new opportunities for transforming their experiences into innovative ideas. The design components are inspired by the stories told by the elder participants involved in the research. They provide a mixture of body restraints that emulate elders' physical experience and an audio track with an elder's voice telling a story of their own journey with a destination to reach and a task to accomplish, such as going to the supermarket.

Heather Daam and Maartje van Gestel suggest that care organisations sensed that nurses knew a lot about elderly people but needed resources to think through how to innovate their services and products for them. Experiencing the physical restrictions of an older body with the tools of *An Empathic Adventure* was a means of unpacking the knowledge of nursing participants to contribute to a co-design process. The productive co-design aspect of the project meant that the nurses' knowledge synthesised with the lived experiences of older bodies, and together they began to identify opportunities for the provision of independent living aids and new mobility possibilities for elders.



Heather Daam with Maartje van Gestel, *Homecare nurses wear a customised ageing suit and experience the story of an elderly woman getting groceries, then reflect to define design opportunities.* Photographs by Heather Daam. Image courtesy the designers.



Credits: An Empathic Adventure was designed as part of a Design Research Associateship at the Design Academy Eindhoven, within the multidisciplinary context of the *Grey But Mobile* project of the Creative Industry Scientific Programme (CRISP). CRISP is a four-year national research plan in the Netherlands supported by the Dutch Ministry of Education, Culture and Science that seeks to identify the strategic role of designers within multi-stakeholder projects. *An Empathic Adventure* was created in collaboration with Eindhoven University of Technology and Zuid Zorg. CRISP focuses on the development of Product Service Systems (PSS) and on generating and disseminating the knowledge, tools and methods that are needed to design complex combinations of intelligent products and services with a highly effective user experience. A Design Research Associateship provides opportunities for designers to work on large research projects with which the Design Academy Eindhoven is engaged.

Energy and Co-Designing Communities (ECDC)

Bill Gaver, Mike Michael, Tobie Kerridge, Liliana Ovale, Matthew Plummer-Fernandez, Alex Wilkie and Jennifer Gabrys (2010–2014)

ECDC is a co-design project developed as a collaboration between the departments of sociology and design at Goldsmiths, University of London. Funded by the Research Councils UK (RCUK) Energy Programme, ECDC is one of several projects that explore how the United Kingdom can reduce its energy consumption by 80 per cent before 2050.³⁷ ECDC's co-design process combines a number of methodologies, including fieldtrips, workshops and the distribution of cultural probe packs in communities such as Whitehill Bordon Eco Town and Low Carbon Living Ladock. The workshops explore questions such as: How is people's engagement with technology affected by who they trust? The cultural probe packs invite participants to reflect on energy consumption in a number of ways. One is to imagine a conversation between two objects, such as a candle and a hairdryer. Workbooks are another co-designing tool in the ECDC project. They present activities in which participants can reflect on current energy use practices and imagine alternatives. Lead researcher of the project, William Gaver, claims the value of the workbooks is that they demonstrate how ideas can emerge slowly over time from concrete experiments that are generated by multiple stakeholders.³⁸

In 2014 ECDC distributed *Energy Babble* devices to 30 homes. The Energy Babble is a domestic appliance that broadcasts comments and sounds sent from a network of Babbles. The ECDC team describe the *Energy Babble* as "familiar, playful, [and] ambiguous" and designed to provoke debate within communities.³⁹ In the *Babble* network device ECDC explores the imaginative and emotional dimension of energy usage and what they call the "potential aspects of people's use of technologies".⁴⁰ The combination of fieldtrips, workshops, cultural probe packs and the *Energy Babble* in ECDC means that this co-design project involves ethnographic processes that generate community reflections on how to reduce demands on energy resources. At the same time, ECDC involves speculative design as it co-imagines alternative possibilities for the future with communities.⁴¹ As a result, ECDC engages with both co-design and speculative design and thereby challenges the traditionally demarcated separation between ethnographic research and imaginative speculation.



Bill Gaver, Mike Michael, Tobie Kerridge, Liliana Ovale, Matthew Plummer-Fernandez, Alex Wilkie and Jennifer Gabrys, *ECDC Energy Babble* (2014). Image courtesy the designers.

Credits: ECDC acknowledges the contributions by all participants engaged with the project, including ECDC communities: Reepham Green Team, Transition New Cross, Greening Goldsmiths, Low Carbon Living Ladock and Grampound Road, Meadows Partnership Trust, Energise Hastings, Whitehill Bordon Eco Town; the communities: Awel Aman Tawe Community Energy, Baywind Energy Co-operative Ltd, BedZed, Isle of Eigg Heritage Trust, Hook Norton, Lammis Low Impact Initiative, Low Carbon Berwick, Low Carbon West Oxford, Moneyless Village, Muswell Hill Sustainability Group, One Planet Sutton, Sanford Housing Cooperative, Sustainable Blacon, Tinkers' Bubble, Transition Town Brixton, Transition Town Peckham and Transition Town Totnes; and resources provided by: Community Energy Initiatives, Energy Savings Trust, Department of Energy & Climate Change, Forum for the Future, Grassroots Innovations Blog, Nanode, Bristol Energy Network and Electric.

³⁷ ECDC, 'Background: Energy and C-Designing Communities', <http://www.ecdc.ac.uk/#> (accessed June 2014).

³⁸ William Gaver, 'Making Spaces: How Design Workbooks Work', *CHI 2011*, Vancouver (7–12 May 2011), available from ECDC downloads, <http://www.ecdc.ac.uk> (accessed June 2014).

³⁹ ECDC, 'Process: Energy and C-Designing Communities', <http://www.ecdc.ac.uk/#> (accessed June 2014).

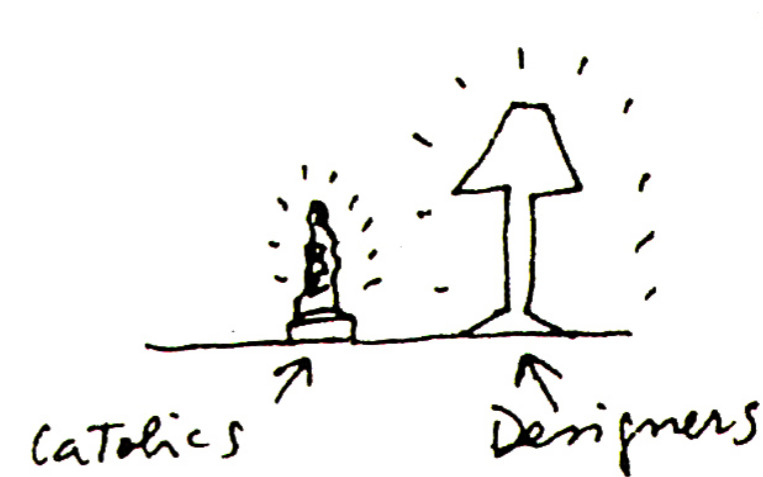
⁴⁰ ECDC, Oxford poster, October 2011. <http://www.ecdc.ac.uk/pdfs/ECDC-oxford-poster.pdf> (accessed June 2014).

⁴¹ Jennifer Gabrys, Bill Gaver, Tobie Kerridge, Mike Michael and Alex Wilkie, *Sustainability, Invention and Energy Demand Reduction: Co-designing Communities and Practice* (2010): 3, 5, <http://www.ecdc.ac.uk/wp-content/uploads/2011/09/ecdc-rcuk-meet-presentation.pdf> (accessed June 2014).

Flamp Martí Guixé (1997)

Flamp (1997) by Catalan designer Martí Guixé is a design commissioned by Joaquim Ruiz Millet, Galleria H20. The resin *Flamp*, its title a contraction of the words *fosfor* (Spanish for phosphor) and 'lamp', has no wires or switches to operate and is instead painted with green phosphoresce. It is designed to stand beside an electric lamp so the phosphoresce can absorb light. When the electric lamp is switched off, *Flamp* functions as a step between light and dark and glows in the dark. At 16cm high, Guixé's *Flamp* is shaped as an archetypical lamp. When media commentary described designers as celebrities in the late 1990s, Guixé promoted *Flamp* in two cartoons. In one, *Flamp* resembles a domestic religious icon. A glowing *Flamp* captioned "Designers" is compared with a glowing Virgin Mary captioned "Cat[h]olics". A second cartoon explains how *Flamp* works, describing that if is placed beside a conventional lamp, it will glow in the dark for 20 minutes after the electric lamp is switched off. In these drawings Guixé draws attention to the archetypical shape and design of furniture.⁴²

Flamp implicitly refutes the definition of design as artistic styling and insists that design engage in critical operationality, a term that describes design's engagement with industry. Guixé insists that design's potential for change emerges from direct engagement with industry rather than at arm's length in museum exhibitions. Describing himself as an "ex-designer", Guixé disdains the popular idea of design that in his words means, "buying happiness" and rejects participating in design that he sees as "turning the world into a global neo-liberal business pot".⁴³ Instead, Guixé insists that design is a historically determined process situated in an industrial system. He explores consumerism from a standpoint that is critical of acquisitiveness in his role as a brand consultant for Camper shoes and Alessi, while also devising speculative critical designs such as *Flamp*.



Martí Guixé, *Catholics and Designers*, cartoon, (1997).
Image courtesy the designer.

⁴² Mart Guixé, 'Flamp', *1:1 Martí Guixé*, ed. Ed van Hinte (Rotterdam: 010 Publishers, 2002): 14–15.

⁴³ Martí Guixé, 'Ex-designer', <http://www.ex-designer.com/> (accessed June 2014); Martí Guixé, 'Questions À Cent Designers / Questions for One Hundred Designers', *Intramuros 100* (April–May 2002): 87.

If We Never Meet Again Noam Toran (2010)

If We Never Meet Again is a film sequence screened on two monitors that explores fantasies and narratives about interactions with and through design. Engaged with experimental design, the work implicitly questions design conventions and the broader issue of narrative in history, cinema and literature. In a choreographed car sequence and face-to-face meeting, an assignation between two men evokes films about Cold War espionage. It explores design as an event and what Noam Toran calls an “exchange of ‘things’ by men”.⁴⁴ Through a range of cinematic movements, including aerial shots and more conventional close-ups, the work combines emotional intimacy and high-tech with design. Reminiscent of scenes in films and novels such as *North by Northwest* by Alfred Hitchcock (1959) and the novel *The Spy Who Came in from the Cold* by John le Carré (1963), *If We Never Meet Again* interrupts expectations of the cool demeanor of espionage. It implicitly comments on perceptions that design is the product of an omniscient view on the part of designers.

Experimental practices such as Toran’s can be located in a long-running history in design discourse. Experimental works such as *If We Never Meet Again* keep the historical disjuncture and gaps between art and design in play. Recent debates about design have introduced new descriptors such as ‘design fictions’, ‘design factions’ and ‘speculative’.⁴⁵ Each proposes an alternative trajectory for exploring design possibilities and questions assumptions about where design’s value lies. Experimental design thus includes a broad range of approaches to critique design through practice. This is unlike design-art that features limited-edition design by artists and with which experimental design is sometimes associated.⁴⁶ As a general term, experimental design borders contemporary art and is significant for the complexity of its reflections on the fluidity of historical discourse in art, design and science. *If We Never Meet Again* raises many issues pertinent to current debates about the shaping of design futures and the multiplicity of views by key stakeholders in design.⁴⁷



Noam Toran, *If We Never Meet Again* (2010), film shot on HD screened on two monitors. Images courtesy the artist

Credits: Writer, director: Noam Toran; director of photography: Per Tingleff. *If We Never Meet Again* was funded by a grant from the Engineering and Physical Sciences Research Council and the Royal College of Art, London. The work is part of the collection of the Israel Museum, Jerusalem.

⁴⁴ Noam Toran, *If We Never Meet Again*, <http://noamtoran.com/NT2009/projects/if-we-never-meet-again> (accessed June 2014).

⁴⁵ Julian Bleeker, *Design Fiction: A Short Essay on Design, Science, Fact and Fiction* (Manchester: Near Future Laboratory, 2009): 6; James Auger, ‘Speculative Design: Crafting the Speculation’, *Digital Creativity* 24.1 (2013): 9; Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge, Mass: MIT Press, 2013): 4.

⁴⁶ Alex Coles, *DesignArt* (London: Tate Publishing, 2005); Gareth Williams, *Telling Tales: Fantasy and Fear in Contemporary Design* (London: V&A Publishing, 2009).

⁴⁷ Another work, *I Cling to Virtue* (2010), by Noam Toran, Onkar Kular, and Keith R. Jones, is explored in Katherine Moline and Jacqueline Clayton, ‘Reworking the Archive: Experimental Arts, Memory and Imagination’, *Craft + Design Enquiry* 6 (August 2014).

The Imaginary App

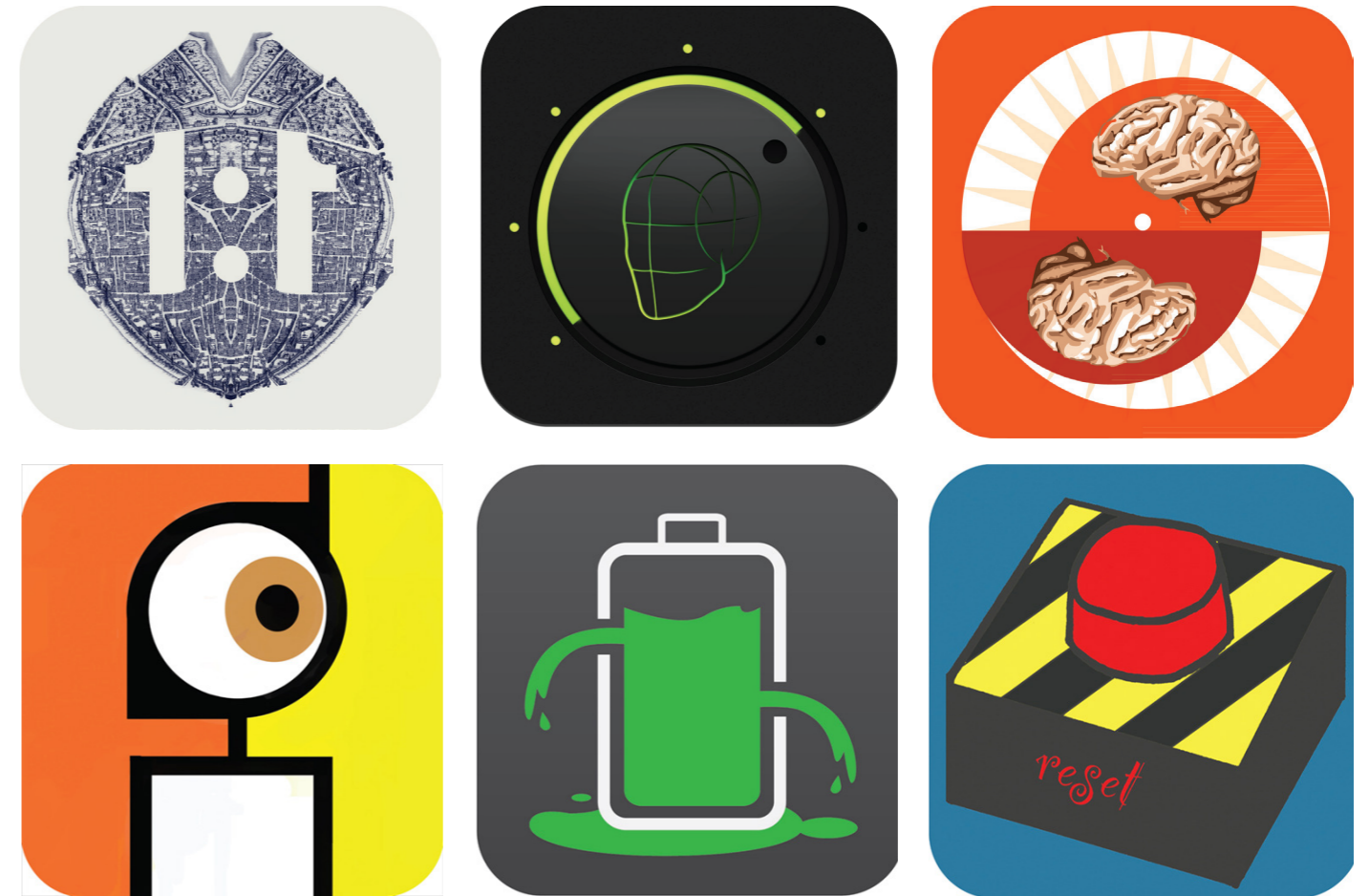
Paul D. Miller (aka DJ Spooky) and Svitlana Matviyenko (2012–14)

Since 2012, under the pseudonym DJ Spooky, Paul D. Miller has collaborated with Svitlana Matviyenko to commission proposals for an app that app users see as beneficial in addressing unmet needs, desires and circumstances. More than 100 people have responded to the invitation to propose a hypothetical app with the design of an icon. The resulting *Imaginary App* icon posters comprise a portable exhibition. Included in *Feral Experimental* as an exhibition within an exhibition, *The Imaginary App* is reminiscent of a crowdfunding campaign such as Kickstarter, and demonstrates the accessibility of design and the potential obsolescence of specialised design tasks with the convergence and accessibility of digital technologies.

The Imaginary App takes the ethos of design scenario thinking and visualisations of alternative futures into apps created by non-designers. The hypothetical apps collected by Miller and Matviyenko democratically open up design at the same time as revealing how dependent on technology many daily interactions have become. In their words:

The goal of *The Imaginary App* is to challenge the limits of technological assistance endorsed by the slogan: “There’s an app for that.” What are the most desirable, terrifying, or ridiculous apps that haven’t been and, possibly, will never be released? Formulate a concept of an app. Translate it in the language of design.⁴⁸

Miller proposes that the expansion of opportunities for non-designers to invent technological possibilities, which he sees in the number of apps available worldwide, is revolutionary.⁴⁹ *The Imaginary App* demonstrates how apps open up exploratory experimentation and access to information and experiences, such as searching for local cinema screenings to meditating and downloading music.⁵⁰



The Imaginary App project. Images courtesy of Paul D. Miller aka DJ Spooky and the artists.

⁴⁸ The Imaginary App, <http://djspooky.com/imaginaryapp/call/> (accessed June 2014).

⁴⁹ <http://djspooky.com/imaginaryapp/index.php> (accessed June 2014).

⁵⁰ <http://djspooky.com/imaginaryapp/index.php> (accessed June 2014).

Kindred Spirits Susana Cámara Leret (2013)

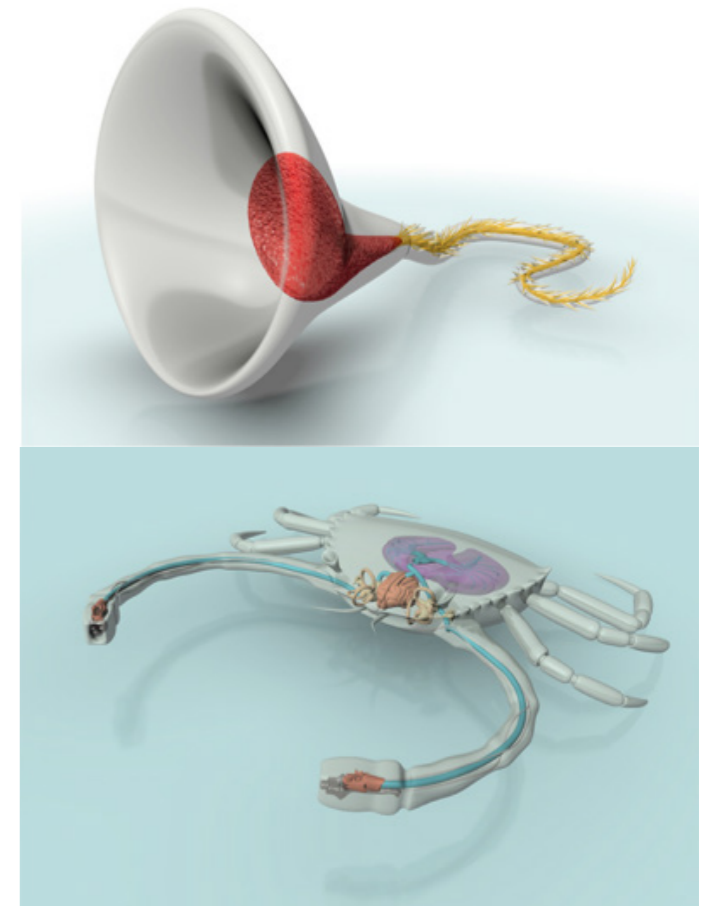
Kindred Spirits is a design fictions research project that was developed in collaboration with the residents of the adolescent drug rehabilitation clinic Mistral in The Hague, the Netherlands. As part of *G-Motiv* (2011–15), a large-scale government-funded research project that explores game elements as a stimulant for behavioural change, *Kindred Spirits* envisioned with residents possible interventions within the systems and services provided in the clinic. The 3D-printed creatures that populate *Kindred Spirits* are described by Susana Cámara Leret as “companion species” that could be introduced to “the clinic’s ecosystem” and act out the behaviours, “compulsions” and “acquired obsessions” on behalf of Mistral’s clients.⁵¹

Cámara Leret sees the companion creatures as a therapeutic influence in the alienating environments of health clinics and hospitals where, at Mistral, for example, residents spend 80 per cent of their time in the living room. The noise of this space was described by a patient as sometimes so loud that “you can’t hear your own mind”.⁵² This comment inspired the first *Kindred Spirit*, a crustacean with claws that function as earphones, transmitting a frequency that induces a meditative state of mind. The co-creation of a trumpet-like creature was in response to a comment by Berend Hofman, at Mistral, that “smelling makes you want to talk” as it releases molecules that enhance or block human olfactory receptors and influence mood. This object, along with the *Smell-Memory Kit: The Molecules That Matter*, builds on research about the associative power of smell. Only a handful of molecules compose all the smells in the world, yet it is our experiences that give them meaning. Used in therapy, the kit prompts clients to share their stories and memories, evoked by particular smells. The Mistral clinic now includes the smell exercises in its patient-intake procedure, as new residents reflect on their behaviours and how they can change.

Kindred Spirits is an interplay between the mundane and the fantastic as the project balances real needs with imagined desires, and builds on sensory experiences to encourage the contemplation of future alternatives. These kinds of design activities engage participants in long-term behavioural change in the context of addiction therapy.



Susana Cámara Leret, *Kindred Spirits*, photographs by Susana Cámara Leret, anatomical illustrations by Maartje Kunen from Medical Visuals. Images courtesy the designer.



Credits: *Kindred Spirits* was designed as part of a Design Research Associateship at the Design Academy Eindhoven, within the multidisciplinary context of the *G-Motiv* project of the Creative Industry Scientific Programme (CRISP). CRISP is a four-year national research plan in the Netherlands that seeks to identify the strategic role of designers within multi-stakeholder projects in collaboration with Delft University, healthcare provider Brijder and International Flavours & Fragrances. CRISP focuses on the development of Product Service Systems (PSS) and on generating and disseminating the knowledge, tools and methods that are needed to design complex combinations of intelligent products and services with a highly effective user experience. A Design Research Associateship provides opportunities for designers to work on large research projects with which the Design Academy Eindhoven is engaged.

⁵¹ Kindred Spirits, <http://www.susanacamaraleret.com/kindredspirits.php> (accessed June 2014). The term “companion species” is informed by Donna Haraway’s *The Companion Species Manifesto: Dogs, People and Significant Otherness* (Chicago: Prickly Paradigm, 2003).

⁵² <http://www.susanacamaraleret.com/kindredspirits.php> (accessed June 2014).

The Machine to be Another

BeAnotherLab: Philippe Bertrand, Christian Cherene, Daniel González Franco, Daanish Masood, Marte Roel, Arthur Tres (2013–14)

The Machine to be Another is a device with which the interdisciplinary Barcelona-based art collective BeAnotherLab explore the experience of inhabiting a body different to one's own. The collective seeks to understand embodiment and telepresence in terms of the "self" and the "Other" through a series of experiments.⁵³ The experiments are documented on video and show how individuals develop capacities for cooperation in a group beyond what the desires of an individual might dictate. Themes of embodied interaction, extended body and extended mind are explored creatively via a mix of low-budget digital technology, social relations and neuroscientific methodologies. With Creative Commons tools based on Open Knowledge, BeAnotherLab collaborate with experimental psychologists and neurologists.⁵⁴ Their aim is to develop protocols and procedures for their device or 'machine' to be used as a low-budget rehabilitation system, as well as an immersive role-playing system.

In their experiments with *telematic* empathy and the development of *The Machine to be Another*, BeAnotherLab utilise 3D headset goggles. Two people wear the goggles and see the view of their partner-operator while moving in sync with each other. This creates the sensation of seeing through the eyes of, and inhabiting the body of, someone else. If both partner-operators touch their toes, each sees the same action enacted by the body of another when looking towards their own body. The surprise is that the partner-operator may be of a different race, gender, age or physical mobility. In other words, it is the other's body that is seen through the goggles. While the synchronicity of the partner-operator's movement creates a haptic sensuousness, it also creates novel visual sensations such as dancing, for example, for people whose mobility is reliant on wheelchairs. According to Philippe Bertrand of BeAnotherLab, people who have used the device claim that "the experience has raised their awareness about the performers' social conditions, that they were able to go 'deep into this other person's life'" and, as noted on *Fast CoDesign*, *The Machine To Be Another* aims to "help scientists explore and quantify concepts like sexism, gender identity, and bias" via "body transference".⁵⁵



BeAnotherLab: Philippe Bertrand, Christian Cherene, Daniel González Franco, Daanish Masood, Marte Roel, Arthur Tres, *The Machine to be Another: Gender Swap*, (2013–14). Images courtesy the artists.

Credits: BeAnotherLab – Philippe Bertrand, Christian Cherene, Daniel González Franco, Daanish Masood, Marte Roel and Arthur Tres –gratefully acknowledge: hardware designers Lana Awad and Anastasia Pistofidou from FabLab BCN; performers including Victoria Martínez Alés, Cristina Roca, Sarah Recasens, Youssoupha Diop, Merce Altarriba, Rikke Frances Wahl, JJ Devereaux and Norma Deseke; and collaborator at an art residency at L'Estruch, Jordi Planas. In addition, BeAnotherLab thanks: Klaudia Grechuta, Teresa Gil López, Alvaro Sanchez-Ferro, Juan Pablo Romero Muñoz, Aurélin Bourquard, Rocio Marquez, Chinos International CC team, Barbara Gudrun Gauer, Guadalupe Llorens, Isidor Fernández, Xavier Ducastilla, Inma Vicente, Desiree Cascales and all members of Lliant la Troca, Angel Muñoz, Diego Suarez, Hannes Don Uan, Irene Birulés, the team of L'Estruch and Media Estruch, as well as the dancers, artists, journalists, users, and experts who took part in tests, interviews and discussions during the process of an art residency at L'Estruch.

⁵³ BeAnotherLab, 'I've Been a Girl, an Immigrant Dancer. From Young to Old, I've Been Many, Many People', http://www.themachinetobeanother.org/?page_id=820 (accessed June 2014).

⁵⁴ http://www.themachinetobeanother.org/?page_id=820 (accessed June 2014).

⁵⁵ Philippe Bertrand cited in Anon, 'Sci-Fi Device Lets Men And Women Swap Bodies', *Fast CoDesign* (17 February 2014), <http://www.fastcodesign.com/3025388/a-machine-out-of-science-fiction-lets-men-women-swap-bodies> (accessed June 2014).

The Phenology Clock

Natalie Jeremijenko, Tega Brain, Drew Hornbein and Thiago de Mello Bueno (2014)

The Phenology Clock is an exploratory experimental artwork that introduces the concept of time in the visualisation of annual ecological cycles between January and December. The work conveys a sense of the cycle of time in specific geographic locations. It is an open source software tool that enables the visualisation of phenology data. *The Phenology Clock* displays the temporal dimensions of blooming, budding, fruiting and migration events of local urban organisms. It re-presents time as seasonal interdependent processes.⁵⁶ Taking phenology data for a particular site, the software visualises temporal data within the visual conventions of a clock. Observable seasonal events are arranged in concentric annual circles, one for each species. The clock face is described by the Project X Clinic, led by Natalie Jeremijenko, as showing perennial flowering plants in the innermost circle, with the insects, butterflies, bees and moths that are dependent on these in the next surrounding set of circles.⁵⁷ The set after that show birds dependent on insectivorous resources, then local trees, with the outermost circle showing large biomass and habitat provisions.

The Phenology Clock shows the dynamic of microclimates and the “vivid natural systems on which we depend not only for food and nutrients, but also air quality, water quality, and health”.⁵⁸ The Project X Clinic describes phenology as “our most sensitive indicator of climate destabilization” and that, with this knowledge, “we can redesign our collective relationship to natural systems”.⁵⁹ Information about how to develop a phenology clock for your local ecosystem is available at <http://phenclock.org/make-a-clock/>, <http://phenclock.org/find-data/> and <https://github.com/dhornbein/pclock>. Information about Australian climate change is available at Climatewatch: <http://www.climatewatch.org.au/>. Jeremijenko, Brain, Hornbein and de Mello Bueno are developing additional plugins to realise this data as calendar updates and social media feeds. The clocks show phenology patterns for local ecosystems: <http://phenclock.org/>



Natalie Jeremijenko, Tega Brain, Drew Hornbein and Thiago de Mello Bueno, *The Phenology Clock*, (2014). Image courtesy the artists.

Credits: The Phenology Clock was developed at xProjects and Pharmacy, subsidiaries of the Environmental Health Clinic at New York University led by Natalie Jeremijenko, <http://www.environmentalhealthclinic.net/>. The Environmental Health Clinic is a clinic and lab modelled on other university health clinics. It approaches health from an understanding of its dependence on external local environments, rather than on the internal biology and genetic predispositions of individuals.

⁵⁶ The Phenology Clock, <http://phenclock.org/> (accessed June 2014).

⁵⁷ Natalie Jeremijenko, 'Pharmacy X: The Phenological Clock', <http://projectsxclinic.com/phenological-clock/> (accessed June 2014).

⁵⁸ Jeremijenko, <http://projectsxclinic.com/phenological-clock/> (accessed June 2014).

⁵⁹ Jeremijenko, <http://projectsxclinic.com/phenological-clock/> (accessed June 2014).

Run That Town: A Strategy Game with a Twist Australian Bureau of Statistics, Leo Burnett Sydney, and Millipede Creative Development, Canberra and Sydney (2013)

Run That Town combines Census data from the Australian Bureau of Statistics (ABS) and mobile phone app technology in a strategy game for the design of municipalities. The Australian Census collects information from every household in the country every five years. This data informs budget decisions about infrastructure such as education, the environment and healthcare, by local, state and federal governments.⁶⁰ The mobile app *Run That Town* was commissioned by the ABS to facilitate gamers in imagining how services, infrastructure and the opinions of local populations interact with each other in the local communities of more than 2 500 Australian postcodes based on data from the 2011 Australian Census. The app offers hundreds of projects, including swimming pools and theme parks, which each community can develop and change. Before implementing projects, gamers can poll their community for responses based on demographic profiles in the Census data with mock newspaper articles providing feedback. In the choices of both “practical” and “preposterous” projects, gamers experiment with community leadership and find out if they will be, in the words of *Run That Town*, “treated to a tickertape parade, or chased out of town by an angry mob”.⁶¹ In the words of the advertising agency Leo Burnett Sydney, *Run That Town* “integrates real world data tightly into gameplay”, while the mobile game website *Pocket Gamer* celebrated how the game provides opportunities to find out if offering free ice cream increased the popularity of mayors.⁶²

Run That Town is one of a number of recent design visualisation projects to explore big data. The *Block Project* (2005–) by Laura Kurgan, for example, questions the visualisation of data and the politics of mapping to advocate for social reform.⁶³ In the data visualisation *The Institutional Harvest*, Mitchell Whitelaw shows changes to Australian women’s services and agencies, such as parliamentary bodies and health providers, between 1970 and 2013.⁶⁴ The website *DataViva* by MIT Media Lab and César Hidalgo is also committed to making government information accessible. This online interactive organises datasets in response to searches by people who access the site. Questions such as ‘Where in Brazil is employment of early childhood teachers growing?’ lead to a graph of Brazilian states that shows employment trends over 10 years and, by implication, the best place to look for work. Like *Run That Town*, these interactive engagements with big data extend to a wide range of possibilities. Initiatives such as *Run That Town* represent how the principles of open source are currently transforming policy decisions based on the digitisation of information.



Australian Bureau of Statistics, Leo Burnett Sydney, and Millipede Creative Development, *Run That Town: A Strategy Game with a Twist* (2013), <http://runthattown.abs.gov.au/>. Image courtesy the ABS.

⁶⁰ Australian Bureau of Statistics, Spotlight: Interactive Infographic Movie (2014), <http://spotlight.abs.gov.au/Flash/#/2/1> (accessed June 2014).

⁶¹ <http://runthattown.abs.gov.au/> (accessed June 2014).

⁶² Leo Burnett Sydney, *Run That Town* (2013), <http://www.leoburnett.com.au/Sydney/work/run-that-town> (accessed June 2014); Mark Brown, ‘Play SimCity with Real Data in Free Aussie Game Run That Town’, *Pocket Gamer* (20 May 2013), <http://www.pocketgamer.co.uk/r/Multiformat/Run+That+Town/news.asp?c=51003> (accessed June 2014).

⁶³ Laura Kurgan, *Close Up at a Distance: Mapping, Technology, and Politics* (New York: Zone Books, 2013).

⁶⁴ Mitchell Whitelaw, *The Institutional Harvest*, <http://institutionalharvest.net/> (accessed June 2014). The Institutional Harvest represents research by Merrindahl Andrew and is part of a larger project led by Marian Sawer and Sarah Maddison. Sarah Maddison and Marian Sawer (eds), *The Women’s Movement in Protest, Institutions and the Internet: Australia in Transnational Perspective* (New York: Routledge, 2013).

Sensitive Aunt Provotype Laurens Boer and Jared Donovan (2012)

The *Sensitive Aunt Provotype* was designed as part of *Indoor Climate and Quality of Life*, a three-year research study of participatory design and user-driven innovation resulting from collaboration between two universities and five industry partners.⁶⁵ *Indoor Climate* endeavoured to understand inhabitants' experiences of comfort in domestic, business and institutional environments. It involved a literature review on the meaning of comfort, an ethnographic study of a range of indoor climates and environments, a provotyping process designed to provoke debate and engage participants in discussions about future possibilities, and a final phase focused on the development of new product opportunities.⁶⁶ Laurens Boer, Jared Donovan and Jacob Buur describe provotyping as “provocative prototyping” that engages a range of stakeholders and helps participants understand what they call the “tensions at the fuzzy front end of new product development”.⁶⁷ The tensions to which they refer involve the different conceptions of a new product or service from the perspectives of manufacturers and design users. *The Sensitive Aunt* emits coloured light in relation to the temperature and air quality of the environment in which it is placed.⁶⁸ In addition, when the buttons on the top of the device are pressed it displays suggestions for ways to improve the temperature, light intensity and air quality on an LED screen.⁶⁹ The provotype was distributed and tested in a range of contexts by each industry partner involved in the project.

Distinguishing “critical design, organisational sense-making and provotypes” opens up “the transfer of user knowledge”, according to the designers of the *Sensitive Aunt*.⁷⁰ They cast the provotype as a mix of participatory design and design ethnography, and frame it as a prototype informed by anthropology. In this they recombine characteristics of both cultural probes used in co-design and the design fictions of speculative design. The difference is that provotypes provoke debate with industry partners. From their perspective, the feedback from industry partners emphasises the diversity of opinions when imagining innovation and, in their words, shows that “the actual practice of an envisioned future is considerably messier than its envisioned homogeneity”.⁷¹ Critically challenging accepted ideas – such as the belief that 21 degrees is the temperature in which people *should* be comfortable – the provotypes combine participation and provocation and open up design to issues of usability and values. Studying the relationships between people and things and the everyday environments in which design is used, such as in the *Sensitive Aunt Provotype*, locates “using as a form of designing” and questions systems that regulate indoor environments.⁷²



Laurens Boer and Jared Donovan, *Sensitive Aunt Provotype*, (2012). Images courtesy the designers.

Credits: The Sønderborg Participatory Innovation Research Centre (SPIRE) at the University of Southern Denmark, the International Centre for Indoor Environment and Energy (ICIEE) at the Technical University of Denmark (DTU), window and skylight manufacturer Velux, and indoor climate designers WindowMaster, Nilan and engineering consultancy Grontmij, and insulation company Saint-Gobain Isover.

⁶⁵ *Indoor Climate and Quality of Life* research was conducted between 2007 and 2010.

⁶⁶ Jacob Buur, 'Why Listen to Users?', in *Making Indoor Climate: Enabling People's Comfort Practices*, ed. Jacob Buur (Sønderborg: Mads Clausen Institute for Product Innovation, 2012): 3.

⁶⁷ Laurens Boer, Jared Donovan and Jacob Buur, 'Challenging Industry Conceptions with Prototypes', *CoDesign* 9:2 (2013): 73, 87. The authors note that provotyping is a design approach developed in systems design in the early 1990s.

⁶⁸ Boer, Donovan and Buur, 81.

⁶⁹ Boer, Donovan and Buur note that three kinds of advice are provided: compelling, social and persuasive advice. In other words, commands range from 'Put on some extra clothes!' to 'Ask your colleagues if it is OK to open a window'. Boer, Donovan and Buur, 81–82.

⁷⁰ Boer, Donovan and Buur, 74.

⁷¹ Boer, Donovan and Buur, 84.

⁷² Jared Donovan and Wendy Gunn, 'Design Anthropology: An Introduction', in *Design and Anthropology*, (eds) Wendy Gunn and Jared Donovan (Surrey, UK: Ashgate, 2012): 2.

Veloscape v.5
Volker Kuchelmeister (2014)

Veloscape: a Curating Cities project, led by Jill Bennett, Laura Fisher and Volker Kuchelmeister, is a participatory art research project about cycling in Sydney. It takes place under the umbrella of the 5 year ARC linkage project *Curating Cities*, a partnership between researchers at NIEA, UNSW, the City of Sydney, Object Design Centre and Carbon Arts. The *Curating Cities* project is an investigation of how the arts can generate environmentally beneficial behavioural change and influence the development of green infrastructure in urban environments. *Veloscape* locates this investigation within the context of Sydney's unfolding transport infrastructure reforms, core to which is an expanding cycle network in the CBD. By enabling new patterns of mobility, these changes are generating a new geo-spatial politics over road use and public space in Sydney. They have also enabled new practices of place-making around which a range of vibrant activities and communities are taking shape. In light of these changes, *Veloscape* addresses the need for a greater understanding of the subjective dimensions of the Sydney cycling experience beyond the utilitarian and safety elements that are the focus of many other studies. As both an artistic intervention in the public domain and a research endeavour, *Veloscape* is exploring the unique perspective the cyclist has on the urban environment, and the spectrum of emotions and sensory stimuli which colours their experience.

As a socially engaged project, *Veloscape* has been designed to enable the participation of hundreds of Sydney cyclists. A range of tools and interfaces are being utilised to explore the physical, social, navigational and environmental triggers of their affective responses to the city. These include a specially designed biometric and sensor data logging device, hands-free photography and video, in situ voice recordings, annotated maps and GIS (Geographic Information System) software. A series of workshops and focus groups will also be staged. Through their involvement, the participating cyclists will both assist the team to generate useful quantitative and qualitative information of value to future urban design and urban planning endeavours, and be co-creators of a range of dynamic maps and visualisations through which that information can be made meaningful to the public.

In *Veloscape v.5*, designed by Volker Kuchelmeister and exhibited at *Feral Experimental*, the audience is invited to ride on a bike through Sydney CBD while a biofeedback sensor picks up their affective responses.



Jill Bennett, Volker Kuchelmeister and Laura Fisher
Veloscape: a Curating Cities project. Data collection using galvanic skin response, go-pro camera and GPS (2014). Photograph: Laura Fisher

Credits: Veloscape v.5
Concept and Realisation: Volker Kuchelmeister
Production: Laura Fisher, Sabrina Sokalik
Cyclist and Design: Alison Groves
GIS Consultant: Jeong Greaves
Bike sponsorship: Woolys Wheels

Exhibition Biographies

Avena+ Test Bed — Agricultural Printing and Altered Landscapes

Avena+ Test Bed — Agricultural Printing and Altered Landscapes is by Benedikt Groß

<http://benedikt-gross.de>

Benedikt Groß

Benedikt Groß is a Stuttgart based speculative and computational designer who focuses on relationships between people, their data, technology and environments. He is particularly interested in *antidisciplinarity* and speculating on the possibilities of the near future in design visualisations. Groß's working mode can be described as *thinking through making* with software. Groß received the IxDA 2014 Best Student and the IxDA 2014 Best Concept for his final RCA graduation projects, *Avena+ Test Bed* and the Excellence Award (with Joseph K. Lee) at the 18th Japanese Media Arts Festival for *The Big Atlas of LA Pools*. He is co-author of *Generative Design*, (Princeton Architectural Press, 2010) and his work has been published in *Wired*, *CAN*, *Form*, *Page*, *Weave*, *Infoethetics* and exhibited internationally at the Open Data Institute, Ars Electronica, V2_ and the New Institute and the Node Festival. Groß is currently a visiting tutor for Digital Culture and Data Visualization at the Hochschule für Gestaltung Schwäbisch Gmünd.

Circus Oz Living Archive

The *Circus Oz Living Archive* was developed by a team of researchers from RMIT University and La Trobe University: David Carlin, Lukman Iwan, Adrian Miles, Reuben Stanton, Peta Tait, James Thom, Laurene Vaughan, and Jeremy Yuille.

<http://circusarchive.net/>

David Carlin (Project Leader, RMIT University)

Associate Professor David Carlin is a writer, director and Program Director of Media within the RMIT School of Media and Communication. He brings to the *Circus Oz Living Archive* project experience as a film and video documentary maker and former show director of Circus Oz. He has taught and led projects at RMIT focused on social and participatory media, and has scholarly and creative publications in the field of memory, narrative and media archives. Associate Professor Carlin's documentaries, short films and plays have been performed and screened internationally, and he has published a book of creative non-fiction, *Our father who wasn't there* (Brunswick: Scribe, 2010).

Adrian Miles (RMIT University)

Adrian Miles is a Senior Lecturer in New Media and currently the Program Director of the Bachelor of Media and Communication Honours research studio at RMIT. He has also been a senior new media researcher in the InterMedia Lab at the University of Bergen, Norway. His academic research on hypertext and networked interactive video has been widely published and his applied digital projects have been exhibited internationally. Adrian has extensive expertise in online video with extensive publications in the field and is one of the first video bloggers in the world. His expertise extends to social media from both a practical, and theoretical point of view.

Peta Tait (La Trobe University)

Professor Peta Tait, from the Theatre and Drama Program at La Trobe University, is an academic scholar and playwright with an extensive background in theatre, dramatic literature, performance theory and creative arts practice. Her research focuses on the interdisciplinary humanities fields of emotions, body theory and gender identity. She has published extensively on circus and is one of the few scholars writing on new circus and in particular on Circus Oz. Professor Tait has worked with Dr Jane Mullett on Circus Oz materials over a number of years. She brings her knowledge of circus research, practices and archives to the Circus Oz Living Archive project. Professor Tait has authored four monographs and further publications include articles in *Theatre Journal*, *Modern Drama* and *Performance Research*. She also writes plays and contemporary performances.

James Thom (RMIT University)

Jamie Thom is a computer scientist with extensive experience in text retrieval, document databases and image/video retrieval. His main contribution to *Circus Oz Living Archive* was the development of technology that supports content based video retrieval combined with community tagging.

Laurene Vaughan (RMIT University)

Laurene Vaughan is Associate Professor in Design and Communication in the School of Media and Communication. She has a diverse research and teaching practice covering the areas of design, communication, fashion and embedded research in diverse industry sectors. Associate Professor Vaughan contributes to the RMIT University research community in her role as a Research Leader in the RMIT Design Research Institute. Her contribution to *Circus Oz Living Archive* is expertise in exploring how people experience the space of digital environments and practice-based research, understanding how the experience and personality of the circus is maintained in a digital archive, and how rich layers of narrative are embedded in the experience of engaging with a database/archive.

Jeremy Yuille (RMIT University)

Jeremy Yuille is an interaction designer, digital media artist and academic with a background in digital art, music, performance and architecture. Yuill is a co-founder of the Media and Communication Design Studio at RMIT where he undertakes collaborative research with the Australasian CRC for Interaction Design (ACID). He is also a certified scrum-master and was director of the Interaction Design Association.

Lukman Iwan (PhD candidate, RMIT University)

Lukman Iwan is a PhD candidate in the School of Computer Science and Information Technology at RMIT University. His doctoral research on content-based retrieval systems is part of an ARC Linkage project was applied to Circus Oz videos. Iwan's retrieval system includes a video collection server, metadata video database, and web-based application software.

Reuben Stanton (PhD candidate, RMIT University)

Reuben Stanton is a PhD candidate in the School of Media and Communication at RMIT University. His doctoral research in the *Circus Oz Living Archive* project explores interaction design and development in the design and creation of a prototype digital archive as both a pragmatic design act and as a research activity. Stanton is interested in the role that interaction design can play in creating new, useful and engaging digital archives, and how the possibilities of technology are utilized to enable different ideas of what an archive could be.

Community-centred innovation: co-designing for disaster preparedness

Community-centred innovation: co-designing for disaster preparedness is by Yoko Akama.

<https://www.designresearch.rmit.edu.au/contact/researcher-directory/yoko-akama>

Yoko Akama (RMIT University)

Dr. Yoko Akama is Senior Lecturer in communication design in the School of Media and Communication, RMIT University. She undertakes research to explore the role and agency of design to tackle social issues. Her expertise is in human-centred design that sees design as a scaffold that facilitates communication, engagement and co-creation with people and leads to transformative change. Her current research project with the Bushfire CRC explores design methods to strengthen community resilience in mitigating bushfire risks. This has recently won her two awards from Good Design Australia – the Good Design Award, best in the category for service design and the Patron's Prize for Good Design. Her research interests extend into the networks she actively organizes, including the Design for Social Innovation and Sustainability (DESIS) network in Melbourne and the Service Design Network Melbourne.

The Design-Anthropological Innovation Model (DAIM)

The Design-Anthropological Innovation Model (DAIM) research team includes Joachim Halse, Eva Brandt, Brendon Clark and Thomas Binder.

<http://www.dkds.dk/Forskning/Projekter/DAIM>

Joachim Halse (The Royal Danish Academy of Fine Arts, School of Design)

Joachim Halse is an Associate Professor at The Royal Danish Academy of Fine Arts – School of Design. He works in the transdisciplinary field of anthropology and design, where he experiments with building a productive interaction between anthropological studies of everyday life and design-oriented articulations of new possibilities. The innovation potential of everyday life is one of the areas that Halse explores in his research. He is interested in expanded user-involvement where the user is not simply included in the final stages of the design process to testify to the ease of use of a given product and is instead taken seriously as a dialogue partner for design and development throughout the whole design process.

Eva Brandt (The Royal Danish Academy of Fine Arts, School of Design)

Eva Brandt is an Associate Professor at The Royal Danish Academy of Fine Arts – School of Design. Her research is closely associated with practice and is typically carried out in cooperation with companies, design agencies and/or partners from the public sector. Her research approach is experimental, and she often draws on theories from other disciplines such as anthropology, ethnology or the world of theatre and other artistic disciplines. Brandt's work mainly involves interdisciplinary projects that involve a wide range of stakeholders such as researchers, designers, technicians and end-users. The design approaches, methods and tools that she develops are dialogue-oriented and usually playful, experimental and explorative in nature. They belong in the category that is often referred to as co-design and are essentially about developing various ways of 'rehearsing the future'. She co-edited the book *Rehearsing the Future*, which is an outcome of the DAIM project.

Brendon Clark (Interactive Institute Stockholm, ICT)

Brendon Clark is the studio director and a senior researcher at the Interactive Institute Stockholm. He completed his PhD exploring the emerging field of design anthropology and developed a framework for organizational negotiations at the front end of design research projects. His research interests lie at the intersection of anthropology and design (Participatory Design) with a nod toward business and innovation. He focuses on exploring collaborative practices and full-bodied interaction that seek to re-think linear processes of research, analysis, design, intervention, and evaluation — exploring the implications for knowledge generation and knowledge transfer in praxis settings. Brendon worked on the DAIM project during post-doc research in design anthropology at SPIRE (Sønderborg Participatory Innovation Research Center) at the University of Southern Denmark's Mads Clausen Institute for Product Innovation (MCI). He teaches PhD and MA-level courses in Scandinavia (e.g., Umeå Institute of Design, University of Southern Denmark, Chalmers & Göteborg University) and he is a project leader for projects such as Lead User Innovation Lab, Language as Participation, and Språkskap.

Thomas Binder (The Royal Danish Academy of Fine Arts, School of Design)

Thomas Binder is an Associate Professor at The Royal Danish Academy of Fine Arts – School of Design. Binder's research is about understanding how design processes generate new knowledge, and how an emphasis on knowledge building and learning can connect the designer's classic design skills with more open design processes based on dialogue with users, for example in the fields of service design, strategic development and change processes. Binder has worked with design laboratories, where designers and non-designers collaborate on 'rehearsing the future' at the intersection between the known and the unknown. Through workshops and other activities where designers and stakeholders co-create future-oriented experiments, a learning zone is established in which the possible comes within reach. For this learning zone Binder has developed methods and approaches for collaborative inquiries such as a documentary video that serves as design material, design games, and scenario and prototyping methods based on improvisation. These design laboratories were used in the DAIM project.

Double Fountain: Schemata for Disconnected-Connected Bodies [after a water-clock design by the Arab engineer Al-Jazari 1136-1206]

Double Fountain: Schemata for Disconnected-Connected Bodies [after a water-clock design by the Arab engineer Al-Jazari 1136-1206] was developed as a collaboration between Julie Louise Bacon and James Geurts.
<http://vimeo.com/41232904>

Julie Louise Bacon (UNSW Art & Design)

Dr. Julie Louise Bacon is an artist, curator, writer and lecturer at UNSW Australia: Art and Design. Her research focuses on the relationship between aesthetics and politics, art and philosophy, technology and consciousness, mythologies and archiving. Her projects include the video installation *Double Fountain [After a water clock design by the Arab engineer al-Jazari 1136-1206]*, a collaboration with James Geurts, that was developed at South Battery Pier, Halifax waterfront for *Photopolis* (2011); the performance *Performing Knowledge as Landscape in Mix, Jerusalem* (2011); and the video and sculptural installation *STOCK* in 3x3x3 at Eyelevel Gallery, Halifax (2011). She curated the symposium *The Clearing* in London (2010), and edited the anthology *Arkive City* (Interface: Belfast, 2008). Bacon is Artistic Director of *TÖNE*, an international festival of sonic and visual arts launched in June 2014 in Kent, England with Claudia Molitor. The festival, supported by the University of Kent and the Arts Council of England, featured 35 artists creating site-specific work in 5 heritage sites in and around the maritime and naval/military location of Chatham, Kent.

James Geurts

James Geurts is an Australian artist who has produced large-scale, site and time-specific projects and gallery works in international contexts since 2002. Recent commissions include: *The Presence of Giants*, Arts Victoria Public Sculpture Commission (2014), *Drawing: Tidal Topographies 10* shown at Dalhousie Art Gallery's *Place Markers* exhibition (2012), and *Drawing: Horizon*, a solar light sculpture, staged on the coastline of the North Sea in The Hague with Sattelietgroep (2010). His work has been exhibited at GEMAK, Holland; Centre for Contemporary Art, Televiv; Art Gallery of South Australia, Adelaide; La Chambre Blanche Quebec, Quebec; Australian Centre for Contemporary Art, Melbourne; and White Cube, London. Geurts is represented by: GAGPROJECTS/Greenaway Art Gallery, Adelaide; Contemporary Art Society, London; Zhulong Gallery, Dallas.

Emotiv

www.emotiv.com

Tan Le. Founder, Technology Innovator, Entrepreneur & Business Executive

Tan Le, Co-founded Emotiv, a bioinformatics company advancing understanding of the brain through electroencephalography (EEG). Today, Emotiv's award winning technology (Red Dot Award, AutoVision Innovations Award, Australian International Design Awards, Australian Engineering Excellence Awards) is a recognized world leader and pioneer in this field of brain computer interface with developers and researchers in over 100 countries. Ms Le has been featured in the Who's Who in Australia list since 1999 and Who's Who of Australian Women list in 2007-2011, Fast Company's Most Influential Women in Technology in 2010 and Forbes' 50 Names You Need to Know in 2011. She has also been an Ambassador for the Status of Women since 2001. Named Young Australian of the Year in 1998, Ms Le's story was featured National Museum of Australia. She has been honoured by the World Economic Forum as a Young Global Leader since 2009.

Emotiv Inc. is a bioinformatics company offering a unique platform for crowd-sourced brain research. Emotiv leverages cloud computing, big data and mobile technology to offer valuable personal insights and accelerate brain research globally.

Geoff Mackellar

Emotiv co-Founder & CTO, Dr. Geoffrey Mackellar, leads up the research and development teams behind Emotiv Lifesciences. Geoff holds a PhD in Laser Physics and has over 25 years experience developing high tech medical and consumer products. After 10 years as Chief Scientist and R&D Manager with a series of medical laser startup companies, where he designed over 35 different laser systems for medical, scientific and industrial research, Geoff moved into the medical diagnostic field. Geoff holds 7 international patents and has published several papers and presentations at international conferences.

An Empathic Adventure

An Empathic Adventure was developed by Heather Daam and Maartje van Gestel.

www.designacademy.nl/Research/StrategicCreativity/Latest/tabid/2889/articleType/ArticleView/articleId/2104/Empathic-Adventure-presented-at-CRISP-DRS5.aspx

Heather Daam (Design Research Associate, Creative Industry Scientific Programme, Design Academy Eindhoven)

Heather Daam is a Design Research Associate in the Creative Industry Scientific Programme (CRISP) at the Design Academy Eindhoven where she is involved in the *Grey but Mobile* project about ageing and mobility. Her interest is to understand the role a designer plays in involving different people and stakeholders into the design process, and to focus this around the people we are designing for. Daam believes in different disciplines sharing knowledge towards a common goal, and in empowering people as experts of their own knowledge and experience.

Maartje van Gestel (Design Research Associate, Creative Industry Scientific Programme, Design Academy Eindhoven)

Maartje van Gestel is a Design Research Associate in the Creative Industry Scientific Programme (CRISP) at the Design Academy Eindhoven where she is involved in the *Grey but Mobile* project about ageing and mobility explorations. Van Gestel's research in Experience Design has shaped her views on her role as a designer. She focuses on how people experience the world around them, and uses her understanding of these perspectives to develop products or services. This involves psychology and empathy, which she combines with intuition and her own perspective. Her research results often in visual reports that allow her to communicate personal messages from people to designers and developers in ways that are not only rational but also emotional.

Energy and Co-Designing Communities (ECDC)

The Energy and Co-Designing Communities (ECDC) research team includes Bill Gaver, Mike Michael, Tobie Kerridge, Liliana Ovale, Matthew Plummer-Fernandez, Alex Wilkie and Jennifer Gabrys.

www.ecdc.ac.uk

Bill Gaver (Goldsmiths College, University of London)

Professor Willam Gaver leads the Interaction Research Studio at Goldsmiths, University of London. His research on design-led methodologies and innovative technologies for everyday life led him to develop an internationally renowned studio bringing the skills of designers together with expertise in ubiquitous computing and sociology. With the studio, he has developed approaches to design ranging from Cultural Probes to the use of documentary film to help assess peoples' experience with designs. He has pursued conceptual work on topics such as ambiguity and interpretation, and produced highly-finished prototypes that have been deployed for long-term field trials. He has exhibited internationally at venues such as the Victoria & Albert Museum, Tate Britain, and New York's Museum of Modern Art. He has published over 70 articles and is an elected member of the Computer-Human Interaction (CHI) Academy. Professor Gaver currently holds an ERC Advanced Investigator Grant and is principle investigator of ECDC.

Mike Michael (University of Sydney)

Professor Mike Michael is a sociologist of science and technology. His research interests include the relation of everyday life to technoscience, biomedical innovation and culture, the interface of the material and the social, and process methodology. Recent research has addressed the complexities of HIV pre-exposure prophylaxis clinical trials (with Marsha Rosengarten), the interdisciplinary use of sociological and speculative design techniques to explore energy demand reduction (with the ECDC project team), and the development of an 'idiotic methodology'. He has authored 6 books and over a hundred papers and chapters. Professor Michael is a co-editor of *The Sociological Review*.

Tobie Kerridge (Goldsmiths College, University of London)

Tobie Kerridge is based at the Interaction Research Studio, University of London. His PhD thesis explores the mixing of speculative design and public engagement with science and technology in two public engagement projects; *Biojewellery and Material Beliefs*. Kerridge has helped develop an innovative mixed method approach to design research, with a recent focus on community and energy reduction. Kerridge is co-convenor of MA Design: Interaction Research, which offers a research based approach to interaction design. Kerridge's work has been exhibited internationally, including the Museum of Modern Art in New York and the Design Triennial in Beijing.

Liliana Ovale (Goldsmiths College, University of London)

Liliana Ovale is a product and furniture designer based in London. Since graduating from the Royal College of Art, she has been running her own practice developing design projects in Mexico, Italy and London. Ovale is research associate at the Interaction Research Studio, Goldsmiths College, University of London and she is a member of the London based design collective Okay Studio. Ovale designs objects where the functional and the aesthetic components are accompanied by a reflection of contemporary life aspects. She pays special attention to inquiring themes such as the "incomplete" and the "unrehearsed" observed in the urban context. Ovale was presented the Talent Award by the British Council in 2006 and the Mexican Clara Porset Special Award in 2008.

Matthew Plummer-Fernandez (Goldsmiths College, University of London)

Matthew Plummer-Fernandez is a British/Colombian artist and designer who makes work that critically and playfully examines new sociocultural entanglements with emerging technologies. His current interests span bots, algorithms, automation, copyright and file-sharing. Based in New Cross, London, he is also a research associate and technologist at the Interaction Research Studio at Goldsmiths College, University of London.

Alex Wilkie (Goldsmiths College, University of London)

Dr. Alex Wilkie has worked at the intersection between design and science and technology studies (STS) for over twelve years. Wilkie studied interaction design at the Royal College of Art and was awarded his PhD in sociology, based on an ethnographic study of user-centered design. He was an original member of govcom.org, a group who designed and developed the Issuecrawler, an online tool for tracing and visualising controversy on the web and has been a member of the Interaction Research Studio at Goldsmith, University of London since 2006. Wilkie is particularly interested in exploring computational technology and the politics of participation in issue-oriented design as well as inventive research methods and research through design. He currently works on topics including the design of energy and climate change, healthcare informatics and technological interventions into domestic living. Wilkie is also committed to developing sociological accounts of design practice, drawing on his engagement with developments in actor-network theory and process sociology.

Jennifer Gabrys (Goldsmiths College, University of London)

Prior to joining the Department of Sociology at Goldsmiths, University of London, Dr Jennifer Gabrys was Senior Lecturer and Convenor of the MA in Design and Environment in the Department of Design at Goldsmiths, University of London. Her research investigates environments, material processes and communication technologies through theoretical and practice-based work. Projects within this area include a recently published book, *Digital Rubbish: A Natural History of Electronics* (University of Michigan Press, 2011), which examines the materialities of electronic waste; and a written study currently underway on citizen sensing and environmental practice, titled *Program Earth: Environment as Experiment in Sensing Technology*. Gabrys is currently Principal Investigator on the European Research Council starting grant, *Citizen Sensing and Environmental Practice: Assessing Participatory Engagements with Environments through Sensor Technologies*.

Flamp

Flamp was designed by Martí Guixé.

www.guixe.com

Martí Guixé

Martí Guixé is a Catalan designer based in Barcelona and Berlin. In 2001, as a statement against the limited scope of the traditional designer and to open new possibilities for the industry Guixé started an ex-designer movement. His work is characterised by a focus on new product systems and the belief that design should act as a platform which questions, visualises and influences behaviour in terms of patterns of consumption, exchange of information and the process of choice. Guixé's critical and provocative approach is reflected in the frequent use of disposable or cheap materials and the quick and ephemeral character of much of his work. Guixé has won many awards and authored several books including *Transition Menu - reviewing creative gastronomy* (Milan: Corraini Edizioni, 2013), *Kubabook*, with Inga Knölke (Miami: Name Publications, 2012), *Dream Factories* (Milan: Triennale Design Museum, Mondadori Electa, 2011). His designs, installations and performances have been exhibited at the Institute Cervantes, Milan; Museum of Modern Art, New York; Centre Georges Pompidou, Paris; Design Museum London; Centre d'Art Contemporain Genève, Geneva; the National Art Center, Tokyo; and the Museum für angewandte Kunst, Vienna.

If We Never Meet Again

If We Never Meet Again was created by Noam Toran.

<http://www.noamtoran.com>

Noam Toran (Royal College of Art, London and HEAD, Geneva)

Noam Toran's work involves the creation of intricate narratives developed as a means to reflect upon the interrelations of history, cinema, literature, and memory. The works are most often exhibited as sculptures, films and installations. The works examine how fictions influence the collective consciousness, be it as history, myth or memory forming. This is realised through an original way of deconstructing and reconfiguring cinematic and literary codes, conventions and structures, and weaving them with historical materials, thereby complicating the relation between artifact and artifice. His work is exhibited, screened and published internationally and is part of the collections at the Museum of Modern Art, New York, Frac Île-de-France, the Israel Museum and the Centre National des Arts Plastiques (CNAP).

The Imaginary App

The Imaginary App was initiated by Paul D. Miller aka DJ Spooky

www.djspooky.com/

Paul D. Miller aka DJ Spooky

Artist, writer, musician and composer Paul D. Miller's multimedia performances, art installations, recordings and writings immerse audiences blend a number of genres. His works raise awareness about climate change, sustainability, and the role of technology in addressing environmental and social issues. His multimedia composition and installation *The Book of Ice* is an experiential visual and acoustic portrait of Antarctica's disappearing environment. In *Nauru Elegies*, he explores problems facing the environmentally exploited South Pacific island of Nauru through a string ensemble, video, animation and live Internet feed. He also founded Vanuatu Pacifica Foundation, a sustainable arts centre on the island of Vanuatu. Miller was the first artist-in-residence at New York's Metropolitan Museum of Art. In his practice as the hip-hop turntablist DJ Spooky he developed the app 'DJ Spooky' and the exhibition project *The Imaginary App*.

Kindred Spirits

Kindred Spirits was developed by Susana Cámara Leret.

www.designacademy.nl/Research/StrategicCreativity/People/SusanaC%C3%A1maraLeret.aspx

Susana Cámara Leret (Research Associate, Creative Industry Scientific Programme, Design Academy Eindhoven)

Susana Cámara Leret's work concerns an in-depth, transdisciplinary research based practice, addressing social and environmental challenges. Her work spans various mediums, oscillating at the intersections between art, design, science, fiction and reality, confronting scientific truth with the anecdotal or absurd. She is interested in cross-species collaborations in an on-going search for alternate ways of living. These explorations materialise through multidisciplinary collaborations alongside institutes such as the Netherland's Metabolomics Centre and The Waag Society: Institute for Art Science and Technology (NL), where she is currently Fellow. Leret was recently a Research Associate on the Creative Industry Scientific Programme (CRISP) at Design Academy Eindhoven and worked on the G-Motiv project. She currently lives and works in Amsterdam, The Netherlands.

The Machine to be Another

The Machine to be Another was developed by BeAnotherLab: Phillipe Bertrand, Christian Cherene, Daniel González Franco, Daanish Masood, Marte Roel and Arthur Tres.

<http://www.themachinetobeanother.org>

Philippe Bertrand is an interdisciplinary artist, investigator, and activist interested in interactive narratives and 2.0 tools of social intervention.

Christian Cherene is a researcher, performer, and Interactive System designer with an interest in Rehabilitation Game Systems, hyper-documentation and neuroscience.

Daniel González Franco is an electronic explorer whose interest lies in visual/sound interactive art, VR, binaural audio, embodiment and telepresence.

Daanish Masood is a peacemaker who is interested in peacemaking, resolving inter-religious/interethnic conflicts, writing, storytelling, techno-shamanism, embodiment, empathy and performance.

Marte Roel is an artist, professor and researcher of embodiment surrounding spatial cognition, play behaviour and agency. He has explored the intersection of art and technology for modulating perceptual contingencies.

Arthur Tres is a programmer seeking the empowerment of individuals and communities by digital means. He likes to work in interdisciplinary environments where science, humanities and technology meet and stimulate each other.

The Phenological Clock

The Phenological Clock was developed with the Environmental Health Clinic at New York University by Natalie Jeremijenko, Tega Brain, Drew Hornbein and Thiago de Mello Bueno.

<http://phenclock.org/>

Natalie Jeremijenko (Environmental Health Clinic and Visual Art Department, New York University)

Dr. Natalie Jeremijenko directs the Environmental Health Clinic, is an Associate Professor in the Visual Art Department, New York University, and has affiliated faculty appointments in the schools of Computer Science and Environmental Studies. With a background in biochemistry, engineering, neuroscience and the history and philosophy of science, Jeremijenko was included in the Whitney Biennial of American Art (1997 and 2006), and the Cooper Hewitt Smithsonian Design Triennial (2006). In 2010 Neuberger Museum, SUNY Purchase (2010) produced a retrospective exhibition surveying Jeremijenko's work, titled 'Connected Environments'. Recent exhibitions and performances include 'Cross Species (xSpecies) Adventure Club' at the Dublin Science Gallery (2012); 'Alter Nature: Designing Nature – Designing Human Life – Owning Life', Z33, Hasselt (2011); '(Re)Designing Nature', Kuenstlerhaus, Vienna (2010-2011); and with Bureau of Inverse Technology, was exhibited in 'Mortality' at the Australian Centre for Contemporary Art (2010). Jeremijenko has been named one of the most influential women in technology by Fast Company (2011) and one of the inaugural top young innovators by *MIT Technology Review* (1999).

Tega Brain

Tega Brain is an artist, researcher and environmental engineer from Sydney, Australia. Her work rethinks the infrastructures, interfaces and institutions that structure our relationship with larger environment systems. She has made experimental infrastructures, speculative services and data driven installations. She is currently teaching at the School for Poetic Computation (SFPC) in New York and was previously in residence at the Environmental Health Clinic at New York University. She has recently exhibited at the Dublin Science Gallery and at Eyebeam Centre for Art and Technology, New York (2013). In 2013 Brain was awarded a Creative Australia Fellowship for early career artists from the Australia Council for the Arts.

Drew Hornbein

Drew Hornbein is a web designer, artist, activist and technologist based in New York.

Thiago de Mello Bueno

Thiago de Mello Bueno is a designer who specialises in user experience, front-end development, and graphic arts.

Run That Town: A strategy game with a twist

Run That Town was developed by The Australian Bureau of Statistics, Leo Burnett Sydney and Millipede Creative Development.

<http://runthattown.abs.gov.au/>

The Australian Bureau of Statistics (ABS)

The Australian Bureau of Statistics (ABS) is Australia's national statistical agency and has played a critical role in Australian society throughout its more than 100 years of history. The ABS provides official statistics on a wide range of economic, environmental and social issues to encourage informed decision making, research and discussion within governments and the community. The ABS also plays an important leadership and coordination role in relation to the statistical activities of other official bodies, both within Australia and internationally. The ABS is committed to developing new and innovative statistical information solutions to ensure it remains a world leader amongst national statistical agencies.

Leo Burnett Sydney

Leo Burnett Sydney is an advertising agency in Australasia that has won Agency of the Year 12 times on a local, regional and global level in the last five years. Leo Burnett Sydney was the first Australian agency to rank in the Top 10 Most Creative Companies internationally and was the first to win both the prestigious Global Cannes Lion for Effectiveness and Media Agency of the Year. In 2013 the agency was the second most awarded digital company in Australia.

Millipede Creative Development

Millipede Creative Development design and develop games, applications, services and experiences for mobile platforms, physical spaces and the web.

The Sensitive Aunt Provotype

The Sensitive Aunt Provotype was developed by Laurens Boer and Jared Donovan.

http://www.sdu.dk/en/om_sdu/institutter_centre/c_spire/projects/indoor_climate

Laurens Boer (Interaction Design, University of Southern Denmark)

Dr. Laurens Boer is Assistant Professor, Interaction Design at the University of Southern Denmark. His research interest is in the areas of speculative design and experience design. He studied Industrial Design at the Eindhoven University of Technology, the Netherlands. In 2012, he completed his PhD at the SPIRE Centre with a dissertation titled *How provotypes challenge stakeholder conceptions in innovation projects*. Boer has worked with provotypes as ethnographically based and technically robust artefacts that deliberately challenge stakeholders. By building provocative prototypes and deploying them at family homes and industrial organisations he aims to bring together practices of critical design, design ethnography, and organisational change.

Jared Donovan (Creative Industries Faculty, Queensland University of Technology)

Dr. Jared Donovan is a lecturer and researcher in Interaction Design in the Creative Industries Faculty at the Queensland University of Technology. His main research interest is in finding better ways of interacting with computer technologies with the goal of making computer technologies easier to use, more enjoyable and more respecting of people's abilities for skilled physical movement. In particular, he has investigated the use of gesture as a way for people to interact with computer interfaces without the need for computers and mice. Donovan is also keenly interested in Participatory Design approaches and finding better ways to involve stakeholders in the design process. Before joining QUT, he worked for four years at the SPIRE centre for Participatory Innovation at the University of Southern Denmark where he researched the use of 'provotypes' (provocative prototypes) to spark discussion and debate. Donovan co-edited *Design and Anthropology* with Wendy Gunn (Surrey: Ashgate, 2012).

Veloscape

Veloscape was developed by a research team led by Jill Bennett, Volker Kuchelmeister and Laura Fisher.

<http://www.niea.unsw.edu.au/research/projects/curating-cities-social-and-ecological-potential-public-art-practice>

Jill Bennett (National Institute for Experimental Arts, UNSW Art & Design)

Professor Jill Bennett is Professor of Experimental Arts and founding Director of NIEA, and is Associate Dean Research, UNSW Art & Design. A writer and curator, she has published widely on visual culture, new media and transdisciplinary aesthetics. Her research is particularly focused on aesthetics, broadly understood as the analysis of sensori-affective perception and interaction, and its practical deployment both in art/exhibitions and in social and scientific areas beyond traditional art practice. Her most recent book is *Practical Aesthetics: Events, Affects and Art After 9/11* (London: IB Tauris, 2012), for which she received the Sterling and Francine Clark Fellowship (Clark Institute, Massachusetts) in 2009 and an ARC Discovery Grant. Her previous books include *Empathic Vision* (Stanford UP, 2005), a study of art and traumatic events and several monographs on new media art. Bennett leads the *Curating Cities* ARC Linkage Project with the City of Sydney council, Object: Australian Centre for Design, University of Cincinnati and Carbon Arts. Growing out of the 2010 HotHouse symposium on art and ecology at the Sydney Opera House, *Curating Cities* develops experimental public art, promoting urban sustainability. As part of this project, Bennett is co-authoring, with Saskia Beudel, *Curating Sydney* (UNSW Press, 2014), the Database of Eco-Public Art and is leading *Veloscape*, with Volker Kuchelmeister and Laura Fisher.

Volker Kuchelmeister (National Institute for Experimental Arts, UNSW Art & Design)

Volker Kuchelmeister is a media artist, researcher, digital media specialist and expert in place representation. He has worked extensively in cinematography, experimental imaging, spatial mapping, interactive systems, immersive visualisation and mediation in the performing arts while exploring the boundaries of the cinematic image. He was a founding member of several media-based research labs, including ZKM Centre for Art and Media Karlsruhe, iCinema Centre at the University of New South Wales' iCinema Centre and the iCinema Lab at the National Institute for Experimental Arts. Kuchelmeister's art projects have been exhibited internationally and he has been appointed Research Fellow at iCinema Centre for Interactive Cinema Research and the National Institute of Experimental Arts.

Laura Fisher (National Institute for Experimental Arts, UNSW Art & Design)

Dr Laura Fisher is a sociologist and art historian currently based at the National Institute for Experimental Arts, UNSW. She is pursuing a range of research interests around art in the public domain, visionary outdoor environments, and the ways in which art's meanings are shaped by social and political change. She has published on Aboriginal art, public art and visual culture, with recent articles in Cultural Sociology and Visual Studies. In addition to her work with *Veloscape: a Curating Cities Project*, which is exploring the emotional and sensory dimensions of urban cycling, Laura is currently developing her manuscript *Aboriginal Art: Ethics and Politics* (Anthem Press), based on her doctoral thesis, and collaborating with Gay McDonald on a book project about the Aboriginal Art Board's program of touring Aboriginal art exhibitions overseas between the 1970s and 1990s.

Feral Experimental Symposium and Workshops

18 July	Feral Experimental Opening	UNSW Galleries
24 July	Public lecture: Recent Studio Research with Dr William Gaver (Goldsmiths), 6pm	EGO2 Lecture Theatre
5 August	Public lecture: Katherine Moline, Curator's Talk & Geoff MacKellar, Emotiv, 6pm	EGO2 Lecture Theatre

Wednesday 20 August

9.30–10.00	Welcome Ross Harley, Jill Bennett, Katherine Moline (UNSW Art & Design, NIEA)	UNSW Galleries Basement Foyer
10.00–11.30	Experimental Design Thinking	
	Panel Cameron Tonkinwise (Design, CMU) <i>De-novation: a compositionist critique</i> Abby Mellick Lopes (SoHCA, UWS) <i>Transitions, social practices and design: notes from a transdisciplinary research project</i> Yoko Akama (Media and Communication, RMIT) <i>Questioning and Becoming with One Another – through Designing</i>	UNSW Galleries Basement Foyer
11.30–1.30	Workshop Roderick Bamford and Karina Clarke (UNSW Art & Design) <i>Digital Bamboo: COFASpace</i>	COFASpace
11.30–1.30	Workshop Alex Davies (UNSW Art & Design) <i>Spectres and Shadows</i>	IDG
1.30–2.30	Lunch	
2.30–4.00	Experimental Design Combines	
	Panel Katherine Moline (UNSW Art & Design, NIEA) <i>Experimental Design Research: Participatory and Speculative Design</i> Astrid Lorange (UNSW Art & Design, NIEA) <i>Soft Forms against Compulsory Flows: A Philosophy of Design</i> Laurens Boer (Mads Clausen Institute, SDU) and Jared Donovan (Creative Industries Faculty, QUT) <i>Indoor Climate Provotypes: Who provokes and who do they provoke?</i>	UNSW Galleries Basement Foyer
4.00–6.00	Workshop Lindsay Kelley (UNSW Art & Design, NIEA) <i>The Bioart Kitchen</i>	F Block 4th Floor Postgraduate Lounge
6.30–8.30	Sydney Design Week Launch Paul D. Miller aka DJ Spooky live performance	UNSW Galleries Basement Gallery

Thursday 21 August

10.00–11.30	Experimental Design and Environmental Sustainability	
	Panel Mike Michael (USyd) <i>Speculative Design as Method: The Idiocy of Everyday Life</i> Laura Fisher and Volker Kuchelmeister (UNSW Art & Design, NIEA) <i>Veloscape: Mapping Cycling Emotions in Sydney</i> Tega Brain <i>The Phenology Clock: Other Perspectives on Time</i>	UNSW Galleries Basement Foyer
11.30–2.30	Workshop Laura Fisher (UNSW Art & Design–NIEA) <i>Veloscape: Exploring Sensory Cartographies with Sydney Cyclists</i>	D204
12.00–2.00	Workshop Tega Brain (School of Poetic Computation, NY) <i>Phenology Clocks</i>	D104
1.30–2.30	Lunch	
2.30–4.00	Experimental Interaction Design	
	Panel Laurene Vaughan (Media and Communication, RMIT) <i>Living Archives and Participatory Interaction</i> Matthias Hank Haeusler (UNSW Built Environment) <i>Interchanging - Future Scenarios for Responsive Transport Infrastructure Design</i> Jeffrey Tzu Kwan Valino Koh (UNSW Art & Design) <i>A Young Replicant's Illustrated Primer for Robot-Human Collaboration</i>	UNSW Galleries Basement Foyer
4.00–6.00	Workshop George Poonkhin Khut and Jeffrey Tzu Kwan Valino Koh (UNSW Art & Design) <i>Tangible and Embodied Interaction Lab</i>	D103

Friday 22 August

10.00–12.00	Workshop John McGhee (UNSW Art & Design, NIEA) <i>What is the Role of the Designer in Working with Scientific Data?</i>	UNSW Galleries Basement Foyer
10.00–1.00	Workshop Laura Fisher (UNSW Art & Design, NIEA) <i>Veloscape: Exploring Sensory Cartographies with Sydney Cyclists</i>	D103
1.00–2.00	Lunch	
2.00–4.00	Workshop Cameron Tonkinwise CMU), Laurene Vaughan (RMIT), Katherine Moline (UNSW Art & Design, NIEA) <i>UNSW Art & Design PhD Workshop</i>	F402
2.00–4.00	Workshop George Poonkhin Khut & Jeffrey Tzu Kwan Valino Koh (UNSW Art & Design) <i>Tangible and Embodied Interaction Lab</i>	D103
2.00–4.00	Demo Paul D. Miller/DJ Spooky <i>DJ Mixer App</i>	UNSW Galleries Basement Gallery

Feral Experimental *Symposium and Workshops*

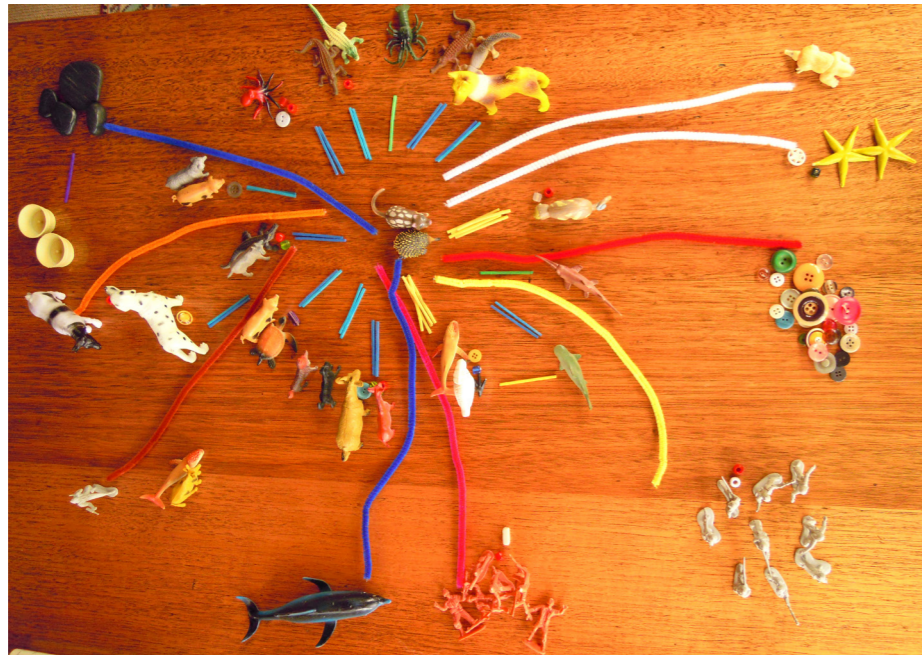
Wednesday 20 August

Experimental Design Thinking Symposium Panel

UNSW Galleries Basement Foyer

10.00–11.30am

Cameron Tonkinwise | Abby Mellick Lopes and Dena Fam | Yoko Akama



Yoko Akama, *Community Centred Innovation: Co-designing for Disaster preparedness*, 2009 - 2014

Cameron Tonkinwise (Design, CMU)

De-novation: a Compositionist Critique

Because Critical Design was never critical, it is now being characterised more positively as Speculative Design. This fits with Latour's lament that 'critique has run out of steam' and that the task is to compose alternatives rather than deconstruct the present. Whatever the possibilities of criticality in design, the power of the design alternative is in the media ecologies and organisational alliances that materialise design's conditions of possibilities. To this extent, Speculative Design seems not to be extending sufficiently beyond art and design educational institutions. However, there is perhaps still a need for criticality, for negation, for the obstruction of certain futures and their consequences. This task has been called by Tony Fry, and others, Elimination Design. This presentation will explore what could be called a compositionist critique: the project of formulating media ecologies and organisational alliances that aim to disrupt the arrival of disruptive technovations. In addition to describing this project of de-novation practically, this presentation will also situate this practice in the political spectrum pivot that Steve Fuller characterises as from left-right to proactionary-precautionary.

Abby Mellick Lopes (SoHCA, UWS) and
Dena Fam (Institute for Sustainable Futures, UTS)

Transitions, Social Practices and Design: Notes from a Transdisciplinary Research Project

There is currently great interest in the idea of transitions to help bring on more sustainable societies and cultures. This is demonstrated by community-led projects like Transition Towns, and government sponsored reports such as the German Advisory Council on Global Change's *World in Transition: a social contract for sustainability* (2011). Design has an important role to play in envisioning, redirecting and steering transitions, and is uniquely implicated in how transitions play out. Design's involvement in transitions is also changing how design is being taught and practised. This paper describes the role of design research in an ambitious transdisciplinary research project, 'Transitioning to sustainable sanitation futures', that involved trialing a novel system of sanitation in a university setting. In the context of century-old sanitation infrastructure, institutional sectors speaking at cross-purposes, embedded conventions of comfort, cleanliness and convenience in toileting and limited understanding of how specific technologies are scripting social practices, there was much to learn. The paper will detail design's involvement in the project across three action research phases. Two cohorts of visual communications design students from two universities responded to a range of briefs generated by the project team. Students designed narratives to introduce the complex scenarios presented by the project; in situ signage to aid use of the new technologies; and social engagement tools to elicit feedback and responses from end-users. The resulting artefacts influenced how the project was perceived and supported a shift in emphasis from technical to social innovation. The paper will consider implications for design research in a university setting, where niche experimentation for a broad range of stakeholders could support socio-technical transitions in the wider culture. Drawing on current transitions literature, this paper advocates for the idea of the university-based design researcher as an 'anticipatory change agent' (WBGU 2011) within such research enterprises.

Yoko Akama (Media and Communication, RMIT)

Questioning and Becoming with One Another – through Designing

This presentation locates my current practice in designing that manifests among communities, inviting them to participate in restructuring their social relations and build adaptive capacities in strengthening resilience for disaster preparedness. Tackling disaster preparedness is a 'wicked problem' compounded by the 'command-and-control' emergency management culture and a community's anxiety, confusion and dependency on authorities for instruction. There is no single product or service that can be designed to solve this complex issue. My role as a designer in this context is to *intervene from within*, acknowledging that we are already entangled in complex webs of systems and power-relationships. By reshaping the role of the designer as a catalyst, a mediator or a provocateur, I invite people who share similar risks to look carefully at their own resources, environment and social networks. In this way, I help shape futures by making the invisible cement of relationships visible, to become material for exploration and to re-examine it in new ways. Social relations are not static or a given condition, but are fluid, impacting and impacted upon, changed or created by the designing that we are engaged in. The presentation describes how designing is not enacted through methods alone, but is embodied in my performance and manifests in dialogue and interactions and concludes that designing as an ongoing process of transformation where communities discover and reflect upon who 'we' are and question and propose how 'we become with' one another.

Digital Bamboo

Roderick Bamford & Karina Clarke (UNSW Art & Design)



Rod Bamford and Karina Clarke, *Digital Bamboo*, 2013

The Digital Bamboo workshop offers an opportunity to engage in a hands-on digital fabrication and physical computing research project to create small and large-scale spatial and lighting structures from bamboo, rattan timber and electronics. Workshop activities comprise computational design, contour based construction systems and video documentation elements, culminating in an exhibition at COFASpace on 22nd August. UNSW Students attending this workshop will have the opportunity to participate in this upcoming initiative. The workshop will employ 3D printing, laser cutting, Arduino and analogue construction methods to explore experimental hybrid design strategies that will be later investigated with Tasikmalayan Bamboo artisans in Indonesia as part of the Digital Bamboo Studio Research Project. Artisans of the Tasikmalaya region of West Java have produced elaborate bamboo bird cages and for generations, yet sustaining a cohesive community and its traditions faces increasing challenges associated with the movement of labour and industry from villages to cities as part of Indonesia's modernisation. Working from the premise of distributed knowledge, the Digital Bamboo Studio flips the orthodox scenario of economic centralisation, investigating the potential for design thinking and creative open source technologies to augment and improve the viability of traditional artisan practices. In opposition to sustainable design strategies dependent on mass production and obsolescence, the Digital Bamboo Studio tests whether a creative, radical parsimony may underpin enduring relationships between environmental, social and economic value in discrete designer/maker communities.

The Digital Bamboo Studio is funded by the Contestable Funding Scheme, managed through UNSW International, and contributes to ongoing research by academics at RED Objects group concerning relationships between virtual and material ecologies. It aims to better understand how meaning in object-human relationships develops alongside emerging cybernetic conditions in design and society and in the context of sustainable development. <http://www.redobjects.unsw.edu.au/>

Spectres and Shadows

Alex Davies (UNSW Art & Design)

The Spectres and Shadows workshop explores the creation of illusionary characters within the clock set piece of the installation *The Very Near Future* that was presented in 2013 at ISEA and Sydney Festival. Participants will gain insight into the production process utilised to record and process video with the aim to give a fleeting impression of the presence of shadowy people co-existing in the environment with the audience. Participants will also gain an understanding on how these media elements can be controlled and presented in a dynamic fashion via computer hardware and custom software.



Alex Davies, detail from *The Very Near Future*, 2013

Wednesday 20 August

Experimental Design Combines Symposium Panel

UNSW Galleries Basement Foyer

2.30-4.00pm

Katherine Moline | Laurens Boer and Jared Donovan | Astrid Lorange



Benedikt Groß, *Avena+ Test Bed, "Seam" between oats and flowers*, 2013

Katherine Moline (UNSW Art & Design, NIEA)

Experimental Design Research: Participatory and Speculative Design

Design research has attracted great attention and expanded significantly since the design methods movements of the 1970s. What constitutes productive research in contemporary design is a contested issue, particularly in relation to participatory and speculative design. Participatory design has adapted methods from sociology, anthropology and ethnography, and developed strategies for understanding complex social and environmental issues, such as increasing the mobility of elders and minimising electricity usage. Participatory research methods are committed to understanding user experiences and the involvement of diverse stakeholders. At the same time, speculative design research combines design with film, literature and futurology to imagine alternative future scenarios in collaboration with others, including photographers and writers. Speculative design research reflects how design-users repurpose products for their own desires and creates narratives that enrich understandings of social conundrums. Yet rarely are participatory and speculative design considered together in anthologies or exhibitions of contemporary design research. This is despite recent examples that increasingly intermix aspects of each approach to imagine possible futures with a greater number of stakeholders and speculatively combine technologies to address immediate concerns. To illustrate, the paper describes two projects that combined research methodologies from participatory and speculative design and argues that the differences between participatory and speculative design are not always clear-cut.

**Laurens Boer (Mads Clausen Institute, SDU) and
Jared Donovan (Creative Industries Faculty, QUT)**
Indoor Climate Provotypes: Who Provokes and Who do they Provoke?

Provotypes are provocative prototypes designed and made to spark discussion around topics of interest within a design research process. We have employed provotypes as part of a three-year long research project called 'Indoor-Climate and Quality of Life'. This research project involved two universities and five company partners from the Danish building products and services industry. The aim was to expand conventional approaches to studying and modelling people's experience of Indoor Climate and to uncover innovation potentials for company partners. The field of indoor climate studies has traditionally taken an engineering stance in relation to the 'problem' of indoor climate, with an emphasis on identifying the objective and measurable parameters that can specify satisfactory comfort levels for building occupants. Our role within the project was to complement traditional views of indoor climate comfort with a Participatory Innovation approach whereby we carried out ethnographic studies of people's lived experience of indoor climate and employed participatory design techniques to help envision future possibilities for indoor climate systems and services. We discovered that there are often ambiguities, tensions and uncertainties at play in the way people respond to and manage their indoor climate, such as the ideal of painless automation clashing with the need for a feeling personal autonomy and control. We started designing provotypes to probe into these tensions so we could better understand them. Initially, our provotyping work was focussed on the occupants of buildings, but as the project progressed, we realised that provotypes could also be used to provoke discussion and dialogue amongst our company partners and that this could be a powerful tool for changing the way that our partners thought of indoor climate and the people they design for.

Astrid Lorange (UNSW Art & Design, NIEA)
Soft Forms against Compulsory Flows: a Philosophy of Design

This paper will explore the potential for a mode of inquiry that engages contemporary philosophy and critical design practice with the aim of forming 'soft architectures' (to cite poet and critic Lisa Robertson) – concepts that provide the space for engagement, resistance, structural and infrastructural development and pedagogical tools. I will argue that this mode of inquiry exists already across multiple disciplines – including conceptual literary projects, large-scale online databases and alt.archives, transnational feminist interventions and collective organisations. The softness of these forms of resistance (constructive, contingent, emergent) allows for the de- and reconstruction of objects, bodies, ideas, and events in quickly changing political and material environments. Soft architectures are responses to the demand of late-capitalism to be perpetually, inexorably on the move. Against the liquefaction and acceleration of capital flows, soft architectures offer the space for modes of thought that are slow, unquantifiable and/or queer. Taking up the diverse provocations of thinkers such as Jasbir Puar, Sianne Ngai, Gertrude Stein, Isabelle Stengers, Gins and Arakawa, this paper will posit that philosophy and design, as cognate as they may already be, can still learn a lot from each other, particularly when given the shared (and simple) task of making new things happen.

The Bioart Kitchen

Lindsay Kelley (UNSW Art & Design, NIEA)



Lindsay Kelley, *The Bioart Kitchen*, 2013

The inability to swallow marks a turn away from humanist conceptions of sustenance. The dysphagiatic (one who cannot or will not swallow) no longer has access to the social apparatus of dining. She turns inward, finding dining companions in plasticities of the stomach, potentials of the gastric feeding tube, and the interior rumblings of the humanimal microbiome. *Dysphagiatic* contains a sculpture, a research initiative, and a portable workshop centered around a speculative countertop appliance that is designed with laminar flow cabinetry principles. The stomach appliance draws on tissue culture laboratory protocols to conceptualise the kitchen and the stomach as spaces of sterility, infection, fecundity, and medical intervention. Evoking surgical draping, safe rooms, and bodily cavities, *Dysphagiatic* houses demonstrations, including hand washing techniques, recipe development and preparation, and tasting events that compare liquefied perishable foods with the prescription fare typically ingested by tube-fed patients. Taking the gastric feeding tube as a fertile site for investigating ecologies of gut bacteria and corporeal morphism, *Dysphagiatic* shows how multispecies symbiosis and domestic technoscience co-produce digestive tracts. Dysphagiatics undergo radical changes to their microbial communities when they begin ingesting liquid medical food, packaged in cans with expiration dates years in the future. These cans imagine a subsistence stomach, only able to take in that which is sufficient, sterile, and preserved. A brave subculture of caretaker cooks feed the tube with purees produced from perishable ingredients. Such practices resist empty larders stocked with simulations of sustenance.

Sydney Design Week Launch: Live Performance

Paul D. Miller aka DJ Spooky

Paul D. Miller aka DJ Spooky will perform live for the launch of *Feral Experimental* in Sydney Design Week 2014.



DJ App, DJ Spooky aka Paul D. Miller. Image courtesy of the artist.

Thursday 21 August

Experimental Design and Environmental Sustainability Symposium Panel

UNSW Galleries Basement Foyer

10.00-11.30am

Mike Michael | Laura Fisher and Volker Kuchelmeister | Tega Brain



Jill Bennett, Volker Kuchelmeister and Laura Fisher
Veloscape: a Curating Cities project, *Data collection using galvanic skin response, go-pro camera and GPS*, 2014. Photograph: Laura Fisher

Mike Michael (Social and Political Sciences, USyd)

Speculative Design as Method: The Idiocy of Everyday Life

In this paper, I draw on the process philosophy of Isabelle Stengers and A.N. Whitehead to think through speculative design as method. The paper argues that speculative design generates a series of techniques and artefacts for accessing the virtual, or the not-as-yet, by re-defining the parameters of the 'social events' that it engenders. In particular, it suggests that speculative design serves to generate events that are explicitly open or unfolding, and as such accesses those elements of social events that are usually 'othered' in the process of social scientific study. This can be understood in terms of a 'proactive idiocy' in which speculative design 'de-signs' events so that they no longer make easily graspable sense. The philosophical figure of the 'idiot' is described and proposed as a way of thinking not only about how speculative design operates, but also how everyday life proceeds. Accordingly, it argues that everyday life is cohabited by idiots of all sorts – people, animals, objects whose actions don't make sense within our understanding of particular everyday events. As Stengers suggests, the presence of idiots should give us pause: we can no longer believe that we are in possession of what we think we know. In light of all this, it further suggests that the ethos of speculative design should not only be concerned with the production, deployment and study of 'designerly idiots' but also with the development of techniques to access the idiocy that is a chronic part of everyday life. This argument is illustrated with examples drawn from environmental and biomedical fields.

**Laura Fisher (UNSW Art & Design, NIEA) and
Volker Kuchelmeister (UNSW Art & Design, NIEA)**
Soft Forms against Compulsory Flows: a Philosophy of Design

This paper will explore the potential for a mode of inquiry that engages contemporary philosophy and critical design practice with the aim of forming ‘soft architectures’ (to cite poet and critic Lisa Robertson) – concepts that provide the space for engagement, resistance, structural and infrastructural development and pedagogical tools. I will argue that this mode of inquiry exists already across multiple disciplines – including conceptual literary projects, large-scale online databases and alt.archives, transnational feminist interventions and collective organisations. The softness of these forms of resistance (constructive, contingent, emergent) allows for the de- and reconstruction of objects, bodies, ideas, and events in quickly changing political and material environments. Soft architectures are responses to the demand of late-capitalism to be perpetually, inexorably on the move. Against the liquefaction and acceleration of capital flows, soft architectures offer the space for modes of thought that are slow, unquantifiable and/or queer. Taking up the diverse provocations of thinkers such as Jasbir Puar, Sianne Ngai, Gertrude Stein, Isabelle Stengers, Gins and Arakawa, this paper will posit that philosophy and design, as cognate as they may already be, can still learn a lot from each other, particularly when given the shared (and simple) task of making new things happen.

Tega Brain
The Phenology Clock: Other Perspectives on Time

Phenology refers to the timing and seasonality of the life cycle events of other species. It is the study of the temporal dimensions of flowering, budding, migration, and seeding - cycles that can range in periodicity from minutes through to a number of decades. There is a growing interest in the study of phenology in the context of the Anthropocene, the current geological era where humans and human technologies are the predominant force shaping environmental conditions. As climate systems become increasingly destabilised, phenological cycles of interdependent species risk becoming asynchronous, resulting in complex unpredictable changes to ecosystems. *The Phenology Clock*, created at the Environmental Health Clinic, New York University, is a platform and model for presenting a species-centric perspective of time. The project includes an open source software platform for the gathering and presentation of phenology patterns for local ecosystems in the form of temporal measurement devices. *The Phenology Clock* project attempts to move beyond the human-centric standardisation of time that has been driven by technological connectivity over the last several centuries. Rather, it explores time as an emergent property of the interplay between the biological and meteorological domain.

Veloscape: exploring sensory cartographies with Sydney cyclists

Laura Fisher (UNSW Art & Design, NIEA)



Jill Bennett, Volker Kuchelmeister and Laura Fisher
Veloscape: a Curating Cities project, *Data collection using galvanic skin response, go-pro camera and GPS*, 2014. Photograph: Laura Fisher

Veloscape: a *Curating Cities* project is developing a range of creative tools and interfaces with which to explore the urban cycling experience in Sydney. City cyclists have a heightened sensory awareness of the urban environment and a unique emotional relationship with the places through which they move. They have a honed kinaesthetic sensitivity to rhythm, speed and danger, and the quality of their ride is also shaped by fleeting and intense social interactions with car drivers, pedestrians and other cyclists. If we want to understand what cyclists love and hate about riding in the city, and the choices they make in getting from A to B, we need to better understand these sensory and emotional dimensions of the cycling experience. The *Veloscape* team has designed a data collection tool the *SenseScape* device in order to conduct these investigations. It consists of a device worn on the cyclist's upper arm that communicates via Bluetooth with a smart phone affixed to the bicycle's handlebars. This gathers geo-location, environmental, biometric and motion data, takes photos at regular intervals and records the cyclist's vocal commentary as they ride. During *Feral Experimental*, the *Veloscape* team will conduct two workshops with small groups of experienced cyclists as a means to explore the capabilities of the device. Each cyclist will have worn the device on a designated ride in the preceding weeks, and they will have also recorded additional information on an annotated map of that ride. The rides will reflect a spectrum of urban cycling scenarios. As a group the participants will be shown an animated map of a short segment of each of their rides with the full set of data streams on view/audible, and will collectively interpret the data.

Phenology Clock Workshop

Tega Brain

Phenology refers to the timing and seasonality of events in the life cycles of other species such as flowering, migration, budding and seeding. There is a growing interest in the study of phenology in the context of the Anthropocene, the current geological era where humans and human technologies are the predominant force shaping environmental conditions. The Phenological Clock Project is a design tool for developing a clock that displays life cycle events of local urban organisms. The resultant clocks re-present time as seasonally interdependent processes. In this workshop, participants will explore the phenology of species in their local environment as they are guided through the process of developing phenology clocks for their localities. The Phenology Clock project was developed at the Environmental Health Clinic, NYU.



Natalie Jeremijenko, Tega Brain, Drew Hornbein,
and Thiago de Mello Beuno, *Phenology Clock (detail)*, 2014.

Thursday 22 August

Experimental Interaction Design Symposium Panel

UNSW Galleries Basement Foyer

2.30-4.00pm

Laurene Vaughan | Matthias Hank Haeusler | Jeffrey Tzu Kwan Valino Koh



Jeffrey Tzu Kwan Valino Koh, *Liquid Interaction*, 2013

Laurene Vaughan (Media and Communication, RMIT)

Living Archives and Participatory Interaction

Congruent with the evolution of critical and speculative approaches to design research has been the deepening intersections between design and the digital humanities. Initially the digital humanities were premised on the possibilities of how digital technologies could transform traditional humanities domains, and over time, just as digital technologies have moved beyond the realm of computer science, there is a realisation that it is design that can really transform the outcomes of the digital humanities investigation. Digital Archives, especially those aligned to cultural institutions, are a prominent context for enquiry in this domain. They are a perfect site for the intersections between humanities, technology and design; offering the possibility for addressing issues of cultural heritage, archival practice and audience development. In the design of the *Circus Oz Living Archive* the focus has been on exploring how a participatory digital archive could enable new modes of audience participation, in conjunction with new conceptions of circus performance. This was a tenuous proposition that challenged the research team in designing the means for this to occur. Aligned with Pelle Ehn's claim that interaction design is the practice of design spaces for people to interact, our approach has been to embrace design's propositional basis, with the understanding that just as we cannot design interaction or experience - we can only design for the possibility that people may interact, and they will have some form of experience. For the *Living Archive* the term interaction was framed as participatory performance. Unbounded by limitations of synchronous time, the aim was for users to have an atemporal presence in the life of Circus Oz. Through participation in the possibilities of the digital archive, audiences could have a living presence in its past, present and future community of performance.

Matthias Hank Haeusler (FBE, UNSW)

Interchanging - Future Scenarios for Responsive Transport Infrastructure Design

Interchanging brings together a collection of design projects and interdisciplinary perspectives on policy, planning, design and management that currently shape and influence our expectations and experiences of urban public transport environments. Considering a range of social trends, including emerging responsive and sustainable technologies, the essays and design projects presented here reimagine, in various ways, a public transport 'interchange of the future' better suited to address the context and conditions of twenty-first century urban life. The talk will present a book written on the topic as well as images and videos of a 1:1 mock-up of a bus stop of the future, presented as part of Sydney Design Week at Customs House, Circular Quay.

Jeffrey Tzu Kwan Valino Koh (UNSW Art & Design)

A Young Replicant's Illustrated Primer for Robot-Human Collaboration

The roles that robots play in human society are becoming increasingly complex. From industrial robots that do our manufacturing to service robots like Roomba cleaning people's homes, robots have permeated social and even therapeutic spaces, as is evident with the success of the Paro robot during the Fukushima Daiichi nuclear disaster in 2011. Commercially available robots such as Paro have commoditised social and therapeutic robots, much like service robots have been assimilated and commoditised in the past. Multidisciplinary robotics research has also led to novel, although not commercially available robotic applications, among them examples such as Cooky, a robot that actively participates in the preparation of food in collaboration with a human partner. As robots slowly permeate human society, an increasing number of examples where robots are taking active roles in the development of material culture have emerged. Many of these robots are being programmed with rudimentary affordances that consider human-robot interaction at the cultural level. Such affordances have allowed for novel applications of robotics that consider affective robot-human interaction. These applications include robots that help human partners collaborate with AI to generate poetry, robot-crafted typography, and even robot-human music co-creation. As a result, our interactions with robots are becoming increasingly complex. This paper questions current definitions of interaction and asks how future collaborations with robots will manifest. It takes an exploratory approach to a potential shift in application within social robotics towards cultural collaboration, and outlines the potential conditions and considerations for the development of robots intended for cultural mediation, participation, and creation.

Tangible and Embodied Interaction Lab

George Poonkhin Khut & Jeffrey Tzu Kwan Valino Koh (UNSW Art & Design)



George Khut and James P. Brown, "ThetaLab" creative neurofeedback research event, ISEA 2013 Rocks Popup residency, Sydney. Photograph by James P. Brown.

This hands-on two-hour workshop introduces participants to the creative possibilities of tangible and embodied interaction for art and design. With off-the-shelf 'plug-and-play' technologies (Wiimotes, proximity sensors, heart rate and brainwave sensors), and highly accessible visual programming the workshop explores processes of data sensing, mapping, visualisation and sonification. George will also discuss his work with these softwares and the ways in which he applies them to his work in galleries and clinical settings, and practices that transform and augment our experiences of embodiment, subjectivity and agency.

Veloscape: exploring sensory cartographies with Sydney cyclists

Laura Fisher (UNSW Art & Design, NIEA)

Veloscape: a Curating Cities project is developing a range of creative tools and interfaces with which to explore the urban cycling experience in Sydney. City cyclists have a heightened sensory awareness of the urban environment and a unique emotional relationship with the places through which they move. They have a honed kinaesthetic sensitivity to rhythm, speed and danger, and the quality of their ride is also shaped by fleeting and intense social interactions with car drivers, pedestrians and other cyclists. If we want to understand what cyclists love and hate about riding in the city, and the choices they make in getting from A to B, we need to better understand these sensory and emotional dimensions of the cycling experience. The Veloscape team has designed a data collection tool the SenseScape device in order to conduct these investigations. It consists of a device worn on the cyclist's upper arm that communicates via Bluetooth with a smart phone affixed to the bicycle's handlebars. This gathers geo-location, environmental, biometric and motion data, takes photos at regular intervals and records the cyclist's vocal commentary as they ride. During Feral Experimental, the Veloscape team will conduct two workshops with small groups of experienced cyclists as a means to explore the capabilities of the device. Each cyclist will have worn the device on a designated ride in the preceding weeks, and they will have also recorded additional information on an annotated map of that ride. The rides will reflect a spectrum of urban cycling scenarios. As a group the participants will be shown an animated map of a short segment of each of their rides with the full set of data streams on view/audible, and will collectively interpret the data.



Jill Bennett, Volker Kuchelmeister and Laura Fisher
Veloscape: a Curating Cities project, Data collection using galvanic skin response, go-pro camera and GPS, 2014. Photograph: Laura Fisher

What is the role of the designer in working with scientific data?

John McGhee (UNSW Art & Design, NIEA)



John McGhee, *3D communication tool*, 2013

As artists and designers, what model of working should we adopt when visualising clinical data? Historically, we can identify various models of mediating human inner body spaces. This workshop discusses a contemporary example, describing the exploratory research carried out by Dr John McGhee during his residency in a British clinical radiology department. The residency invited the designer to visualise Magnetic Resonance Imaging (MRI) data and develop a 3D communication tool for use with patients with vascular disease. In response, the designer reframed the question. He developed and explored an alternative approach that returned the poetics to the human anatomy. This workshop explores the concept of designer as a critical friend, rather than translator of data. This discussion focuses on the value of critical interaction when working in the clinical or scientific context.

Tangible and Embodied Interaction Lab

George Poonkhin Khut & Jeffrey Tzu Kwan Valino Koh (UNSW Art & Design)



George Khut and James P. Brown, "ThetaLab" creative neurofeedback research event, ISEA 2013 Rocks Popup residency, Sydney. Photograph by James P. Brown.

This hands-on two-hour workshop introduces participants to the creative possibilities of tangible and embodied interaction for art and design. With off-the-shelf 'plug-and-play' technologies (Wiimotes, proximity sensors, heart rate and brainwave sensors), and highly accessible visual programming the workshop explores processes of data sensing, mapping, visualisation and sonification. George will also discuss his work with these softwares and the ways in which he applies them to his work in galleries and clinical settings, and practices that transform and augment our experiences of embodiment, subjectivity and agency.

Workshop
UNSW Galleries
Friday, 2.00–4.00

DJ Mixer App

Paul D. Miller aka DJ Spooky

In this workshop, multimedia artist, composer and writer Paul D. Miller aka DJ Spooky expands the concept of DJ with elements of conceptual art, sound art, layering, collage, loops and layers. From his popular DJ app for iPad, which has enjoyed over 12 million downloads, to his multimedia composition, book, and installation *The Book of Ice*, DJ Spooky will discuss how technology has shaped creativity throughout history and continues to influence how we actualise the future.



DJ App, DJ Spooky aka Paul D. Miller.

Symposium Biographies

Cameron Tonkinwise

Associate Professor Cameron Tonkinwise is the Director of Design Studies at the School of Design at Carnegie Mellon University. He was previously the Associate Dean Sustainability at Parsons The New School for Design in New York City, the Co-Chair of the Tishman Environment and Design Center and the Chair of Design Thinking and Sustainability in the School of Design Strategies, Director of Design Studies at the University of Technology, Sydney, and Executive Director of Change Design, formerly known as the EcoDesign Foundation. Tonkinwise's primary area of research is sustainable design with an interest in design solutions that drive people towards wanting a more sustainable lifestyle. In particular, he focuses on the design of systems that lower societal materials intensity, primarily by decoupling use and ownership - in other words, systems of shared use. Trained in philosophy, Tonkinwise researches what designers can learn from philosophies of making, material culture studies and sociologies of technology. He has extensive experience with practice-based design research, having supervised and examined reflective practice and artifact-based research projects and written about the epistemologies particular to this kind of work. Tonkinwise has published a range of articles on the role of design, and in particular, service design, in the promotion of the sharing economy and collaborative consumption.

Abby Mellick Lopes

Dr. Abby Mellick Lopes is a Senior Lecturer in Design at the University of Western Sydney with 15 years' professional and academic experience in the field of design for sustainability. Her research and teaching activities demonstrate design leadership in promoting socio-cultural change for more sustainable ways of living, working and learning. She was a key team member of the groundbreaking research and educational consultancy the EcoDesign Foundation from 1996-2004 (<http://www.changedesign.org/DfSGuideWebsite/HomePage/Home.htm>). Her research at the Foundation focused on design strategies for adaptation to climate change, and the ecological impacts of information technology. Her current research explores how design can contribute to socio-cultural change in relation to water, sanitation and urban agriculture; user-side practices of care, repair and creative modification; design research strategies and design for sustainability education. She has been involved in a number of interdisciplinary research projects. In 2006-2007 she was a member of the CRC Irrigation Futures investigating sustainability in urban irrigation, and in 2006-2008 was Joint Chief Investigator on a Partnership Program with Penrith City Council researching universal design

and cultural context in public parklands in Western Sydney. She has most recently collaborated with researchers and industry partners on the project Transitioning to Sustainable Sanitation Futures with the Institute for Sustainable Futures at UTS. Mellick-Lopes has published widely on sustainable design issues and has presented her research at conferences in China, Spain, Holland, Cyprus and the UK as well as Australia. She is a committee member of the Society for Responsible Design, a member of the UWS Sustainability Taskforce and a member of the international Learning Network on Sustainability (LeNS Oceania: <http://lensoceania.org/>).

Dena Fam

Dena Fam is a Senior Research Consultant and Chancellor's Postdoctoral Research Fellow at the Institute for Sustainable Futures and Centre for Management and Organisational Studies at the University of Technology Sydney. Her consulting and research experience has spanned socio-cultural (learning for sustainability), institutional (policy analysis) and technological aspects of water and sewage management. Dena has recently completed a PhD in sustainable futures looking at how to foster '*Transitions toward sustainability through transdisciplinary inquiry and the process of individual, social and organisational learning*'.

Yoko Akama

(see exhibition bio)

Laurene Vaughan

(see exhibition bio)

Laurens Boer

(see exhibition bio)

Jared Donovan

(see exhibition bio)

Tega Brain

(see exhibition bio)

Laura Fisher

Dr. Laura Fisher is a sociologist and art historian currently based at UNSW's National Institute for Experimental Arts. She is pursuing a range of research interests around art in the public domain, visionary outdoor environments, and the ways in which art's meanings are shaped by social and political change. She has published on Aboriginal art, public art and visual culture, with recent articles in *Cultural Sociology* and *Visual Studies*. In addition to her work with Veloscape: a Curating Cities Project, which is exploring the emotional and sensory dimensions of urban cycling, Laura is currently developing her manuscript *Aboriginal Art: Ethics and Politics* (Anthem Press), based on her doctoral thesis, and collaborating with Gay McDonald on a book project about the Aboriginal Art Board's program of touring Aboriginal art exhibitions overseas between the 1970s and 1990s.

Mike Michael

Professor Mike Michael is a sociologist of science and technology. His research interests include the relation of everyday life to technoscience, biomedical innovation and culture, the interface of the material and the social, and process methodology. Recent research has addressed the complexities of HIV pre-exposure prophylaxis clinical trials (with Marsha Rosengarten), the interdisciplinary use of sociological and speculative design techniques to explore energy demand reduction (with the ECDC project team), and the development of an 'idiotic methodology'. He has authored 6 books and over a hundred papers and chapters. Professor Michael is a co-editor of *The Sociological Review*.

Matthias Hank Haeusler

Dr. M. Hank Haeusler is a Senior Lecturer in the School of Architecture at UNSW Australia. In 2013 Haeusler was a Visiting Professor at the China Central Academy of Fine Arts (CAFA) in Beijing, China for his outstanding contribution to the discussion of media architecture and media facades. Previous to his UNSW employment he held for three years a Chancellor's Postdoctoral Research Fellowship at the UTS, Sydney. Haeusler is an internationally recognised researcher, educator, entrepreneur and designer and has a passion for place making for the 21st century city to engage communities through media architecture, digital technology, interaction design and ubiquitous computing. He is interested in how digital technology can transform the built environment. Haeusler leads an ARC Linkage Grant project that investigates how to relieve growing usage pressure on Australian public transport by using user-responsive digital technologies to offer a complementary approach to infrastructure expansion.

He is author of five books *New Media Façade – A Global Survey* (avedition, 2012); *Infostructure – A transport research project* (Freerange Press 2010); *Chromatophoric Architecture – Designing for 3D media facades* (Jovis, 2010); *Media Facades – History, Technology, Content* (avedition, 2009) and several book chapters, journal and conference papers.

Jeffrey Tzu Kwan Valino Koh

Jeffrey Tzu Kwan Valino Koh is an Associate Lecturer at UNSW Art & Design. Koh is a trans-disciplinary experiential designer who has worked on catwalk and fashion show designs for PRADA and Miu Miu, advertising and gallery curation for KesselsKramer, and architecture and exhibition designs for the Office for Metropolitan Architecture / Rem Koolhaas. He has performed demos, published papers and written book chapters in venues such as UBICOMP, CSCW, IEEE Haptics Symposium, SIGGRAPH, SIGDOC, ISMAR, ACM CIE, MONU Magazine and more. He was also a PC member in ACE and UBICOMM, and was an invited reviewer for journals and conferences such as Leonardo, AHCI, DIS and CHI. Koh has won awards for his research projects including the Creative Showcase Golden Award at ACE2010, and is a recipient of the prestigious NGS scholarship from the National University of Singapore. Koh has exhibited in venues such as the Barbican and Southbank Centre in London, United Kingdom, for festivals such as the Singapore Design Festival, and in galleries in Munster, Berlin, Vienna, Crete and Tokyo. He is pursuing a PhD at the Keio-NUS CUTE Center at the National University of Singapore and was a visiting research scholar at Keio University, and visiting researcher at NEC C&C Laboratories, both in Japan, where his research interests focus on various topics regarding robotics, interactivity and experiential design.

Astrid Lorange

Dr. Astrid Lorange is a writer, researcher, and teacher based at UNSW Art & Design. She studied writing and cultural studies at the University of Technology, Sydney, where she completed her doctoral thesis on Gertrude Stein and Alfred North Whitehead. She has taught literature, social and cultural theory, visual and material cultures, and design thinking. Lorange is author of several books of poetry, including *Food Turns Into Blood*, *One That Made It Alike*, *Minor Dogs*, and *Eating and Speaking*. She has published scholarly articles, chapters, reviews, and essays locally and internationally. She is an occasional collaborator on new media installation and durational works, and a regular contributor to the Collective Task project. Her interests include conceptual writing, poetry and poetics, philosophy of science, twentieth-century history of aesthetics, gender and

Workshop Biographies

sexuality studies, transnational feminisms, practice-led scholarship, and critical pedagogy. She is currently working on two book projects—one derived from her thesis, titled *How Reading is Written*, and one a monograph on Australian aesthetic modernism.

Katherine Moline

Dr. Katherine Moline is a Senior Lecturer and Program Coordinator: Masters by Research (Art, Design, Media, Art History) at UNSW Art & Design. Her research explores the crossovers between avant-gardism in visual art and contemporary experimental design. Her particular interests are how experimental design reformulates strategies of historic artistic avant-gardes and the social pacts of design. Since co-convening the symposium *sds2k4: Experimental and Cross-Cultural Design* (2004), a collaboration between the University of New South Wales, University of Technology Sydney and the University of Western Sydney, she curated the exhibition *Connections: Experimental Design* (2007) and introduced international leaders in experimental and critical design to Australian audiences. More recent projects she has exhibited in, written for or curated include *Red Objects* (2011), *Cross Pollination* (2012) and *Feral Experimental* (2014). Her research has been published in numerous journal articles, conference papers, exhibition catalogues, and book chapters including 'The Legacy of Historical Design Collectives in Contemporary Experimental Design', in *The Design Collective: An Approach to Practice* (2012). As an exhibiting artist, Moline's work investigates how design processes and technologies can be diverted to the production of experiential and conceptual interactions. Current research projects include a critical review of research methodologies in art and design, a series of experimental workshops on social practices with mobile telephones, and a number of ongoing systems artworks. She is represented by Yuill Crowley Gallery, Sydney.

Rod Bamford

Rod Bamford is a lecturer at UNSW Art & Design. He works across the fields of art and design, drawing on experience in the field of ceramics, digital media technologies, and related media. For a number of years his artwork investigated the aesthetics of tension between development, redundancy and waste, in exhibitions such as *Urban Debris* at the National Gallery of Australia (1992) and *Insensible Landscape* at the Kohler Company in the USA (1989). His current research extends the discourse to explore relationships between natural and technologically encountered experience in consumption, and the ethical paradox of creative agency, where proliferation stimulates desecration. Part of this research has explored the application of digitally augmented creative strategies to mediate environmental impacts in production. Bamford has developed concepts for synthesising qualitative and quantitative design attributes to promote dematerialisation and production agility. The model has been applied to commercial projects including *The Cup Suite* and *Liberare La Forma* ranges of porcelain tableware, manufactured by Monno Ceramics, Bangladesh, and distributed by Manfredi Enterprises (2000-1010). In 2004, supported by the National Trust & Lindsay Foundation, Rod developed a 'trans dimensional' printing process for conserving damaged historical ceramic works in the Norman Lindsay collection. With the support of an Australia Council MMM special Project Grant, a range of digitally augmented limited edition "vutilities", dynamic multifunctional objects for urban spaces, were developed and shown at the Powerhouse Museum (Smartworks, 2006). The "vutility" *Sonic Loop*, included as part of the Australian World Expo Pavilion exhibit in Shanghai, 2010, explores digital fabrication to embody musical data within a physical ceramic form, *Another, Soot* seeks to digitally imprint a fluid vessel with the impact of combustion.

Karina Clarke

Karina Clarke is Senior Lecturer at UNSW Art & Design. Her areas of expertise include interior design, furniture and object design and design management. As a practising designer working in the areas of contemporary furniture and object design, Clarke's research explores the dialogues between design, craft, and manufacturing. The wide range of contexts in which design is situated demands sophisticated analysis of collaboration for the design to be developed, produced and delivered to the market-place. Her ideas are generated from a response to social and cultural understandings of the world we inhabit. In order to investigate the complex and subjective relationship between the object and the viewer, Clarke recontextualises the object's form or function creating a new meaning. The relationship between the object and the viewer becomes mobilised, and a new experience occurs – in which the object appears slightly familiar but is understood differently according to its shifted context. Focused on defining design as a 'dialogue', Clarke creates objects that explore the perceived value of objects at an emotional, physical, and spiritual level. The inspiration for her work draws upon a reflection of the beauty and delight found in little things. The breadth of her design experience underpins her commitment to the collaboration or dialogue between designer, manufacturer and user which she sees as central to the development of an object for small scale production.

Alex Davies

Dr. Alex Davies is a Lecturer at UNSW Art & Design and an award winning media artist whose practice spans a diverse range of media and experiments with interaction, technology, perception, mixed reality and illusion. In 2013 he was awarded a PhD in Media Arts at the College of Fine Arts examining the relationship between the techniques of stage magic and the creation of illusion in media arts. He has exhibited widely in Australia and internationally including The Very Near Future–Sydney Festival (2014), Häusliches Glück–European Capital of Culture, Linz, Austria (2009), Dislocation–Trace Elements, Tokyo Opera City Art Gallery, Tokyo, Japan (2008), The Black Box Sessions–HAIP Festival, Ljubljana, Slovenia (2008), drift–ISEA, Helsinki, Tallinn, & Stockholm (2004), Swarm–Australian Culture Now, ACMI, Melbourne (2004), Filter Feeder–Primavera, Museum of Contemporary Art, Sydney (2003). He is the recipient of Qantas Foundation, Contemporary Australian Art Award, Asialink Residency at Chulalongkorn University, Bangkok (Thailand), and has received over 20 grants from the Australia Council's Inter-Arts, Music, Visual Arts, and New Media Boards.

Lindsay Kelley

Dr. Lindsay Kelley is an Associate Lecturer at UNSW Art & Design. Her art practice and scholarship explore how the experience of eating changes when technologies are being eaten. She is working on her book, *The Bioart Kitchen*, which emerges from her work at the University of California Santa Cruz (Ph.D in the History of Consciousness and MFA in Digital Art and New Media). Kelley is an International Research Fellow at the Center for Fine Art Research, Birmingham City University.

Geoff MacKellar

(see exhibition bio)

DJ Spooky

Artist, writer, musician and composer Paul D. Miller aka DJ Spooky's multimedia performances, art installations, recordings and writings immerse audiences in a blend of genres. His works raise awareness about climate change, sustainability, the role of technology in society and other pressing environmental and social issues. His multimedia composition and installation *The Book of Ice* is an experiential visual and acoustic portrait of Antarctica's disappearing environment (also available as a graphic arts hardcover book). In *Nauru Elegies*, Miller explores problems facing the environmentally exploited South Pacific island of Nauru through a string ensemble, video, animation and live Internet feed. He also founded Vanuatu Pacifica Foundation, a sustainable arts center on the island of Vanuatu. Miller first rose to worldwide fame as hip-hop turntablist DJ Spooky and is now a sought-after lecturer and performer at prestigious venues, arts institutions and universities. Miller's debut app *DJ Spooky* is available for free download for iPad and iPod. He was the first artist-in-residence at New York's Metropolitan Museum of Art.

Laura Fisher

(see exhibition bio)

Tega Brain

(see exhibition bio)

George Poonkhin Khut

Dr. George Poonkhin Khut is a Lecturer at UNSW Art & Design an artist and interaction-designer working across the fields of electronic art, design and health. His research interests include tangible and embodied interaction, participatory art, and experimental art and interaction design in health and medicine. In 2012, Khut won the National New Media Art Award, at the Queensland Art Gallery, Gallery of Modern Art (GoMA) for his heart rate controlled artwork *Distillery: Waveforming* - a prototype iPad app developed during a residency at the Children's Hospital at Westmead, Kids Rehab, supported by the Australian Network for Art and Technology. His body-focussed interactive and participatory artworks use biofeedback technologies to re-frame experiences of embodiment, health and subjectivity. Recent group exhibitions include *CUSP: Design into the Next Decade*, curated by Object Gallery (Australian Design Centre); *Sensory Overload* at the McClelland Sculpture Park and Gallery; *Synapse: A Selection* at the Powerhouse Museum, Sydney, *Wonderland: Contemporary Art from Australia* at the Museum of Contemporary Taipei, *Sensorium Gymnasium* event at Performance Space (2009) with the Thinking Through The Body research group, and *Inbetween Time* (2006) at Arnolfini, UK. In addition to presenting his works in galleries and museums, Khut has been developing new audiences for interactive and participatory art with exhibitions and research projects in hospitals, starting with *The Heart Library Project* at St. Vincent's Public Hospital in 2009, and more recently with the *BrightHearts* research project - a collaboration with Dr Angie Morrow, Staff Specialist in Brain Injury at The Children's Hospital at Westmead, Kids Rehab, that is evaluating the efficacy of his interactive artworks as tools for helping to reduce the pain and anxiety experienced by children during painful and anxiety-provoking procedures.

John McGhee

Dr. John McGhee is a practising 3D CGI artist, researcher and Senior Lecturer based at UNSW Art & Design. He has a background in design and 3D computer arts research. His visual practice explores arts-led modes of visualising complex scientific and biomedical data using the 3D CGI techniques used in the visual effects and animation industries. McGhee's academic research builds on this theme - and has since resulted in a variety of collaborative projects across the visual arts and

sciences. His research investigates new modes of visualising complex data - such as MRI, CT and microscopy data - using 3D computer animation techniques. The work investigates through practice the emergent ways of working across art and science. This research provides methods of engaging the public with complex scientific data such as MRI during their interactions with healthcare professionals. This research has resulted in the creation of 3D computer visualisation strategies that facilitate visual dialogue between patients and healthcare professionals. Examples include projects in clinical imaging, microscopy, asthma care and infection control, with a view to improved models of working between artists, patients, the public and healthcare professionals. McGhee is co-investigator on two significant research grants awarded by the UK Arts & Humanities Research Council (AHRC) and government bodies such the National Health Service (NHS) and Chief Scientist Office (CSO). In all cases, he leads the design research component in these multi-disciplinary projects.

Acknowledgements

Dr. Katherine Moline

Curator, UNSW Art & Design, *Feral Experimental: New Design Thinking*, exhibition, symposium and workshops

Felicity Fenner

Director, UNSW Galleries

Rachael Kiang

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