# FCJ-045 Reshaping Spectatorship: Immersive and Distributed Aesthetics

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2 On the surface, discourses of immersive aesthetics and distributed aesthetics may appear incongruous. The terms evoke different media, creative processes and modes of audience engagement. On one side stands the ideal of immersive aesthetics in Virtual Reality (VR) art and screen-based installation. On the other side, shimmers the fluid ideal of distributed and dispersed aesthetics that circulate around discourses of net.art. Distributed aesthetics implies creative modes of operating in, and experiencing, the spatial and temporal flows of information networks. While there are differences between these aesthetic forms and experiences, immersive and distributed aesthetics also share similar interests in transforming and extending notions of the body and perception through technological mediation. This paper undertakes a comparison between immersive and distributed aesthetics in relation to VR and networked art, particularly networked installation art.

3 I will focus on the ways in which these artworks immerse the viewer in states of perceptual and cognitive transition in order to argue that networked art, along with VR art, can generate immersive experiences in the viewer. Central to this notion of immersion is the sensation of being present in an electronically mediated environment that is illusionistic and sometimes remote from the body of the participant. In other words, immersive artworks have the capacity to collapse the perceived distance between the viewer and the artwork or between remote participants. Furthermore, VR and networked immersive artworks may have revolutionary consequences for traditional aesthetic theory in relation to spectatorship and aesthetic judgment. Three questions guide this enquiry: What does it mean to be immersed in art? How is it possible for viewers to become immersed in the flows of networked information? If networked immersive artworks create new aesthetic experiences for participants, what are the consequences for traditional theories of aesthetics and spectatorship? There are many artists who could be surveyed in this brief study of immersive aesthetics and technologies. Artists such as Luc Courchesne, Rafael Lozano-Hemmer, Michael Neimark, Simon Penny, Erwin Redl, Jeffrey Shaw, Christ Sommerer and Laurent Mignonneau, all use digital, screen-based and projection technologies to immerse the viewer in various aesthetic, structural and perceptual states. For the purposes of this article, though, I have decided to focus on works by Char Davies, Ken Goldberg, Paul Sermon, Stelarc, and a collaborative VR artwork by Petra Gemeinboeck, Roland Blach and Nicolaj Kirisit. These artists effectively illustrate the central concept of this article, that immersive artworks, whether they are VRs, screen-based or networked installations, have the potential to transform how we perceive our bodies, consciousness, communities and relationships with digital technologies. Ultimately, immersive artworks re-shape our understandings of art spectatorship from a distanced and passive exercise, to an active and often intimate endeavor, that is both playful and performative in nature.

## Defining Immersion

4 What is immersion? What does it mean to describe a technologically generated environment as immersive? The very term immersion implies that one is drawn into an intimate and embodied relationship with a virtual and physical architecture, whether this immersive affect is generated by a VR system, the cinema, a panorama or another medium. It suggests that one is enclosed and embraced by the audio-visual space of the work, and transported into another realm or state of perception. One cannot be immersed without being affected by the environment on perceptual, sensory, psychological and emotional levels. In Ten Dreams of Technology, Steve Dietz includes ‘immersion’ (alongside ‘symbiosis’, ‘emergence’, ‘world peace’ and ‘transparency’) as part of a register of ideal states of presentation and viewer experience aspired to by many new media artists, curators and theorists (2002: 510-511). Immersive art and technology are not new phenomena. The ‘dream’ of total immersion can be seen as an ongoing quest to create an artificial environment that is absolutely embracing and engaging for the participant-viewer on sensory, emotional and psychological levels. Erkki Huhtamo (1995), Margaret Morse (1998), Barbara Maria Stafford (2002), Oliver Grau (1999 & 2003), Jay David Bolter and Richard Grusin (2000) and Angela Ndalianis (2004) all historicise immersive technologies and maintain that techniques designed to immerse the viewer in virtual and illusory spaces did not appear with the invention of digital

technologies. They variously trace the origins of immersive aesthetics back to panoramas, cabinets of curiosities, Baroque ceiling paintings, ancient frescos and even cave paintings. So rather than being completely new, immersion seems to keep reappearing as an ideal, and often transcendental, form of human-representation and human-technology relationship. This fascination with immersion seems to indicate a human desire to fuse with the immersive image-space or technology—a desire to become posthuman or transhuman (Hayles, 1999: 6).

5 Immersive technologies and aesthetics are not empty of politics; on the contrary, they are ideologically loaded devices that allow viewers to enact a form of voyeuristic and colonising 'machine vision' that brackets out the 'disturbing realities' of the actual world (Huhtamo, 1995:161). As Huhtamo argues, immersive technologies create a form of directed vision that edits out the immediate world around the participant, while providing them with an illusion of being transported into another (remote) environment. For Huhtamo, immersive technologies are a form of visually immersive entertainment and 'escapism' (1995: 161). Although I agree with Huhtamo's assertion that immersive technologies are ideologically imbued devices, there is a contradiction inherent in his critique of immersive aesthetics. On the one hand he interprets immersion as a 'predominantly passive' experience in which one simply looks into the screen (1995: 163). Paradoxically though, he also sees immersion as being linked to the desire to transcend the material body and to become immersed in a telematic environment (1995: 163).[1] This second point suggests an active perceptual relationship with immersive technologies, rather than a completely passive one. In order to become immersed, and to transcend the body, one must actively engage with the technology to extend one's body and consciousness beyond biological and habitual modes of embodied perception.

6 In contrast to Huhtamo and others, I maintain that immersive aesthetics, especially in relation to immersive art, does not simply facilitate pure escapism into a hyper-real environment. Immersive artworks often generate self-conscious and self-reflexive forms of perception and interaction as participant-viewers engage with the work. Considering this, immersive art presents a challenge to traditional aesthetic philosophies—specifically Modernist philosophies descended from Immanuel Kant— that seek to assert the need for perceptual distance during the experience and assessment of art.

7 It is beyond the scope of this paper to fully elaborate on the debates surrounding the idea that one needs critical distance to competently judge and fully comprehend a work of art, but it is worth noting that critical distance has remained a dominant discourse in art history and theory. Modern aesthetic philosophy has often struggled to account for sensory-aesthetics in the body of the spectator, tending to privilege rational thought over sensory perception and a body that simultaneously thinks and feels (Lyotard, 1994: 10). Modern aesthetic theory that asserts the need for critical distance tends to perpetuate a mind/body dualism where the mind of the spectator is seen as the primary site of interpretation. The inability of modern aesthetic theory to adequately deal with sensory-aesthetics is somewhat ironic given that Alexander Baumgarten coined the term 'aesthetics' (from the Greek 'aesthesis') to describe his project of creating a theory of 'sensory knowledge' (Shusterman, 1999). Kant also acknowledges that the subject's experience of 'pleasure and displeasure' are central to the aesthetic experience, however he suggests that there is a serial temporality to sensation, reflective thought and meaning (Kant, 1957: 41-42). Kantian aesthetics implies that a form of emotional detachment and critical distance are necessary on the part of the viewer to adequately judge art and to experience a sublime encounter (Kant, 1957: 41-42). Thus, the viewer must maintain a position that is outside of the artwork or event.

8 The idea of a secure place outside of an event, culture or artwork has, of course, been critiqued by Friedrich Nietzsche, Pierre Bourdieu and postmodern theorists such as Michel Foucault and Jean-François Lyotard. In Lessons on the Analytic of the Sublime (1994), Lyotard critiques the assumed temporality of Kantian aesthetic reflection and critical distance by arguing that intuition and sensation are both forms of knowledge that take place instantaneously with other forms of thinking (10). According to Lyotard,

9 > The act of thinking is … accompanied by a feeling that signals to thought its 'state'. But this state is nothing other than the feeling that signals it. For thought, to be informed of its state is to feel the state of thought and a warning to thought of its state by this state. Such is the first characteristic of

reflection: a dazzling immediacy and a perfect coincidence of what feels and what is felt (Lyotard, 1994: 11).

10 Rather than maintaining the idea of distanced contemplation, I am interested in the idea of contemplating an art object or environment from within the architecture of the work. Renée Van de Vall addresses this idea of a 'critical distancing from within' the physical and virtual boundaries of an artwork in 'Immersion Distance and Virtual Spaces' (2002: 141). Van de Vall asserts that interactivity and aesthetic self-reflexivity—'the feeling one has of one's own movements and perceptions in the performance of the work'—are central to experiences of immersion (2002:141). Hence, critical reflection is integral to the experience of immersive artworks. It takes place while one is engaged in the act of play or interaction within the immersive environment.

11 Immersive digital art may be seen as an extension of modern art movements such as Dada, Fluxus and Conceptual art because of the emphasis on formal elements, the concept of the work, art as an event, and the focus on audience participation. Immersive art is also markedly concerned with exploring and foregrounding the body's complex role in aesthetic experience. Immersive artworks are often body-centred works that draw attention to the body of the participant during first-hand participation and spectatorship, while rendering visible the affects of technology and technological discourses on the body, the subject and habitual modes of perception. As such, immersive aesthetics can be seen as part of a discipline that Richard Shusterman calls, 'somaesthetics', the 'critical, meliorative study of the experience and use of one's body as a locus of sensory-aesthetic appreciation (aesthesis) and creative self-fashioning' (Shusterman, 1999). Immersive experiences with VR and networked art may in fact have a transformative affect on how participants perceive their own bodies and everyday modes of perception during and after the event.

12 The point of many immersive artworks might in fact be that the viewer becomes aware of their own presence in the artwork and how they perceive these environments physically and intellectually while interacting with the work. Certain immersive VR, networked and screen-based installation artworks seem to invite viewers to contemplate the structure of the work and to comprehend their passage through a variety of perceptual states while they are immersed in the work. Rather than making the technology and interface invisible and natural to the participant, it seems that immersive artworks draw attention to the technology and the ways in which the technology and aesthetics structure the experience of this environment and everyday modes of perception.

13 While immersion may be viewed by some as an ideal state of presentation and experience, it is questionable whether artists are really seeking to achieve this ideal, given that they often have alternative strategic interests in using new technologies in the production and presentation of their work. Digital artists often have different interests to commercial, entertainment and military professionals regarding the development, creation and presentation of technologically mediated-environments. In some cases, artists actually work against the intended or legitimate uses of digital technologies and aesthetics. This is not to defend the idea of art as a separate and superior field of representation to computer science, entertainment media or military communication research. In fact it would be naïve to assume that the boundaries between these fields had not become increasingly blurred over the past forty years. Artists collaborate with scientists, engineers, graphic designers, robotics engineers and other specialists in the production of new hardware, software and interfacing systems. In turn, the new technologies and interfaces designed by artists, or made in collaboration with other professionals, are often appropriated by entertainment, scientific-research and military industries for their own projects. Nevertheless, some artists deliberately seek to subtly or overtly subvert the typical uses and aesthetics of certain technologies. New digital technologies and aesthetics may be appropriated and applied in critical and subversive ways to draw attention to the medium, the interactive event and the modes of perception used to participate with the work.

### Immersion & VR

14 VR systems are seen by many new media theorists, artists and designers as the ideal medium for evoking a sense of immersion in the viewer. While cinema and VR are not the only aesthetic forms that create immersive experiences for participant-viewers, they remain the most written about forms of immersive technologies. Over the past two decades, histories and theories of immersion have tended to circulate around VR systems and discourses of cyberspace. The dominance of VR in

discourses about immersive technologies and aesthetics is directly related to the fact that VR is seen by many theorists as the ultimate technology for totally immersing the viewer in a virtual environment. New media theorists and practitioners such as, Huhtamo, Bolter and Grusin and Grau, along with Michael Heim (1998), Ken Hillis (1999), (2000), Peter Lunenfeld (2000), Lev Manovich (2000) and Joseph Nechvatal (2001), maintain that VR systems are one of the most effective forms of immersive technology. Indeed, immersion is seen by some as the 'defining feature' of VR aesthetics (Heim 1998: 54).The types of immersion that VR is said to stimulate include 'total immersion' (Lunenfeld and Nechvatal), 'full immersion' (Bolter & Grusin) and 'total sensory immersion' (Featherstone and Burrows 1995: 3). There are also theorists and artists, such as Brenda Laurel, who suggest that immersion does not have to be 'total', it can be 'partial' by privileging some sensory ratios over others, especially vision and hearing. Whether it is 'total' or 'partial' these forms of virtual immersion imply that the user experiences a sense of fusion with a technologically generated space—a virtual environment (VE). The user becomes deeply embedded in this illusory space and their faculties of perception—their senses and processes of cognition of space, time and motion—recognise this experience as being akin to an embodied form of perception. Consequently, the boundaries between the computer-generated stimuli of the VR system and the embodied space of the participant-viewer seem to collapse. Char Davies virtual artworks, Osmose (1995) and Ephémère (1998) are two examples of artworks that evoke this perceived collapsing of boundaries between technological and bodily space. These works will be the focus of the next section.

15 According to Grau, the aim of immersive art is to allow the viewer to 'become part of the mise en scene' of the artwork (2003: 44). The production of a sense of immersion in the viewer requires this perceived collapsing of distance between the viewer and the object, screen or image space. The aim of some VR systems seems to be to reduce the perception of distance between the viewer and representational space—or the subject and object—to almost zero degrees (Grau, 2003: 44). Distance is therefore antithetical to illusions of immersion in virtual spaces.Concepts of presence and telepresence are of central importance to understanding how immersive aesthetics seem to collapse space. Jonathan Steuer has argued that telepresence is a defining characteristic of virtual reality (1995: 35). He defines presence as 'the sense of being in an environment', while telepresence is a feeling of 'being there'—of being present in a remote elsewhere through technological communication links (1995: 35-36). In other words, telepresence suggests that one can feel present in a distant location or virtual environment through human-technology interfaces. Presence and telepresence are central to immersive aesthetics in digital media art, because in order to feel immersed in a virtual or technological environment, one needs to have a sense of immediacy and intimacy with that environment.[2] In the case of VR systems, telepresence refers to the sensation of being present in a virtual space, while simultaneously occupying physical space in the material world. Telepresence of this form symbolically collapses space for the immersant through interfacing with specific digital information and VR technologies, while metaphorically expanding the space of the body and imagination through these technologies. The sense of closeness or (tele)presence within the virtual world of the artwork is achieved through several conditions. Firstly, VR technologies collapse the perceived distance between the viewer and the representational space by isolating the user in remote technologically-mediated space that surrounds the participant with three-dimensional imagery and sound. Immersive VEs physically and perceptually envelop the viewer in a technologically-mediated architecture. To engage with VEs first-hand, participants are required to enter into a physically intimate relationship with technology. They either have to enter a physically enclosed architectural space such as a Virtual Cave or multi-screen projection space, or they need to wrap their bodies in technological equipment such as Stereoscopic Goggles, Head Mounted Display (HMD) Units, Data-Suits and Data-Gloves. The hardware devices work with the software elements of computer graphics or animations, to enhance an illusion of being enclosed in the image space. Bringing the screen or image closer to the viewer's eyes reduces the physical distance between the viewer and representational space (Grau, 2003: 44). This close proximity to the screen and image theoretically produces a sense of immersive presence in the illusionistic space of the work. In the case of HMD units they also effectively decapitate the viewer's head from the rest of their body—a condition which Simon Penny (1995), N. Kathryn Hayles (1999) and others have argued reproduces a Platonic-Cartesian mind/body split. This split implies that the central site of perception is located in

the mind and through the senses of vision and to a lesser extent, hearing. The rest of the body is meat to be abandoned and transcended by theoretically entering a VR which according to Jaron Lanier (1989) is a form of cyberspace.

16 Collapsing the perceived distance between the viewer and image is also made possible by placing the viewer at the centre of the virtual world and by emulating techniques of embodied perspective and perception. Point of view (POV) perspective is an especially powerful device for evoking a sense of embodied presence in VEs. Bolter and Grusin describe the embodied first-person POV used in some VEs as a 'remediation' of cinematic and televisual techniques that seek to provide viewers with the mobilised POV of particular characters (2000: 243). Cinema and game designers use POV techniques to provide a subjective form of narration and to heighten identification with on-screen characters or avatars. POV and psychological identification are central to suturing the viewer into the VE and heightening their impressions of total immersion within these domains. While panning, tracking, tilting and zooming shots are used in cinema to emulate the mobile gaze of characters, computer graphics and virtual reality systems, such as Davies' environments, take the techniques of first-person POV and perspective further, often placing them in the participant's control. The participant has agency over where, when and how to look. Placing the control over POV in the hands of the viewer has the effect of reinforcing the viewer's perception of embodied and cognitive presence in the immaterial space of the VE. This sense of presence can only be experienced through technological mediation and first-hand interaction with the appropriate technology.

### Embodied Immersion: Osmose and Ephémère

17 > Issues of embodiment vs. disembodiment and the perception of space obviously play a central role in the artistic explorations of virtual reality. Only a few virtual-reality environments which completely immerse a viewer into an alternative world have been developed within an art context, and Canadian artist Charlotte Davies's (b. 1954) Osmose (1995) and Ephémère (1998) are classics of the genre. (Christiane Paul, 2003: 126)

18 As suggested earlier, Char Davies' virtual environments, Osmose and Ephémère, are designed to enable for a mobile first-person point of view. They use a HMD unit in order to facilitate this perspective. When an active participant (or 'immersant' as Davies prefers to call them) perceptually enters Davies' VEs they are offered an embodied POV of an imaginary world that fills their 'field of vision' in all directions (Lunenfeld, 2000: 87). As the participant physically turns or tilts their head and body to 'look around', they appear to be visually surrounded by this ephemeral, semi-abstract illusion in all directions. The immersant occupies a central position in this environment as the virtual world revolves around them. Davies environments are 360º spaces that visually and psychologically envelop the participant, which in turn produces kinaesthetic affects in the immersant. The visual spaces of Osmose and Ephémère have a depth of field and three-dimensionality that emulates human visual perception of actual space in terms of scale, depth and movement. The mobile, first-person POV works with the other elements such as the semi-translucent, semi-abstract imagery and three-dimensional sound, to generate an impression of being physically present in a virtual environment. These environments enact a Baroque logic by making the frame of the work invisible to the active participant and by stimulating multiple senses at once, extending the space of representation in all directions so that embodied perceptions of space become fused with the illusionistic space of the VE (Ndalianis, 2000). Davies' VEs are consistent with Angela Ndalianis's notion of the generation of the 'Neo-Baroque' effect in that they encourage participants to 'emotionally, empathetically, and perceptually enter the microcosmic world of virtual reality' (2004: 151). Ndalianis argues that the Neo-Baroque aesthetics of entertainment media have a 'dual sensation of the audience's immersion into the alternative world and the impression of the entry of the world into the space of the audience' (2004: 151). Thus, perceptions of bodily and exterior space become blurred to the participant viewer. However, Davies' works are not just entertaining or immersive in nature.

19 Although Osmose and Ephémère are often described as completely or totally immersive VE artworks, as evidenced by the Christiane Paul quote at the beginning of this section, it is important to note that these works are also presented as installations in public exhibition spaces. The immersant is situated in a small room behind a frosted glass pane. A back-lit silhouette of the immersant's body is visible through this screen as they interact with the work. The immersant

effectively adopts the role of performer while they interact with the VE. They are on display for the other viewers who are able to view the silhouette of the active participant while they interact with the virtual technology and see a two-dimensional version of what the immersant sees on a large high-resolution screen. Thus, becoming immersed in Davies' VEs is not simply an intimate or autonomous event. Rather, this is a collective happening between multiple viewers with different perspectives of the same event. At the very least there is the first-person embodied mode of immersion and interaction with the work and a vicarious view of the screen and active participant as the spectator edits together this 'performance' and screening.

20 Lev Manovich compares the immersant in Davies' work with a 'ships captain' who takes 'the audience along on a journey' and 'occupies a visible and symbolically marked position, being responsible for the audience's aesthetic experience' (2000: 261). However, the immersant does not have as much control over navigating this environment as the 'ships captain' analogy implies. From first-hand experience of both Osmose and Ephémère, the interfacing systems are often quite difficult to control and this generates a self-awareness about how one is engaging with the technology. Besides the fact that the HMD unit is heavy and difficult to ignore, participants have to use their breath, movements and balance to navigate the system. They breathe in to rise; and out to fall; lean forward in a skiing gesture to move forward in a particular direction and stand upright to pause and float as if in water. Therefore participants navigate pathways through these immersive virtual environments by using their whole bodies or aspects of their bodies in unconventional ways. An effect of this embodied interface is that it creates a self-reflexivity about how one usually perceives actual space through habitual and embodied processes. While Osmose and Ephémère engage the participant's body as a source of knowledge and experience through the interface system, they do so in a way that makes ones' body seem alien to oneself. The techniques of breathing and movement utilised in these works are not everyday experiences of the body in motion for most people. Although Davies' interfacing systems were based on the experience of scuba diving, this is hardly an everyday experience for the majority of people. In fact, these navigational techniques are better described as body disciplines that are acquired through practice. Viewers need to readjust and re-discipline their bodily movements and breathing in order to control their pathways through these virtual environments more effectively.

21 This is perhaps the main strength of Davies' work. Rather than providing a completely escapist and passive experience of an immersive virtual environment, it heightens the immersant's self-awareness of how they usually perceive and interface with the world and technology. They are required to enact a different form of embodied interaction with this virtual environment than a mouse or joy-stick interface would facilitate. Osmose and Ephémère have the potential to make participant-viewers more aware of their desires for control of their own bodies, the environment, technology and the actions of others. Active participants are neither physically nor intellectually distanced from the technology of the work, and hence, these immersive artworks can generate critical forms of engagement in the participant while they are 'inside' the work.

### Dancing with the Goddess: *Uzume*

22 Petra Gemeinboeck, Roland Blach and Nicolaj Kirisit's immersive virtual reality system, Uzume (2002), also provides the immersant with an embodied POV, while also situating these participants as performers or objects of observation for other viewers. Uzume is designed as a 4 to 6 wall CAVE projection environment. The title of the work refers to a Japanese Shinto Goddess and literally means 'whirling', an action that is repeated in the swirling visual aesthetics of the work and often in the gestures of the participants as they play with the work. Uzume provides the viewer with a screen-based responsive environment that is in a state of unfolding and emergence in relation to the actions of the participant-viewer. Participants are equipped with two hand sensors and tracked shutter glasses, which are significantly less cumbersome than the HMD unit utilised for Davies' work. These devices allow participants to generate a three-dimensional, aesthetic environment in a process of becoming. As participants physically move around in the projection space of Uzume, they engage in a gestural and responsive communication exchange with the audio-visual interface. The Goddess software does not simply mimic the actions of the participant, but responds in more discrete and unpredictable ways. Uzume seems to be a virtual entity with autonomy from the participant-viewer. Participants do not have complete control over the system and must communicate with the system via playful gestures. Yet as they dance with the Goddess, they are

also being observed by other viewers who witness their interaction as a performance. VEs such as Uzume, Osmose and Ephémère operate as installations and theatrical events by placing the active-participant on display within the architecture of the work—similar to some early happenings. While the participant communicates with the interface through their actions and movements, they effectively become performers and active participants within the work, challenging the once idealised aesthetic position of the distanced observer. Active-participants therefore occupy the dual position of the subject and object of observation for other viewers and they cannot help but be aware of these related roles. These immersive installation environments provide conditions for both the active observer and a more distanced observer, but they subvert the traditional notion of the objective contemplation of art.

**Telepresence & Networked Art Events**

23 While VR technologies provide the most overt forms of telepresence for viewers, VR is only one of many communication mediums that give the impression of bringing a distant space or subject closer to another (Steuer 1995: 36). Telepresence implies a form of absent presence in distant locations for the operator (Steuer, 1995: 35-36). Simulcast television, telephones, and mobile phones with built in cameras and live video or internet link-ups are other examples of communication technologies that potentially create a sense of telepresence in participants. These technologies seem to collapse the distance between users in remote locations by placing them in a participatory and communicative relationship with each other (Grau, 2003:271). Telematic, telepresence and telerobotic art projects explore the idea of our physical body and communities being distributed throughout the world, yet also being linked together via networked connections and spaces. Perhaps not surprisingly, these projects often have an interest in exploring the extension of the body and consciousness through digital technologies. The themes of new communities, surveillance, voyeurism and the lack of privacy in relation to networked technologies and spaces, are dominant concerns in telematic and telerobotic art. One of the first telerobotic projects on the internet was Ken Goldberg's Telegarden (1996) which is on permanent display at the Ars Electronica Museum of the Future Centre in Linz, Austria. Telegarden combines networked art, robotics, webcam surveillance and the active participation of viewers located remotely from one another. The miniature garden is maintained by 'gardeners' who are situated remotely from the installation. Participants make their telepresence felt in the garden through the process of tending to this garden, which they are able to access via various networked technologies. They are able to see the garden via a webcam, and tend the garden via a robotic arm that allows them to water, feed and sometimes plant seeds in the garden. Thus they extend their physical presence through various networked technologies that render them telepresent in the geographically remote installation space. The success of this project is remarkable given that the maintenance of the installation depends upon the nurture of people across remote locations. Thousands of people have logged onto the system to help cultivate the garden in its various stages of growth and decline over the past few years. Tending this garden is a collective and anonymous activity. The creative act in this case is not only located with the artist, but with the participants who log in and technologically extend their bodies in order to nurture this mini-landscape. Telegarden highlights the potential that networked creative projects have to connect people from distant locations and involve them in collective community actions.

24 Although Telegarden is not a sensorially or architecturally immersive environment in the same way as VR and other networked installations, I maintain that it still immerses the user in a collective telematic environment. Experiences of telepresence and imaginary connections made between the different participants, the various technologies and the physical space of the garden, suggest another form of immersion—telematic or networked immersion. This form of immersion entails participants becoming involved in a collective act of creation of an event or environments through information links and networks. So while the participants may be distributed throughout the world they are collectively telepresent and telematically linked and immersed in production and information exchange.

25 More recently, a number of interesting networked technology art projects have taken place via video conferencing and more nomadic technologies such as mobile (cell) phones and personal digital assistants (such as Palm Pilots). Speakers Corner (2000-1) was designed by Jaap de Jonge to encourage remote participants to send text messages or emails to an interactive LED text display

that was attached to the outside of Kirklees Media Centre in Huddersfield, England. The fifteen metre text display screened a constant stream of information from news updates, weather reports, political messages, poetry and personal messages sent by remote participants. Some strangers effectively communicated with each other through this public interface, which made public what is usually thought of as a secure and private form of communication. The space of the display screen became a nexus point of streaming information and projected identities—a site virtually (tele-)present, if only momentarily. While the concept of distributed aesthetics implies a fractured and dispersed form of cultural and artistic practice through the space and time of information flows, networked digital technologies also facilitate the connection, meeting, interaction and collective activities of people located in distant locations. Networked technologies allow for new forms of human-machine interaction, including the ability to experience a shared presence in multiple and remote locations at once.

**Telepresence and Connectivity in Networked Installations**

26 Networked installations often seek to immerse participants in a 'composite reality', connecting people from remote locations in virtual and physical spaces (Paul, 2003: 21). Grau has commented that telepresence art is 'the successor to telematic art' as defined by Roy Ascott (2003: 271). Yet it is probably more appropriate to say that telepresence art is an extension of telematic art. Telepresent, networked installations share some concerns with telematic art in terms of linking participants from distinct locations, foregrounding the concept of a networked community, stressing process-orientated art practice and enticing multiple users into participatory relationships with art. British artist, Paul Sermon, synthesised immersive aesthetics into his telematic installations in the early 1990s. Sermon studied with Ascott in the early stages of his career and credits Ascott with having influenced some of his initial concepts. In Telematic Dreaming (1992), Sermon used video-conferencing technologies to create a link between individuals located in two distinct spaces. Central to the installation was a double bed that acted as both a prop and projection screen for the event. Participants would recline on the bed and face a real-time projected image of another individual who was situated remotely. The feedback system and intimacy of the work created an immersive environment and sense of telepresence for active participants occupying the imaginary bedrooms. Although the participants could not communicate verbally, they could communicate through facial expressions and bodily gestures, sometimes reaching out to touch the other person. This installation brought individuals (usually strangers) into close proximity with each other. The experience was both personal and public, with a video camera documenting the exchange between the strangers and then sending the live footage to a series of monitors that surrounded the bed in one of the spaces. So while it was an immersive and intimate experience for the participants on the bed, it was also a voyeuristic experience for on-lookers. The semiology of the bed contributed to the success of this immersive, telepresence installation and event. The bed is a cultural symbol that holds connotations of intimacy, privacy, rest, sexuality and desire. Sermon played on these connotations by using the surface of the bed as a projection screen and through the production of a perceived intimacy in the collapsing of the psychic space between participants. The materiality of the bed further enhanced the immersive qualities of this installation by drawing on the bodily memories of those participants who had an experience of sharing a bed with another person.

27 In a later work, Telematic Vision (1993), Sermon produced another immersive, telepresence installation around two large sofas and a television monitor that were placed in different rooms. Once again, the semiology of the sofa and the television worked together to create a familiar and intimate relationship for a theatrical exchange to take place between strangers in these locations. From personal experience, this work seemed to evoke far more playful and mischievous interactions from the participants than Telematic Dreaming, perhaps because the lounge room is usually a more social space than the bedroom.

**Extending the Body**

28 One of the obvious advantages of telepresence is that the operator can hypothetically see and feel from a machine's perspective in close proximity, while simultaneously maintaining a safe physical distance. The operator extends their body through hardware and software technologies. A technological device becomes an extension of the operator's body, continuing human presence

beyond the corporeal body through information networks and into a mechanical form. Thus, telepresence produces a type of cyborg embodiment and perception for the operator who fuses their naturalised modes of sensing and perceiving with technological modes of seeing, hearing and feeling. Stelarc has evoked a type of cyborg vision and telepresence in his events by attaching cameras to his head and other body parts to document events from an embodied POV that seems on the surface to emulate naturalised vision, while actually being mediated through the lens of the camera. Stelarc's Ping Body and Fractal Flesh (1995-7) events explored the possibilities of cyborg vision and re-embodiment through technology by drawing upon and extending the idea of telepresence. Distant spectators were given the opportunity to log into a web interface and to affect the artist's body (or 'the body' as Stelarc prefers to call it) from a remote location (Stelarc, 2004). Active contributors effectively participated in a performance event with Stelarc by activating muscle stimulating electrodes that were attached to his body. Ping Body/Proto Parasite (1995) at Telepolis offered an opportunity for people at the Pompidou Centre (Paris), the Media Lab (Helsinki) and the Doors of Perception Conference (Amsterdam) to remotely access and manipulate Stelarc's physical body in Luxembourg. Remote users could stimulate various parts of Stelarc's body through the Stimbod system (Touch Screen Interface for Multiple Muscle Stimulation) by physically interacting with a touch-screen and graphic representation of the artist's body.[3] Ping values were then gathered from users' collective activity and translated into electrical stimuli (low voltage shocks) that were applied to 'the body'. Users could watch the affects of this information feedback system in real time because it was video taped and webcast live. Stelarc was effectively telepresent in multiple locations at once via video, computer and internet links, while remote users were also making their telepresence felt through their ability to manipulate Stelarc's body from distant locations. In both cases, metaphors of cyborg bodies and telepresent perception were evoked through these interactions. The Ping Body experiment implies a desire for control over bodily reactions (pain and fatigue) as it goes through physical and metaphorical re-construction through prosthetic addition and cybernetic extension. Simultaneously though, it suggests a surrendering of autonomy and power over the body as it becomes a vehicle for telepresence and communication. The tension between the desire for technological control and subjection is fundamental to debates about telepresence and information technologies more generally. Telepresence implies that one can be electronically present anywhere with the right information links, equipment and feedback systems. Central to the fascination with telepresence and virtual reality is the desire for control over things that are remote from the body. Arguably, the fixation that some people have with being (tele)present in several locations at once and being able to escape the corporeal body (if only temporarily) reflects an obsession with transformation and control through technological means. Stelarc creates an inverse relationship in his work by surrendering control of his body and allowing it to become another point of connection in the information flow. Ken Hillis maintains in Digital Sensations (1999) that we 'fear the loss of control over our minds, our society, our government, our bodies, and our sexuality'(1999: 211). Ironically, VR and the internet are sites that heighten our awareness of conditions that already exist in our culture that we have little control over such as conflict, exploitation, media saturation, visual surveillance and the technologisation of our bodies and perception (Hillis, 1999: 211). These cyberspaces intensify an awareness of our desire for control over our bodies and environments, but couple this alertness with an anxiety concerning the extent to which we are able to control such things.

29 Three conclusions emerge from this analysis of VR and net.art. First, net.art has the potential to create immersive experiences for participants by collapsing the perceived distance between the viewer and another participant or event in a remote location. Information networks not only distribute information, they create links and draw people closer together. Second, immersive and distributed aesthetics are not necessarily escapist in nature and do not always represent a flight from the body. Rather, as the term aesthetics implies, they can evoke a return to the body and sensory perception by heightening awareness of naturalised and embodied modes of perception. They also draw attention to how naturalised modes of perception are being extended and transformed through new information technologies and networks. In some cases, technological interfaces have already become so ingrained in our everyday lives as to be normalised body disciplines, even though they clearly generate particular modes of interacting with the world.

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Finally, artworks that generate immersive and distributed aesthetics have had a dramatic effect on traditional aesthetic theories that uphold the ideal of a distanced observer. Immersive digital artworks enfold the viewer in the architecture of the work, extending the viewer's sense of bodily presence in virtual and remote locations. The traditional relationship between the viewer and art object has been radically reconfigured by new technologies that situate the viewer in different spatial and perceptual relationships with the work. By immersing the participant in a changing sensory-aesthetic environment, VR systems and net.art refuse the illusion of a secure place outside of an artwork or technological culture where one can dispassionately assess art, technology and our relationships with these discourses. They highlight Lyotard's point that aesthetic judgment takes place in 'a dazzling immediacy' of thinking and feeling while interacting with the work of art. Yet immersive artworks often expand this concept by transforming the role of the viewer from a spectator to a participant or performer who effectively helps to create both the content and the meaning of the work as they interact.

### Author's Biography

Edwina Bartlem is an art curator and writer with a specific interest in video, new media and biological art practice. Until recently, she taught cinema and new media studies in the Cinema Program at the University of Melbourne, Australia, where she is currently completing a PhD on immersive aesthetics in new media art. At present, she is the Curator and Arts Programmer at Manningham Gallery in Melbourne. Recent publications include: 'Immersive Artificial Life' in the Journal of Australia Studies (Issue 84, 2005), 'Coming Out on a Hell Mouth' in Refractory: Journal of Entertainment Media (Vol 2, 2003) and 'Emergence: New Flesh and Life in New Media Art', soon to be published in an edited book on the future of flesh and bodily mutation.

### Notes

[1] 'Telematics' refers to computer mediated communication networking made possible through telephone, cable, internet and satellite links. These technologies effectively bring individuals or institutions from geographically dispersed locations into communicative relationships. Perceptions of space, bodies, identities (personal, national and global) and ideas about communication have been challenged by telematics. Roy Ascott introduced the term 'telematic art' to describe art projects that use communication links and exchanges as integral parts of the work. For Ascott, the meaning of art is not generated by the artist alone, but by the process of interaction between the participant(s) and networked systems.

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[2] The concept of telepresence evolved from research done in the mid-1980s by NASA's Human Factors Research Division who were working on developing telepresence as a way of manipulating robots from a distance, to reduce the risk of human harm or death in hazardous environments (Woolley, 1992: 126). As Benjamin Woolley describes it, NASA's research was aimed at providing 'a wrap-around technology that would give the machine operator the feeling of being in the place of the machine being operated' (1992: 126).

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[3] The Stimbod software was conceptualised by Stelarc and designed by Troy Innocent. Gary Zebington developed the remote body-control element of the software that was used in the Ping Body events. See Stelarc's website for more information about the design and development of Stimbod (https://www.stelarc.va.com.au).

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