
New media *in situ*: the re-socialisation of public space

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Abstract: Five recently created artworks described in this paper constitute experimental research frameworks for revitalising strategies of representation by addressing the issues of inhabitation and the sensorial in virtual environments. Their immersive architectures provide a modular interactive cinema with digitally augmented full body engagement and offer new opportunities for rendering the experience of culture and heritage. Place-Hampi, Hampi-Live, The Eye of Nagaur, T_Visionarium and UNMAKEABLELOVE are set inside four originally conceived immersive display systems: advanced visualisation and interaction environment (AVIE), Place, EoN and Re-Actor. Each of these artworks elucidates the singular qualities of physically located and socially shared new media experiences, which are both complimentary to and distinct from those experiences generated in cyberspace. The works demonstrate singular solutions to current challenges in the fields of cultural heritage, the navigation of massive multi-modal databases, interactive cinema and the evolving relationship between human and machine agents. The text frames these works in terms of cultural imaginary, co-evolutionary narrative, prosthetic vision, re-combinatory narrative and complicit agency.

Keywords: recombinatory narrative; co-evolutionary narrative; stereographic; virtual reality; immersive; algorithms; artificial intelligence; ambisonic; cultural heritage; interactive; cultural imaginary; agency; Hampi; Nagaur; Samuel Beckett; The Lost Ones.

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Biographical notes: Sarah Kenderdine is a Maritime Archaeologist and Museum Curator. Currently, she researches at the forefront of interactive experiences for museums, focused on immersive architectures that promote

kinaesthetic inhabitation and evolving narratives with tangible/intangible culture and heritage. She is the Head of Special Projects and The Virtual Room at Museum Victoria, Director of the International Society of Virtual Systems and Multimedia and Associate Researcher at RMIT University. Recent publications: co-edited/co-authored *Theorizing Digital Cultural Heritage: A Critical Discourse*, MIT Press, 2007.

Jeffrey Shaw (1944 Melbourne) has been a Leading Figure in New Media Art since 1960s. His widely exhibited and published works have set benchmarks in virtual and augmented reality, immersive visualisation environments, navigable cinematic systems and interactive narrative. He was Founding Director of the ZKM Institute for Visual Media Karlsruhe (1991–2002), Founding Director the UNSW iCinema Centre Sydney (2003–2009) and is currently Dean of the School of Creative Media at City University Hong Kong.

1 Introduction

The first wave of ground-breaking discoveries in the installation forms of interactive digital media occurred during the 1980s. This was following in 10-year cycles by an articulation of distributed modalities of new media via the internet, leading up to the current Web 2.0+ rapture, where the interactive engagement of the user has been enlarged to encompass the role of content producer. Significantly these aesthetic movements are at the same time accompanied by ideological positions heralding new relationships between art and life, between the subject and the object, which have fundamentally shifted the notion of creative agency into one of reciprocal exchange. That opening out, democratisation and globalisation of the territory of agency also embraces the role of synthetic identities that are either (often promiscuous) projections of the human imaginary or embodiments of autonomous computational procedures or hybrids of both.

Now at the outset of the 21st century, the consensual challenge facing digital media is the notion of interactive digital environments that allows networked groups to generate works of media and culture, and such environments can exist on the web or be *in situ* or be a conjunction of both. A conundrum that emerges if one goes hell bent towards a demand driven model of new media is the uncertainty as to where creativity is located if it no longer operates in an avant-garde realm that gets its connotation from spurning market forces. Visions of a new world order – the ‘global village’, ‘global intelligence’, etc. – are brought into play to resolve this dilemma, but the ambiguities of artistic action are often missed: “The perceptible is more than perceived, the visual is more than the visible” (Lyotard, 1991).

Over the last four years Kenderdine (special projects, Museum Victoria) and Shaw (Director, iCinema Centre, UNSW) have together with their colleagues been engaged in research that is focused on opportunities to articulate a new kinesthetic and social agenda *in situ*. This concerns located installations that exercise strategies of immersion, interaction, augmentation and co-creation and modalities of virtual/mixed reality, immersive visualisation, individual/group interaction and co-evolutionary narrative, to arrive at new paradigms of cultural practice and experience. They also embody idiosyncratic aesthetic frameworks, where an absence of illustrative and/or anecdotal intentionality allows these works to resonate as artistic statements.

While recognising that the internet has created a ubiquitous cyberspace in which digital media can articulate and advance new patterns of personal information and social

communication, the full scope of the new media technologies also herald a radical expansion in the nature and range of situated aesthetic experiences whose essential interactivity pronounce original modalities of social awareness and inter-communication. Five recent projects, *Place-Hampi*,¹ *Hampi-Live*,² *The Eye of Nagaur*, *T_Visionarium*,³ *UNMAKEABLELOVE*, set inside four unique immersive display systems – Advanced Visualisation And Interaction Environment (AVIE), *Place*, *Eye*, *Re-Actor* – that elucidate the singular qualities of physically located and shared new media experiences, which are both complimentary to and distinct from those experiences generated in cyberspace. They also demonstrate singular solutions to current challenges in the fields of cultural heritage, the navigation of massive multi-modal databases, interactive cinema and the evolving relationship between human and machine agents.

These works described in this paper embrace experimental research frameworks for revitalising strategies of representation, and address the issues of inhabitation and the sensorial in virtual environments. Each of the immersive architectures of the respective works provide for a modular interactive cinema with digitally augmented full body engagement. Through the themes of the cultural imaginary, co-evolutionary narrative, the prosthetic eye, recombinatory narrative and complicit agency, the examples in the text provide frameworks for new opportunities for rendering the experience of culture and heritage. In a way that "...cultural artifacts always exceed their context – and thereby alter that context" (Miller, 1992).

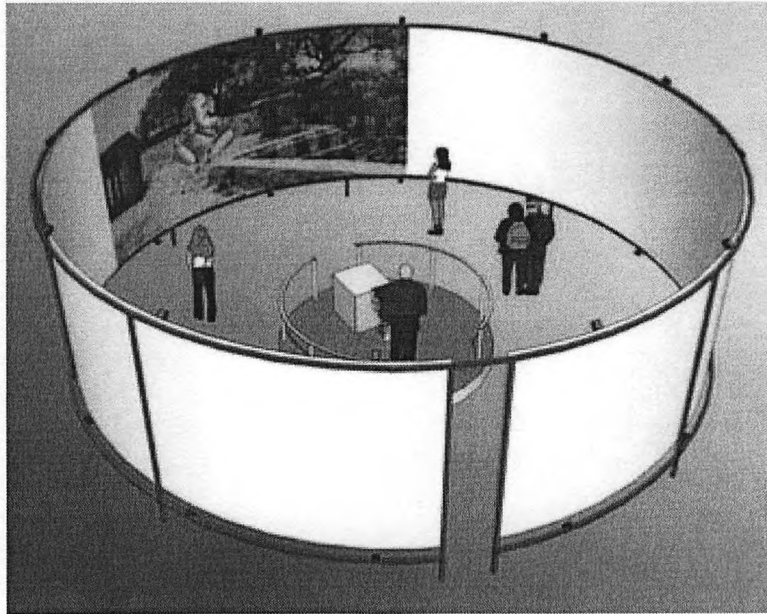
2 Cultural imaginary: *Place-Hampi*

...visible landscapes are like icebergs: only a small proportion of their real substance lies above the surface... (Roberts, 1987, p.83)

*Place-Hampi*⁴ is comprised of high resolution augmented stereoscopic panoramas and surrounded by a rich aural field and focused at the most significant archaeological, historical and sacred locations of the UNESCO, World Heritage site, Vijayanagara Hampi, South India. Participants explore a virtual landscape of panoramic locations (Figures 1 and 2) enlivened by animated mythological events⁵ and surrounded by a rich aural field derived from on-site ambisonic recordings and selected compositions by Subramanian. These events reveal the folkloric imagination of contemporary pilgrims active at the temple complex. The work permits a unique and an unprecedented level of viewer co-presence in a narrative-discovery of a cultural landscape. The installation addresses the sensorium through a combination of immersive kinaesthetic and visual and sonic strategies. The research embraces both the embodied corporeal aesthetics of place and its transformation through an assemblage of technologies including algorithmic software, immersive architecture and motion capture and animations (Figure 3).

The work builds on the interactive cinema paradigm (*Place*) launched by Shaw (1995)⁶. Its central feature is a motorised platform that allows the viewer to interactively rotate a projected image within a 9-m diameter cylindrical screen and navigate a three-dimensional environment of panoramic locations at Hampi. The single-user interface allows the viewers to control their forward, backward and rotational movements through the virtual scene as well as the rotation of the image. This mobile exposure of the 360° sceneries also causes the audience to walk around the viewing space, thereby synaesthetically conjoining their bodily movements to the stereoscopically perceived Hampi world to create a heightened sense of presence (Kenderdine, 2006, 2007a).

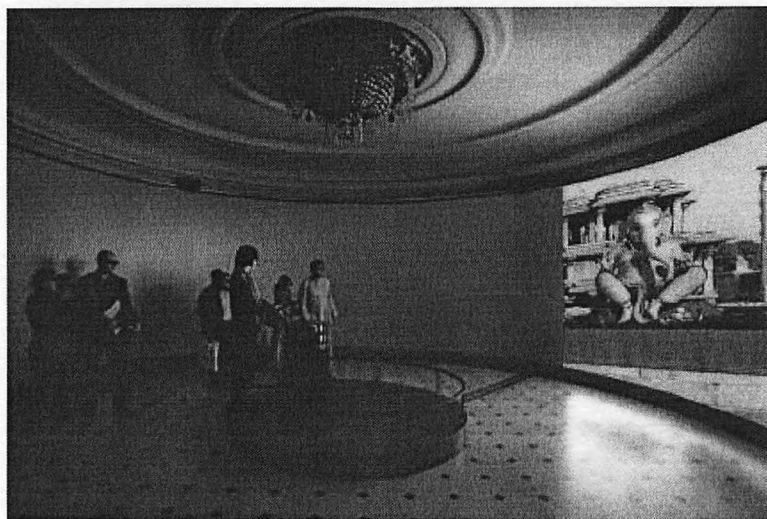
Figure 1 Drawing showing the extent of the Place platform (see online version for colours)



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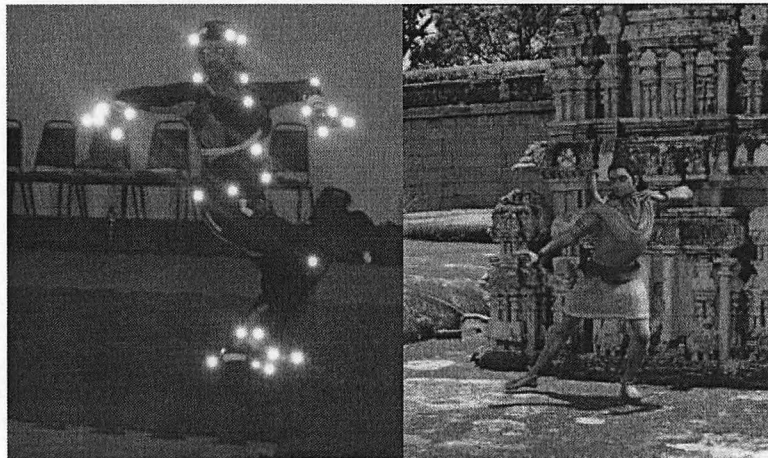
Source: Place-Hampi © Kenderdine and Shaw (2006).

Figure 2 Image of the Place-Hampi stereoscopic installation at the premier in the Operahouse, Lille, France (see online version for colours)



Source: Place-Hampi © Kenderdine and Shaw (2006).

Figure 3 Motion capture of an Indian classical dancer together with the corresponding animation of Shiva, dancing as Nataraja (see online version for colours)



Source: Place-Hampi © Kenderdine and Shaw (2006).

2.1 *Magical realism and animating the popular gods*

Hampi today continues to be an active pilgrim site, not simply a heritage place. Information derived from the examination of diverse scopic regimes in historical and contemporary Indian iconography has been used to guide the aesthetic formulation of the Place-Hampi project. The history of chromolithography and its contemporaneous forms found at the site of Hampi validates the use of 'magical realism' as a formal aesthetic of choice for the computer graphic characters that best represents the intangible aspects of 'place' and the religious experiences active in the landscape of Vijayanagara in contemporary times (see further in Kenderdine, 2006, 2007a).

2.2 *The irreducible ensemble*

For pilgrims to Vijayanagara the most important aspect of the site is the association with various myths and legends. Pilgrims experience the landscape through ritualised movements enforced by the spatial configuration of the districts around the temples and inside the temples by themselves. Also, it has been demonstrated through anthropological studies (Wager and Strathern, cited in Pinney, 2004, p.8) that cultural practices can treat images as compressed performances. Thus the culturally determined experience of an image affects both its power and meaning. Pinney (2004) extrapolates this cultural response to imagery to the Indian context using the concept of darshan and argues for the notion of corpothetics – embodied, corporeal aesthetics – as opposed to disassociated representation. "The relevant question then becomes not how images 'look' but what they can do" (Pinney, 2004, p.8). 'Seeing and being seen' by a deity is central to Indian scopic regimes. The act of darshan mobilises and activates the human sensorium, and it is a physically transformative contact with the deity (Pinney, 2004).

As Pinney (2004) points out, popular images are difficult to analyse from the viewpoint of conventional aesthetics. By contrast:

“the significance of images is expressed by rural consumers not through an efflorescence of words around an object, but a bodily praxis, a poetry of the body, that helps give the images what they want” (Pinney, 2004, p.21).

The central concern of Pinney (2004) is to describe how the numbed sensorium was brought back to life. European art that cast its shadow over India was characterised by practices that implied a ‘transcendent point of vision that has discarded the body’ and a ‘disembodied absorption’. In direct contrast to the European denial of the presence of the beholder through the strategies of absorption, Indian reawakening of the sensorium went hand-in-hand with mass-produced images in the spaces of Hindu worship (both domestic and sacred). Consumers demanded that these images fundamentally addressed their presence and invoked a new corporetics. “...In these images the beholder is a worshipper, drinking in the eyes of the deity that gazes directly back at him...” (Pinney, 2004, p.23).

A bodily relationship with images has been described by various authors including Lyotard and Adorno (in the term ‘somatic solidarity’) and these understandings are pertinent to the discussion of physical responses to images (and sound) that often heightened in large-scale stereoscopic and immersive environments. The image figure is “relatively free of the demands of meaning, indeed it is not the arena of the production of meaning but a space where ‘intensities are felt’” (Carroll, 1987, cited in Pinney, 2004, p.22).

Visual culture, Pinney (2002, pp.84–85) argues “needs to be superseded by an engagement with embodied culture...that recognises the unified nature of the human sensorium”. The sensual orientations of material cultural studies are part of an interdisciplinary movement that has crystallised in recent years in part reaction to the excesses of textualism and oculo-centrism.

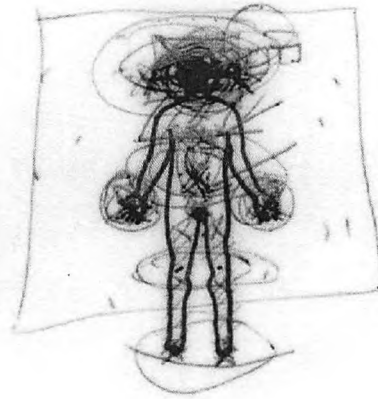
Further more:

“If in fact embodiment is the experience of the world through all the senses of the body, then narrative strategies privileging one sense over the other, or emphasizing certain aspects over others, prove to be unequal to the task of embodied representation. Embodiment explodes traditional narrative and other modes of representation” (Archaeopedia).

It is with these understanding that Place-Hampi has been approached utilising technologies of immersion (the sensorium) to become an embodying mechanism of cultural space. The promotion of dialogues of engagement in Place-Hampi is significant. The dialogues embedded in the ‘imagery’ (photographic, acoustic, animated and interactive) of a cultural landscape activate the knowledge contained there. In addition, Place-Hampi seeks to recognise the authority of both the origin and the later representational schemes. The work provides an environment where the sensorial is able to respond to the representational scheme from which the images emerge.

Qualitative and quantitative evaluation of Place-Hampi has been ongoing, including four-page surveys collected during its 3-month at Martin Gropius Bau in Berlin, 2007. The reader is referred to the latter survey as an aggregated dataset on the project website⁷. An example of the analysis includes plotting of evaluation data from the 280+ respondents to a question of where people located their experiences of the work on their body during a visit to the Place-Hampi (Figure 4).

Figure 4 Extract from visitor survey at Martin Gropius Bau, Berlin, September 2007 (see online version for colours)



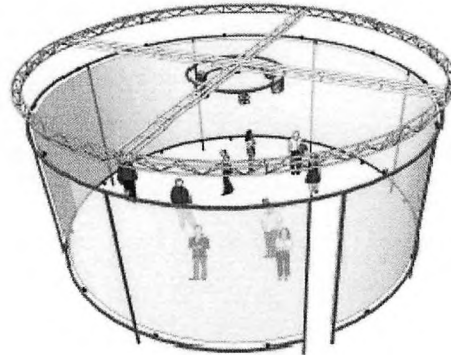
Source: Image Volker Schubert © Kenderdine and Shaw (2008).

Further evaluation of this work as it is exhibited worldwide includes the current 14-month exhibition at the immigration museum, Melbourne (2008–2010) and is subject to several upcoming research papers.

The notion of the importance of the sensory and phenomenological engagement in an irreducible ensemble with the world has been a nexus of interest for many interdisciplinary researchers including archaeology (e.g. Pearson and Shanks, 2001; Shanks, 1992), interpretive archaeology (e.g. Thomas, 1996, 2000, 2004; Tilley, 1994, 2004), phenomenology (e.g. Merleau Ponty), anthropology and the sensory (e.g. Howes, 1996, 2003, 2004, 2006), cultural geography (in the exploration of space and place (e.g. Casey, 1993, 1998; Tuan, 1974, 2001, 2006), architecture (e.g. Bruno, 2002), film (e.g. Schoback, 2005) and materials and visual studies (e.g. Buck-Morss, 1992; Elkin, 1999; Mitchell, 2005; Pinney, 2004, 2008) among many others. Suffice to say here that there ample discourse to situate the body at the forefront of immersive virtual heritage research as a space of phenomenological encounter. Further more, in fact embodiment is the experience of the world through all the senses of the body, then narrative strategies privileging one sense over the other, or emphasising certain aspects over others, prove to be unequal to the task of embodied representation. Embodiment explodes narrative and other traditional modes of representation (Archaeopedia).

3 Co-evolutionary narrative: Hampi-Live

Hampi-Live is the second-stage of the Place-Hampi, an Australian Research Council Linkage Grant (2006–2009). The work exploits the technological and expressive features of iCinema's AVIE⁸ (Figure 5). AVIE allows full 360° stereoscopic projection within a 10-m diameter cylindrical screen, 24-channel surround sound and multi-user interaction via a high-resolution video tracking system (for a technical description, see McGinity et al., 2007) that detects and interprets the movements and gestures of the participants.

Figure 5 Graphic representation of the AVIE

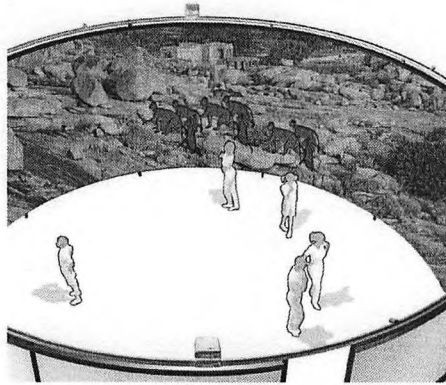
Source: AVIE © UNSW iCinema Centre (2007)⁹.

3.1 Co-evolutionary narrative

With these facilities, Hampi-Live will augment its original stereoscopic panoramic content from Hampi as the context to explore the potentialities of co-evolutionary narrative (see Del Favero et al., 2004; Kenderdine, 2007b, 2008; Kenderdine et al., 2007) where audience behaviour can influence and be influenced by the real-time behaviour of machine agents. In this prototype, animated monkeys representing the Hampi's identification as Kishkinda from the Ramayana, virtually inhabit the various panoramic Hampi sites. In combination with symbolic logic and high level cognitive programming of computer graphic characters – co-evolve the narrative engagement between intangible heritage of 'place' and the participants (Figure 6).

The framework advanced in the research addresses need an articulated by virtual heritage scholars to treat the heritage object as an evolving experience, a symmetrical experience (for a discussion of symmetrical archaeology, see Kenderdine, 2007b; Webmoor, 2007) in which the story told is not pre-rehearsed but emerging as an interactive dialogue between participants and machine agents. Following Deleuze and De Landa, it is theorised that narrative is a reciprocal process in which meaning is co-generated by intelligent agents and viewers as the result of a modest narrative of exploration. Narrative is a process that interweaves viewers and cinematic images in the production of new multi-layered events that simultaneously incorporate the past and present (Deleuze, 1989, 1995; De Landa, 1998). Providing autonomy to machine agents balances the interactive initiative between virtual characters and viewers within digital heritage environments. This equalising of agent and participant transforms the encounter into an unpredictable drama in which events are co-produced by machine and human. In this way, the research incorporates philosophical underpinning of symmetrical archaeology. Through the affordances of new technologies in AVIE, Hampi-Live is able to transcend the common interpretive frameworks to become a site of mediation, an entanglement of people-things from the past and present occupation of the site (see also Kenderdine, 2007b; Kenderdine et al., 2007).

Figure 6 Kishkinda, home of the monkeys, at Hampi. Projected scenario for co-evolving narrative Hampi-Live (see online version for colours)



Source: Hampi-Live © Kenderdine and Shaw (2006).

4 Prosthetic vision: the Eye of Nagaur

The Eye of Nagaur is a recent pioneering interactive digital installation made with state-of-the-art photographic and visualisation technologies¹⁰. Visitors to this work are able to make a mediated and an exceptional journey of discovery to Ahichatragarh's magnificent architectural spaces and the artistic decorations found throughout the Fort and Palace complex. Its imagery presented on the 3-m diameter circular screen. Looking through the 3 m high circular screen of the Nagaur installation (Figures 7 and 8), viewers explore a constellation of ultra-high resolution panoramic images that reveal the beauty of this site. Using a specially designed trackball and button controls, participants are able to rotate their point of view in any direction in each of its 16 spherical 360° scenes, exploring in fine detail the painted ceilings, floors and wall decorations, hydraulic infrastructure and the unique fusion of Mughal–Rajput architectural features.

Each of the locations in The Eye of Nagaur is augmented with traditional royal musical compositions, specifically composed by local traditional classical musicians to accompany each panoramic location. In these compositions the listener will hear the instruments of sitar, jaltarang, sarangi, kakamaicha, pakhawaz, tabla, santoor and sarod evoking courtly life, ritual and religious activity, the hydraulic influences and the waterways that were central to Nagaur Fort. The large-scale visual and auditory immersion are juxtaposed with the installation of the work *in situ* at the tangible site itself (Kenderdine, 2008).

This work through its interactive paradigm is able to transform the 'topographic place' into a 'topological itinerary'. The narratives in this installation are spatial trajectories that 'traverse and organise places: they select and link them together' (de Certeau cited in Odin, n.d.). Here Odin describes spatial practises that move the attention from structure to action, from space to place. French philosopher Michel de Certeau (1984) describes 'space as a practised place' (de Certeau 1984, p.117) which is fluid and constantly transforming with changing context. Many places depicted in the panoramic scenes in my work are views out-of-bounds except to important visitors (such as the mandirs or temples) or are at a height that prevents adequate scrutiny of visitors to

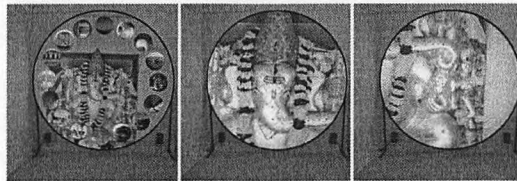
the site. *Eye of Nagaur* acts as a personalised prosthetic eye, and a democratised 'new way of seeing' with open-ended itineraries, that resonates between the built site and its virtual materialisation.

Figure 7 Installation at Nagaur Fort, Rajasthan (see online version for colours)



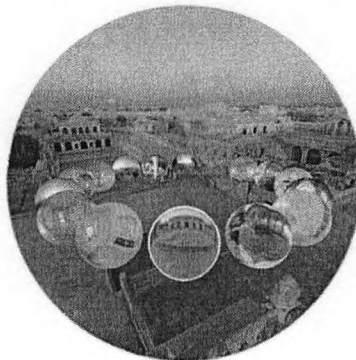
Source: Eye of Nagaur © Kenderdine and Shaw (2008).

Figure 8 The Eye of Nagaur, permanent installation, Nagaur Fort Rajasthan. Showing user interface and zoom/pan function (see online version for colours)



Source: Eye of Nagaur © Kenderdine and Shaw (2008).

Figure 9 Touchscreen interface for The Eye of Nagaur showing panoramic constellation of locations ready for selection (see online version for colours)



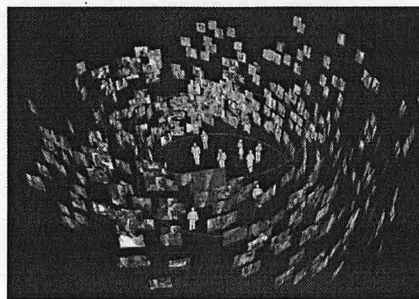
Source: Eye of Nagaur © Kenderdine and Shaw (2008).

5 Recombinatory narrative: T_Visionarium

T_Visionarium¹¹ investigates the role of interactive narrative in the cinematic reconstruction of televisual information. Through the design of software enabling the recombinatory search of televisual data within virtual environments, it seeks evidence of the multi-temporal agency of interactivity as expanded within revisionist cinematic theory and tests the conduct of narrative transcription as a model for interactive cinematic production.

T_Visionarium is an interactive immersive virtual environment that allows viewers to spatially navigate a televisual database and apply a recombinatory search matrix to create emergent narratives from the database's network of digital streams (Figure 10). The project exploits the latest advances in automated video analysis, multi-media search and retrieval and high-volume video streaming. It is presented within the AVIE proprietary immersive visualisation and audification environment that allows its massive database, of over 24 h of broadcast television recordings, to be spatially distributed and navigated. This televisual material was randomly recorded, with an emphasis on content that embodied dramatic narrative action and then automatically segmented using content recognition algorithms that could detect camera angle changes. The result is a database of over 20,000 clips that range in length from 3–30 sec. Following segmentation, manual and automated analyses of the database have been undertaken. The automated analysis involves the application to each clip of state-of-the-art image and video feature extraction algorithms, which extract edge, colour, shape, texture and motion information. In parallel, each shot is tagged according to a special set of semantic and associative criteria derived from the innate qualities of the video data. These criteria are designed to embody the most useful framework for spontaneous linking of the segmented shots into new and unexpected relationships. A shot metric – an algorithm for measuring similarity between shots according to the extracted numerical features and manually applied semantic tags – has been developed with two important features: speed and parametric dimensional scaling. This allows almost instantaneous ranking and sorting of the entire database according to similarity with a key 'search' clip, a necessity for real-time navigation of the database. The latter quality, parametric dimensional scaling, allows the viewer to interactively adjust the importance of the different dimensions when measuring similarity.

Figure 10 T-Visionarium visualisation showing distributed film clips (see online version for colours)



Source: iCinema Centre, UNSW.

AVIE's 360° cylindrical screen design enables the viewer to see hundreds of these clips distributed in 3D over the surface of its 30 m long and 3.5 m high projection surface (Figure 11). The user interface allows the viewer to identify any one of these clips, so that the display system automatically clusters other video clips around it that have similar thematic features as defined by its tagging architecture. Clips displayed at an increasing distance from that cluster exhibit fewer and fewer thematic similarities to the viewer's choice. In this way, the viewer is able to navigate within that cluster of similarities and so assemble a unique sequence of video events that share certain identities, while at the same time triggering the rearrangement of that cluster as soon as the viewer moves to a different clip. By shifting their attention to other clips at a greater distance the viewer generates completely new arrangements of the material. This continuous process of narrative reformulation is determined by the ordering of its tagging architecture and at the same time it is open to reassembly in totally unexpected emergent sequences. In effect T-Visionarium is an archival authoring system offering the viewer a real time editing tool that operates in tandem with algorithmic processes to generate an infinitely varied self-organising stream of narrative events: "... a film is not made up or composed of a number of shots, rather it is decomposed by the shots; when we see a film of 500 shots, we also see 500 films" (Ruiz, 2007). While the current embodiment of T-Visionarium uses a database of televisual materials, the concept and implementation is applicable to any kind of cinematic content.

Figure 11 Participant interactively organising the database (see online version for colours)



Source: iCinema Centre, UNSW (2008).

The nature of this interactive engagement reveals something – more than we would usually see – about the screen character, or media character of its source imagery. It is the experience of this new kind of spatial connectivity that gives rise to a revolutionary way of seeing and re-conceptualising TV in its aesthetic, physical and semantic dimensions. To use the T_Visionarium apparatus is not to view a screen or even multiple screens, but to experience a space within which screen imagery is dynamically re-formulated and re-imagined. T_Visionarium actively and ongoing explicates television but most importantly it engages the domain in which it operates. Here, media is not an object of study but a material landscape in which we are component parts. T_Visionarium is a useable technology that locates us within a mediascape and makes us acutely aware of its operations, uncovering a televisual vocabulary of gesture. We see in sharp relief, the range and limitations of contemporary televisual gesture and action. Stripped of its conventional narrative context, the aesthetic, behavioural and media qualities of television become strikingly apparent. And by affording us an active involvement T_Visionarium hones both our awareness of and our dexterity with this media. In essence, it is not so much a tool that delivers control of a mediascape but a mode of inhabiting our surroundings: “...a sphere of pure and endless mediality...” (Agamben, 2000, cited in Bennett, 2008, p.39). In this way and in many other ways, T_Visionarium is a moment in the history of media: post-cinema, post-narrative, new media, but at the same time, a major study in television and an embodiment of a new media aesthetics (Bennett, 2008).

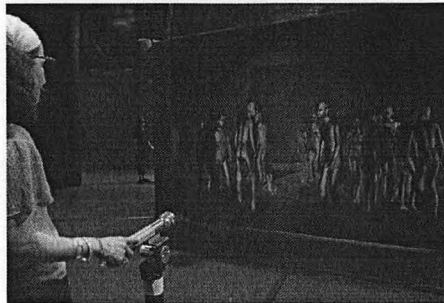
6 Complicit agency: UNMAKEABLELOVE

“I suggest we ought to return through theatre to the idea of a physical knowledge of images...” (Artaud, 1985, p.61)

UNMAKEABLELOVE¹² takes place in a world of constraint and deprivation, evoking in post-modern abstraction a space resonating with Dante’s Purgatorio. Inspired by the writings of Samuel Beckett, UNMAKEABLELOVE focuses and makes interactively tangible a state of confrontation and interpolation between ourselves and a society that is operating in a severe state of physical and psychological entropy (Figure 12). We imagine that the space they live in could be a prison, an asylum, a detention camp, an extreme ‘reality TV’ show or a debased exercise in totalitarian engineering. And we presume that these people have been confined for many generations because they are completely resigned and habituated to their condition, insensible to anything outside the walls that intern them. But we, the viewers of this installation, with our probing torches and searching thoughts are their outside, looking in and forced to experience the anomalies of a perceptual disequilibrium that directly implicates us in their alienated and claustrophobic situation (Figure 13).

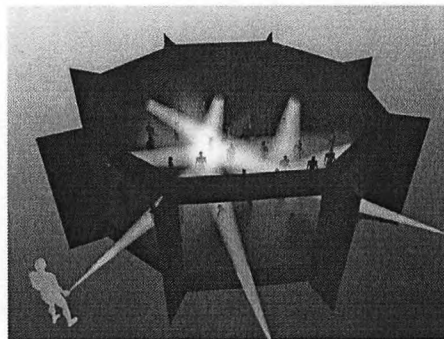
The technological infrastructure specific to this work is Re-Actor, a 5-m diameter hexagonal construction with six rear projected screens and stereoscopic 3D viewing. Re-Actor (Figure 14) features characteristics of the post-cinematic condition because it offers a physically immersive 3D space of representation that constitutes an augmentation and amalgamation of real and virtual realities. Furthermore, it is a hybrid location based phenomena that operates both as an individual and socially shared experience, whose interactive modalities of operation incorporate kinaesthetic dimensions of human apprehension that establish a congruence of human and machine agency.

Figure 12 Interactive torches and UNMAKEABLELOVE (see online version for colours)



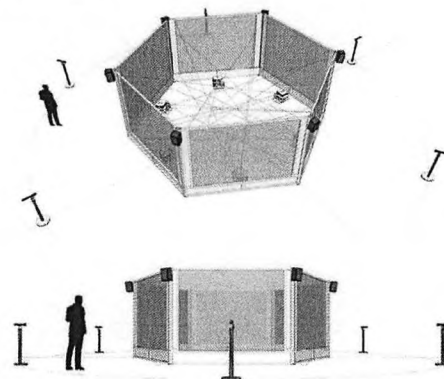
Source: UNMAKEABLELOVE © Kenderdine and Shaw (2008).

Figure 13 Graphic representation of UNMAKEABLELOVE



Source: UNMAKEABLELOVE © Kenderdine and Shaw (2008).

Figure 14 Graphic representation of Re-Actor



Source: UNMAKEABLELOVE © Kenderdine and Shaw (2008).

The history of the cinematic experience is a rich chronicle of various viewing and projection machines. Before Hollywood reduced this diversity to its standardised ubiquitous formats, there were a myriad of extraordinary devices, like the Lumiere Brothers Photodrama, the Cyclorama, Cosmorama, Kineorama, Neorama, Uranorama and many more. The Kaiserpanorama – a stereoscopic cylindrical peepshow – is an especially relevant forerunner of a newly configured display system, Re-Actor. In the 1980s, the emergence of new digital platforms led to discovery of virtual reality and its associated apparatuses of. The truly immersive capability of stereographic 3D imaging and its embodiment on an architectural scale inspired experiments such as the CAVE (University of Chicago at Illinois, 1992), EVE (Shaw, 1993)¹³ and the virtual container vessel (Bourke and Barnes, 2001)¹⁴. It was later evolved into Museum Victoria's ground breaking and highly successful virtual room,¹⁵ produced in 2003 by Kenderdine for VROOM Inc, a consortium of Melbourne universities including Swinburne University of Technology, Monash and RMIT. Like the virtual room the uniqueness of Re-Actor is its ability to conjure a persuasive and coherent 3D virtual reality within an architectonic container that the audience can freely circulate around and gaze into.

UNMAKEABLELOVE uses six torches, mounted in front of these screens, to enable the visitors to peer into the virtual world. The virtual light beams generated by these interactive torches intersect and illuminate the computer generated figures that inhabit its virtually represented interior. The obsessive behaviours of the inhabitants of the container have been motion captured, computationally animated and then rendered in real-time using game engine techniques and behavioural algorithms. As a consequence UNMAKEABLELOVE gives the impression that its denizens are self-motivated agents, albeit an abject group of languishing remnants of humans, whose culture seems to be organised according to an elusive order, a disembodied artificial intelligence if not an unfamiliar harmony the principles of which have yet to be discovered (Schwab, 2000).

To more explicitly articulate the conjunction between the real and virtual spaces in this work, when the viewer's virtual torch beams penetrate through the container they can seemingly illuminate other viewers who are standing opposite them on other sides of the installation. This augmented reality is achieved using infra-red cameras that are positioned on each screen pointing at its respective torch operators, and the video images are rendered in real time onto each viewer's screen so as to create the semblance of illuminating the persons opposite them. The resulting ambiguity experienced between the actual and rendered reality of the viewers' presences in this installation, reinforce the perceptual and psychological tensions between 'self' and 'other'. Thus the dramatic and kinesthetic confrontations between the real and virtual generated by UNMAKEABLELOVE's strategies of embodied interactive simulation intricately engage the presence, agency and complicity of the viewer.

Beckett's prose has been interpreted by a number of leading scholars including Lyotard (1991, 'systematic madness'), Schwab (2000, 'soul-making') and Porush (1985; Beckett's 'cybernetic machine') who envision the texts narrative agency as 'a disembodied artificial intelligence' exploring the boundaries between the human and the post-human.

The artwork under discussion advances the practices of algorithmic agency, artificial life, virtual communities, human computer interaction, augmented virtuality, mixed reality and multimedia performance – to engage 'the body's primordial inscriptions'. UNMAKEABLELOVE focuses and makes interactively tangible a state of confrontation and interpolation between ourselves and a society that is operating in a severe state of

physical and psychological entropy. The resulting ambiguity reinforce the works' perceptual and psychological tension between 'self' and 'other' generated by its mixed reality strategies of embodied simulation that intricately engage the presence, agency and complicity of the viewer. The artworks interaction design impels viewers to experience the anomalies of a perceptual disequilibrium that directly implicates them in an alienated and claustrophobic situation. This work resonates between the history of the 'central computing eye' of The Lost Ones and, the condition of the human at its ultimate vanishing point. "There must be no let up, no vacuum in the audience's mind or sensitivity...no distinct divisions, no gap between life and theatre" (Artaud, 1985).

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Notes

- ¹ See PLACE-Hampi website. Available online at: place-hampi.museum. Last accessed 30th June 2009.
- Place-Hampi and Hampi-Live form part of and was supported under the Australian Research Council's Linkage Project's scheme. Investigators: Neil Brown, Paul Compton, Dennis DelFavero, John Fritz, Tim Hart, Craig Jin, Sarah Kenderdine, Volker Kuchelmeister, Maurice Pagnucco, Andre Van Schaik, Jeffrey Shaw and Peter Weibel.
- ² See Note 1.
- ³ T_Visionarium forms part of and was supported under the Australian Research Council's Discovery Project's scheme. Investigators: Neil Brown, Dennis del Favero, Mathew McGinity and Peter Weibel.
- ⁴ Place-Hampi (2006) is currently touring worldwide and has exhibited in Lille, Berlin, Karlsruhe, Singapore and Shanghai. It will also be the subject of a 14-month exhibition at the Immigration Museum in Melbourne Australia (November, 2008–2010). Place-Hampi, Available at: <http://place-hampi.museum>.
- ⁵ All animations were developed by Indian artists and animators at Paprikaas Animation, Bangalore.
- ⁶ Place: a users' manual: http://www.jeffrey-shaw.net/html_main/frameset-works.php3.
- ⁷ The full aggregated adapt can be downloaded at <http://www.place-hampi.museum/contents/evaluation.html>. Both qualitative and quantitative evaluation will be the subject of upcoming reports by Sarah Kenderdine, Anita Kocsis and Patrizia Schettino.
- ⁸ AVIE: http://www.icinema.unsw.edu.au/projects/infra_avie.html.
- ⁹ iCinema Centre (2007) The iCinema Centre for Interactive Cinema Research was established at the University of New South Wales in 2002, under the aegis of the College of Fine Arts, Faculty of Engineering and Faculty of Arts and Social Sciences. Available at: www.icinema.unsw.edu.au.
- ¹⁰ The Eye of Nagaur: http://www.vrmag.org/vartist/spotlight/THE_EYE_OF_NAGAU.html.
- ¹¹ T_Visionarium: http://www.icinema.unsw.edu.au/projects/prj_tvsi_II.html.
- ¹² UNMAKEABLELOVE website. Available at: <http://unmakeablelove.org>. Last accessed on 30th June 2009.

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¹³ Shaw, J. (1993) *EVE (Expanded Virtual Environment)* was a new interactive visualisation system developed at the ZKM Karlsruhe. It incorporated a motorised pan and tilt projector that was connected via a sensor to the orientation of the viewer's head. In this way, the movement of a projection window over the inside surface of an inflatable dome would dynamically follow the viewer's point of view, and thus reveal an immersive virtual scene (www.jeffrey-shaw.net).

¹⁴ Bourke, P. and Barnes, D. (2001) The Virtual Containment Vessel was conceived as an original virtual reality visualisation system that would allow visitors to peer into a virtual eight sided room bounded by stereo projection screens, Available at: <http://local.wasp.uwa.edu.au/~pbourke/exhibition/vroom/draft1/>.

¹⁵ The virtual room: www.vroom.org.au.