2016

Gigantic: Mediation Beyond Surface (Panel)

Phillips, Mike

Gigantic: Mediation Beyond Surface

Rachel Armstrong
Department of Architecture, Planning and Landscape,
Newcastle University
rachel.armstrong3@ncl.ac.uk

Sarah Kenderdine
Expanded Perception and Interaction Centre
University of New South Wales
s.kenderdine@unsw.edu.au

Maurice Benayoun
School of Creative Media
City University of Hong Kong
m.benayoun@cityu.edu.hk

Mike Phillips
School of Art and Media
Plymouth University
m.phillips@plymouth.ac.uk

Scott Hessels
School of Creative Media
City University of Hong Kong
shessels@cityu.edu.hk

Sven Travis
School of Art, Media, and Technology
Parsons The New School for Design
traviss@newschool.edu

Abstract

Mediated space continues to redefine its possibilities as large scale surfaces increasingly become playable displays. Now that we can be increasingly immersed in gigantic image spaces the panel will investigate how surface has become frameless and how we can begin to explore image cities and propose imaged planets. The soil itself can be reinvented as a programmable material, leading towards artificial ecologies that are pure design. Our cities buildings are now so completely skinned in display that the entire urban experience becomes media. Smart materials and controlled reactions are being developed that promise massive reactive surfaces in which material behavior is the message. Immersive displays are being removed from scientific contexts with both domes and 360-degree systems being repurposed for digital humanities and creative experimentation. These model projects are fundamentally transdisciplinary, not just in their creation but also in their impact and ability to infect and engage large audiences and transform institutional orthodoxy. We are inside the image now, the ultimate spectacle, and actively exploring how programmable spaces and surfaces can be used for artistic purposes. The panel will consider the aesthetics, technicalities, benefits and concerns of gigantic mediation beyond surface by presenting a group of international practitioners who work in the field of the large scale.

Panel Member 1: The Persephone Project: Technologically convergent artificial ecosystem

Technological convergence between biological and digital computing is enabling new forms of computation such as natural computing and programmable life-like matter. Persephone (figure 1) is a real world project, which is part of the Icarus Interstellar portfolio of projects that propose to construct a starship research platform in orbit inside 100 years. The aim is to build an artificial ecology for the starship that will indefinitely support its community, starting with the development of artificial soils from which both new life-forms and cities may emerge. Persephone takes a bottom-up, design-led, experimental approach towards this challenge by producing a range of prototypes that can be explored in terrestrial contexts. This far-sighted strategy explores how a range of modalities may be converged through a technical practice enabled through forms of artistic research that brings together digital and biological systems. Are these fusions new forms of ecology, life, community or cities? What degree of programmability, design, creative expression and control can be exerted in convergent systems?

Drawing on cutting-edge, interdisciplinary, experimental research practices, this panel will consider how arts research can help extend an innovation platform that draws together digital and ecological interfaces with a range of other media that are likely to produce experiences that are increasingly lifelike. Expert interdisciplinary researchers lead a debate that ranges from how we may evaluate and work with new kinds of computing - to the unique contribution of artistic research in the design and evolution of hypercomplex systems.

Fig. 1: *Persephone soil: Artificial soil*, 2015, Jon Morris and Phil Watson, digital drawing of a synthesis of silicon, carbon,

living systems and hypercomplex (supramolecular) chemistry.
Copyright: J. Morris/ P. Watson

Panel Member 2: Overscale Art in Public Space: from Play to *Dysplay*

Street art has reminded us again of the power of media when artists practice outside of the white box. For centuries the frame separated the art from the "real" world, a boundary which was questioned by the introduction of screen technologies. More recently the screen has expanded, invading the walls, the façades and now the very skin of the building itself. Light and image are covering entire buildings in a way that, beyond any previous definition of screen, the urban architectural complex has become a medium.

After the painting frame, the *veduta*, then the painted wall, and now the urban screen have each had their turn as places for the exaltation of the symbolic dimension of architecture. In each case, media scale was seen as a way to draw the public's attention. At one time the skyscraper itself was enough of a statement, now it has been overwhelmed by the greed of the market keen on capturing consumer attention. Simultaneously, architects are understanding that adhering LED screens on buildings was merely a temporary phase in the evolution of the complex relation between architecture and image.

The first use of these massive urban displays was expectedly commercial. The public space became a gigantic stadium where commodities compete to catch the citizens' attention: fancy watches v.s. expensive sedans, sexy models v.s. sparkling jewelry. Converting the world into an ever-expanding shopping mall, the market has extended display beyond Guy Debord's anticipation of the society of the spectacle forcing us to now ask, "What could be or should be the position of the artist in the urban landscape?"

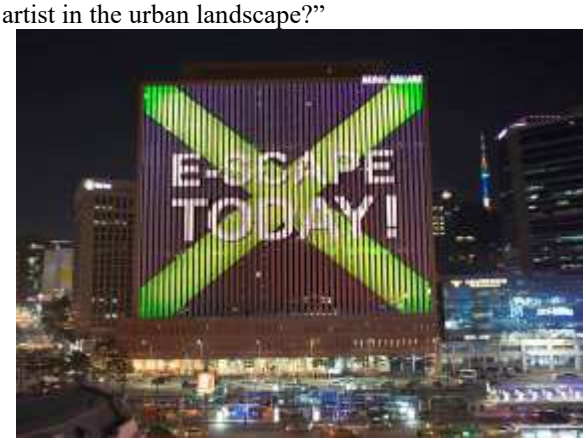

Fig 2. *Emotion-SCAPE TODAY*, 2012, Maurice Benayoun, urban screen installation, Copyright M. Benayoun.

Artistic display from play to 'dysplay'

We are seeing more examples of how the artist's expected contribution to urban media is to convert the public space into an entertaining place. The artist's expertise in terms of public interaction is considered a great asset in playing this role and adding to the market-driven game. As part of this panel presentation, we will investigate the possibilities of the artist subverting the role of entertainer. Can the artist use his tools to *dysplay* the game, disrupt the Spectacle, produce the unexpected and therefore make it more significant?

Media artists are among the first to explore the potential of expression presented by the building becoming a light-emitting object. Artistic practices started to invade, and perhaps even to pervade the urban space by converting the whole city into a media, an "urban media". However, the question of the artist's legitimacy of taking over the public space, fighting for public attention is not a simple one. In a museum or gallery, the visitor makes the decision to face new objects of artistic expression. In the public space, however, passers-by don't ask for art, they are just retinal targets. What allows the artist to fight for unsolicited visibility? Large scale architectural display creates a discussion where both aesthetics and ethics must be considered.

Through curatorial and artistic projects like *Watch Out!* (Seoul, Athens, 2002-2004), *Emotion Forecast* (Paris, New York 2011-2012), *E-Scape Today* (Seoul, 2012) (figure 2), *Open Sky Project* on the ICC Tower (Hong Kong, 2012 – now), the panel presentation will explore the limits and the potential of large scale urban media art practice.

Panel Member 3: Built Chameleons: Reactive Media Display

The number of screens now manufactured has surpassed the number of humans on the planet. Mediated environments today have become so pervasive, it is difficult to think of a moving image that is not electronic; we rarely say 'digital' display anymore as the assumption is so ingrained in our culture. Electronic screens are always attached yet rarely integrated, usually added on after the fact. Hence most media understanding does not consider the relationship between the screen and its placement. Media is a skin that does not reach to the bones, the structure of our environment.

Smart materials are designed to react to changes in the environment. Even subtle shifts in light, temperature, noise, moisture, pollutants, and more can cause dramatic changes in color, form or structure. Natural reactions provide a starting point to introduce a new (yet ancient) context in which the schism of on/off is not applicable anymore but replaced by behavioral flux. These emerging material behaviors allow a rethinking of the relationship between "skin and bone" and ultimately between media and environment.

As part of an evolving post-digital society, artists and designers are exploring pre-digital dynamic effects. Through the ability to transform energy from an environmental input into a visual language, smart materials and their reactions can become a new form of

reactive display design. This emerging media will shift from the independent to the integrated and yield opportunity for a new media art, free from the screen, yet still able to convey information, narrative and aesthetics.

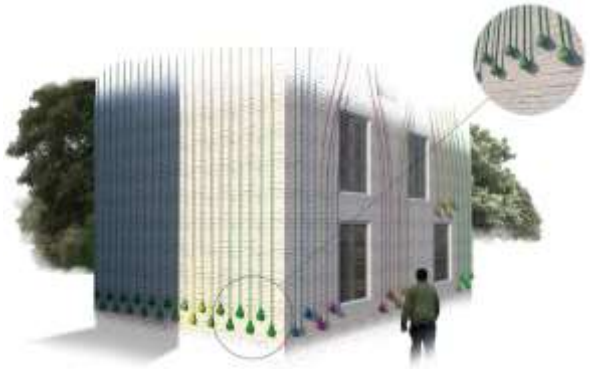

Fig 3. *Mediated Earthworks No. 6*, 2011, Scott Hessels, drawing of sunlight expanding colored fluid up patterned tubing, Copyright S. Hessels

The panel will consider how these new materials that reveal non-digital reactions are not a way to augment design by technology but instead integrate and evolve design with new manufacturing and material qualities. The presentation will discuss how these materials, when extended to a modern urban context, one can envision a more ambient, less aggressive form of display that still signals environmental variations in visually aesthetic applications within architecture, art, automotive, fashion and others. Smart technologies can offer alternatives to billboards, signs, public transport, way-finding, data visualization and a host of new art and design applications. While weaning a global culture off electronic screens may be impossible, allowing natural processes to communicate in both content and form will lead to increased recognition from the public in sustainable solutions and environmental concerns.

Panel Member 4: Towards an Embodied Museography

We are in the midst of a transformation, from a world of screens and devices to a world of immersive experience [1]

This panel contribution will examine new paradigms for transforming digital cultural archives into these immersive experiences through research in data creation, virtual environment design, interactivity, and information visualization — transforming public engagement with intangible and tangible heritage.

Cultural heritage is under increasing threat from destruction forces spanning iconoclasm to climate change to mass tourism. Within this context, digital documentation technologies play a vital role in the sustainability of both tangible and intangible heritage (from laser scanning and photogrammetry to motion capture and motion-over-time analytics). The creation of repositories of high fidelity digital data derived from heritage - open-up opportunities for re-staing and re-imagining the object of study. As post-processural archaeologist Michael Shanks described, new digital archives demand "prosthetic architectures for the production and sharing of these archival resources — an animated archive emphasising personal affective engagement with cultural memory".[2] The research presented in this panel explores strategies for creating and translating the new abundance of digital records in the cultural archives into narratives of engagement by which museum visitors virtually re-embody and 'perform' the archive. This *embodied museography* is defined by attributes of immersion, interaction and participation and necessarily asks us to re-examine our notions of aura, authenticity and authorship. At the core of these experiences is a series of bespoke large-scale omnidirectional, omnispatial, panoptic and hemispheric interactive visualisation systems which promote human to human as well as human to machine interactions.

Fig. 4. Look Up Bombay (2016) Sarah Kenderdine & Jeffrey Shaw in collaboration with JSW Foundation & Museum Victoria. Installed in UNSW's 4K fulldome, DomeLab, a project led by Sarah Kenderdine. Image © Sarah Kenderdine & Jeffrey Shaw.

Proliferation of Aura

True-to-scale physically built models (it seems necessary to distinguish these from models that are virtually rendered) of caves and subterranean sites ,now exist to represent the Lascaux Caves, Altamira Caves, and the Tomb of Thutmose III. Such built facsimiles increase accessibility on-site and in travelling exhibitions, diverting stress away from the original sites and involving visitors in a pro-active protection through promoting awareness. These built models have set a precedent for the digital corollary, following from comprehensive digitization projects such as that at the Mogao Grottoes in China, a world heritage site at which the Dunhuang Academy are systematically capturing at the highest possible resolutions through laser scanning

and gigapixel imaging. [3]

The role that 1:1 scale facsimiles play in the interpretation and preservation of cultural heritage whether digital or built models has been proven to be both essential and effective. For an increasing number of sites, the facsimile provides the only means of public access (e.g. at Mogao only 10 out of 492 caves are open to the public), and may even give a superior viewing experience because of the constraints of the original site. And this is where the 'gigantic' screen with its capacities to simulated objects, places and people at 'real-world' scale plays a pivotal role. [3] As early as 1970, the writer and futurist Alvin Toffler, in his book Future Shock, foresaw the use of virtual reality and "simulated environments" for the experiential immersion in cultural heritage: *Thus computer experts, roboteers, designers, historians, and museum specialists will join to create experiential enclaves that reproduce, as skillfully as sophisticated technology will permit, the splendor of ancient Rome, the pomp of Queen Elizabeth's court* [4]

Simulation and digital replication has confronted practitioners within museums who struggle with shifting concepts of 'aura' of the digital. Most recently, the contemporary philosopher Bruno Latour and digital preservationist Alan Lowe have argued for the "migration of aura" (I would argue however for a *proliferation* of aura)—by which good quality digital facsimiles both propagate and add layers of significance and meaning to the original, providing the object with a biography, as opposed to being a weak surrogate for the original or competing with or supplanting it [5]. The focus of our age has been on the reification of the original object, but Latour and Lowe see this frenzy of interest rising exponentially along with the number of copies of the original that are circulating. In other words, the intensity of the search for an original depends on the amount of passion and the number of interests triggered by its copies, so the question that must be asked becomes: "Is it well or badly reproduced?"

Fig. 5. Pure Land: Inside the Mogao Grottoes at Dunhaung (2012-2016) Sarah Kenderdine & Jeffrey Shaw in collaboration with CityU of Hong Kong & Dunhuang Academy. Interactive 360-degree projection. Image © Sarah Kenderdine & Jeffrey Shaw.

Through a series of immersive installations and permanent exhibits this panel discussion will extrapolate on these issues to illustrate arguments in embodied museography (e.g. aura, authenticity and authorship). Projects will include *The Pure Land Projects:* five distinctive works based on interactive facsimiles of the World Heritage Site, Dunhuang Caves, China; *PLACE-Hampi* (2006) and a new museum at *Kaladham*, Karnataka, India (2012) based on the World Heritage Site of Hampi; *Museum Victoria's data browser* (2014) for 100,000 objects in 360-degree 3D; *Look up Bombay* (2015) as a gigapixel dome work for the Prince of Wales Museum, Mumbai; *Lie Down Look Up* (2015) a collaborative artwork with together with 47 Indigenous Australian painters for 4K \\\\\\\\\fulldome; *Pirates Scroll* (2013) for the Hong Kong Maritime Museum; the *Atlas of Maritime Buddhism:* deep mapping in South East Asia and South China Sea; *South Chinese Kung Fu Archive:* the 4D archive of intangible heritage and much more! This discussion will also look at upcoming research, the development of the world's highest resolution VR screen (at 120 million pixels) and expand on the potential for an Internet of Big Machines (IoBM).

Panel Member 5: Any resemblance to any other world known or unknown is purely coincidental. [6]

This panel paper explores the recent liberation of the Fulldome from its planetarium shaped shackles through the work of a transdisciplinary team of artists, VJ's, coders, performers, producers and curators. This process of liberation has enabled the exploration of a Fulldome language and a range of experiences and enabling technologies that are being deployed in cultural situations and institutions. This process has also created a disciplinary backwash where initiatives such as Fulldome UK, are infiltrating Science Centres with cultural content.

The Fulldome, as a media archaeology, represents an anomaly in the history of media technologies and associated art forms. Its early absorption into wealthy STEM domains isolated it from the evolutionary pathways of other art forms, creating something more akin to a mutated hybrid of scientific instrument, educational tool and funfair ride. These chameleon qualities were constrained by a co-dependency of a disciplinary hegemony (public understanding of science), astronomically expensive digital technologies and an investment in physical infrastructure and estate (Science Centres) (Phillips, 2012) [7]. It could be argued that this enforced incarceration was in the best interest of the Fulldome, an effort to keep the form protected in a state of hibernation until circumstances allowed it to emerge, imago like, from its disciplinary chrysalis. If so, then as with all over protective parenting, letting go can be difficult. The transformation of the Fulldome from compliant child to rebellious adolescent has far reaching transdisciplinary implications - this panel paper draws on insights gained through collaborations, such as Fulldome UK (http://www.fulldome.org.uk/), the EMDL Project (http://www.emdl.eu) and research exploring the

application Fulldome technologies to museums and galleries (n particular Birmingham Museum and Art Gallery and the Tate Modern).

"This is the Best Day of My Life. I Think I'm Going to Cry." (sic)

So said a 6 year old girl entering the Immersive Vision Theatre. Overexcited children aside, the Fulldome is a transdisciplinary instrument for manifesting (im)material and imaginary worlds. A place "where all the different kinds of truths fit together" (Vonnegut, 1962) [8]. Its ability to break down disciplinary boundaries extends beyond its popularity as a vehicle for large data visualisations, the technogeekery and the easy transportation to the edge of the known universe. There is something sensuous, hypnotic and uplifting about the physical space of the dome which seeps into the head spaces of those who work with it. It is probably the most tangible realisation of Nagy's desire for coherence: "-seeing, feeling and thinking in relationship and not as a series of isolated phenomena. It instantaneously integrates and transmutes single elements into a coherent whole". (Moholy-Nagy, 1946) [9].

However, the language of Fulldome is relatively naïve. For instance, the history of the slow zoom through space played out daily in planetariums (such as Uniview and Sky-Skan) feeds on a narrative constructed by Powers of Ten (Eames, 1968) [10], Kees Boeke's (1957) Cosmic View: The Universe in 40 Jumps [11] and before that the opening sequence of Powell and Pressburger's (1946) 'A Matter of Life and Death' [6]. Whilst there are numerous examples of planetarium infotainment that exhibit creative and artistic accomplishment, they are more often than not undermined by a pedagogic determinism that compromises the aspirations of its authors.

Speaking in Tongues.

Projects such as E/M/D/L: European Mobile Dome Lab for Artistic Research' (http://www.emdl.eu/) (2013-15) have made considerable contribution to the evolution of the Fulldome artistic language. The international collaboration shared skills, methodologies, strategies and content through workshops, residencies, conferences, exhibitions and collaborative productions. This research explored the potential languages and grammars unique to the Fulldome, creating new opportunities for audience participation in the navigation of trans-scalar, recursive imaginary territories, harnessing both physical and synthetic worlds.

A particular output of this collaboration was the development of 'Phage' technologies (figure 1), collaborative physical instruments that allow the manipulation of virtual objects within the projected dome space. These technologies are now flowing out of the Fulldome space and are being deployed within cultural and heritage institutions as a means of accessing new knowledge from museum artefacts, enhancing audience engagement and constructing a shared heritage through crowd participation.

Fig 1. *Phage*, 2015, Mike Phillips, digital photograph, Copyright the author.

Transdisciplinary Contamination.

On the other hand, a Fulldome disciplinary backwash can be seen in the work of Fulldome UK (FDUK). The Fulldome UK festival is produced by GaiaNova in partnership with i-DAT, The Computer Arts Society (CAS) and the NSC through NSC Creative. FDUK has established itself a rich site for the development of new material for an international community and new audiences with a growing lust for multisensory, participatory, immersive content that moves beyond the notion of the 'screen' to the concept a multidimensional immersive experience, a total sensory environment (Phillips, 2015) [12].

Operating as a nomadic not for profit organisation, FDUK adopted a parasitic approach to Science Centres: launched at i-DAT's Immersive Vision Theatre, Fulldome UK 2010 (10–11 July 2010), it infested Thinktank, Birmingham Science Museum for Fulldome UK 2011 (12–13 March 2011) and is now firmly embedded in the National Space Centre (NSC) in Leicester, Fulldome UK 2012 (16–17 November 2012) and Fulldome UK 2014 (7–8 November 2014). Having infected its host FDUK is now contaminating other Science Centres across the UK (such as InTech), with recent outbreaks of FDUK in planetaria in Moscow in 2014 and Sao Paulo in 2015.

As with every adolescent the Fulldome struggles with its identity, or the perception of its identity - such as not readily fitting neatly into funding categories – the British Film Institute wont fund Fulldome work because its 'art' and the Arts Council England wont fund it because its film. But as crucible for creative innovation and transdisciplinary contamination there is nothing coincidental about the Fulldomes resemblance to any other world known or unknown.

Panel Member 6: Panorama: Space/Time Continuum

The final panel paper manifests aspects of the panel 'Mediation Beyond Surface' theme within the context of the ISEA2016 conference site. During spring 2016 researchers from Parsons Design+Technology (NYC) will work with four Chinese universities (HKCityU, Tongji-SH, Tsinghua-BJ, SIFA-Chongqing) to create experimental computationally generated panoramas across a distance. Groups of 2-3 researchers in NY will work with similar sized groups at each university in China using tools including (but not limited to) OpenCV, openFrameworks, Cinder, PyVison, and FastCV to produce results that are dynamic and evolving. Form factors will range across traditional print, screen-based digital, mobile platforms, smart architecture (installation), and may include aural and zoological output. Emphasis will be placed on production of work that is unpredictable and if possible uncontrollable, with the hope of consequences that become independent. Groups will design and produce projects during February-April while interacting online, and convene in person during ISEA (May 2016) in HK to demonstrate final outcomes. Resulting workshops and exhibitions will take place at ISEA, at the Chronos Art Center (Shanghai) in June, and in Parsons Aronson Gallery (NY) in September.

References

1. Krzanich, B. 2014 Keynote address, CSE 2014, http://www.intel.com/content/www/us/en/events/intel-ceskeynote.html (accessed January 1, 2015)
2. Shanks, M. 2011. Animating the archive. Stanford Documents. http://documents.stanford.edu/michaelshanks/186 (accessed September 30, 2012).
3. Kenderdine, S. 2013, 'Pure Land: Inhabiting the Mogao Caves at Dunhuang', *Curator: The Museum Journal*, vol. 56, no.2, April 2013, pp. 199-118.
4. Wills, Robert J. 1976. *The Director in a Changing Theater: Essays on Theory and Practice, with New Plays for Performance*. Taylor and Francis: Abingdon.
5. Latour, Bruno, and Adam Lowe. 2011. The migration of the aura—or how to explore the original through its facsimiles. In *Switching Codes: Thinking Through Digital Technology in the Humanities and the Arts*, Thomas Bartscherer and Roderick Coover, eds., 275–297. Chicago: University of Chicago Press.
6. A Matter of Life and Death. Powell, M. Pressburger. Eagle-Lion Films, 1946. Opening sequence.
7. Phillips, M. (2012): There is no dome?, Digital Creativity, 23:1, 48-57
8. Vonnegut, K., The Sirens of Titan. Victor Gollancz, 1962, p. 11-12.
9. Moholy-Nagy L., 1946, Vision in Motion. p12. Paul Theobald & Co (June 1947)
10. Powers of Ten. Charles and Ray Eames. IBM. 1968. http://www.powersof10.com/.
11. Boeke, K., Cosmic View: The Universe in 40 Jumps. J. Day. 1957.
12. Phillips, M. (2015). Fulldome UK: A future media archaeology. Ubiquity, Journal of Pervasive Media. 3: 1-2, 77-106.