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Theorizing Digital Cultural Heritage
Cameron and Kenderdine, editors



Theorizing Digital Cultural Heritage

A Critical Discourse

edited by Fiona Cameron and Sarah Kenderdine



technical operations related to the construction of the physical world.”³¹ As Harpold notes:

Our responses to these visual conventions are always—if not always consciously—adaptable. We take them to be markers of a reliable representation of the realms of the eye. Yet we also understand implicitly that they belong to a domesticated, geometrically sanitized version of those realms. In this way, the “visibility” of a GUI’s spatial forms is a function of both a tacit acceptance of visual conventions, and a pragmatic willingness to suspend some of them, if circumstances require it. (2001, 11)

The mathematical translation of perspective onto the computer screen does not allow for the distortions that are necessary for an aesthetically pleasing result. In other words, “pictorial perspective does not coincide with the math of its geometry” (Wyeld 2004, 16). The peripheral distortion inherent in computer-generated models can only be resolved through projection onto curved surfaces, and not solved through mathematical compensation (without introducing its own distortions).

Erwin Panofsky’s *Perspective as Symbolic Form* has dominated all art historical and philosophical discussions on the topic of perspective in this century. He describes “perspective as metaphor”—symbolic of the rationality of the Renaissance that relied on “adherence to the norms of the apparatus that created it” (Wyeld 2004, 20). Following, it is documented that non-Westernized peoples do not read perspectival images (including photographs) in the way that Westerners do, and they use a variety of representations and conventions. India has an isometric tradition which exists within a regional consciousness for its activation; China adopts the scroll form which imparts narratives rather necessarily depicting real scenes, and the Japanese adapted this form to a folding screen with architectural and metaphorical depth. Australian Aborigines use dot paintings to retain the memories of both virtual and real place and landscapes. As Theodor Wyeld (2004) notes:

How much these aesthetic and symbolic meanings survive in translation to contemporary media remains in contest, and it can generally be thought that the translatability of an aesthetic art form relies on the aesthetic education (exposure) of the form to the viewer.

Virtual Heritage and Panoramic Vision

Projects that use panoramic technologies for virtual heritage are numerous. A burgeoning number of Web sites now promote visits and views to heritage and museum

sites through a panoramic eye. Two of the seminal works to extend the earliest Web-based applications included The Hermitage Museum Web site,³² produced by IBM in 1998, which used a large number of “zoomable” panoramic images in the mode of a virtual tour. *1000 years of the Greek Olympic Games: Treasures from Ancient Greece*,³³ was an award-winning and seminal work, produced by The Powerhouse Museum in conjunction with Intel, in celebration of the Olympics in Sydney in 2000. The work used a combination of real-world spherical panoramas of the archaeological site mapped to a 3D virtual reconstruction (figure 15.2). Panoramas were also augmented with zoomable object movies of archaeological artifacts such as the pedimental sculptures found in the museum at Olympia. The work existed as a CD-ROM, a Web-based work, and as a passive stereo (linear polarized) installation with a “fly-through” of a virtual model (in 3D) augmented with real-world site panoramas (in 2D).³⁴

Claims that the virtual reality panorama is a tool for “preserving” heritage are prevalent. Most notable to be found on the Internet to date is the work of Tito Dupret



Figure 15.2 Inside the Temple of Zeus reconstruction panorama from *1000 years of the Olympic Games: Treasures from Ancient Greece*. Project included a digital reconstruction of Olympia polarized 3D installation, Web site, and CD-ROM, launched 2000. © Powerhouse Museum, Australia, 2000.

who has initiated World Heritage Tours.³⁵ The WHTour is a private non-profit organization dedicated to creating a documentary image bank of panoramic pictures and virtual reality movies for all sites registered as World Heritage by UNESCO. Mr Dupret embarked on an international mission to photograph the 754 sites, from the Statue of Liberty to the Taj Mahal, using panoramic images for the Internet. He works under the auspices of The World Monument Fund. Similarly, Web sites such as that of the Danish photographer Hans Nyberg³⁶ (which contains over 30,000 panoramas and features a new full-screen example every week) host a large number of these heritage-related sites. One can observe how precisely this proliferation fuels the theories of the cyber *flâneur*, and the mobile global (virtual) tourist gaze of which John Urry (among others) speaks (2001). In education too, the prevalent use of QTVR as the new form of visual education content is exemplified by the Visual Media Centre's History of Architecture Web site at Columbia University. This Web site of over 600 panoramas to date, encompasses dozens of buildings from temples in Greece to great churches in Europe, shrines in the Yemen and Iran, to Frank Lloyd Wright's houses. The developers of the project believe that the QTVR format is "revolutionizing the teaching of architecture," and panoramic "nodes" are rendered in both low resolution for the Internet and high resolution for classroom disciples of "animated architecture."³⁷

Panoramic devices in installation-based works for the interpretation of cultural heritage (either onsite or in galleries), allow for more control over additional sensory inputs, and multimodal views and locations. Examples include the Brazilian-authored Visorama,³⁸ a telescope interface which, using panoramas and image-based rendering techniques, becomes a center of hypertextual commuting. It contains images and sounds that allow the observer to navigate through space and time in any given actual landscape, as if he were making use of a system of dynamic cartography.

Other projects include the kiosk installations at Ename (Belgium), as well as Tervuren (Belgium) and Wieringen (Netherlands). Based on the 360-degree virtual panorama, the key approach of the systems is "readability," as they help the visitor to "read" the landscape elements and features in the village or town when exploring it (Pletinckx et al. 2004).

The following two projects draw on the use of stereoscopy to powerfully enhance the immersive qualities of the panoramas. A recent application of augmented stereographic panoramas of the temple complex at Angkor, Cambodia (figure 15.3) was developed for display in The Virtual Room at Melbourne Museum (2004/2005).³⁹ The high-resolution stereographic panoramas capture the potent sacred space of Angkorean temple architecture and relief sculpture, and allow users to travel through a



Figure 15.3 Panorama of Angkor Wat at dawn, from Sacred Angkor: Stereographic Panoramas of the Temple Complex project installed at Museum Victoria, displayed in The Virtual Room 2004–2005. Angkor image. © APSARA-Authority, Cambodia, photography Peter Murphy, 2004.

landscape of celestial palaces, rich with Khmer iconography illustrating the narratives of Hindu and Buddhist mythologies. The work uses a combination of technologies to bring panoramic scenes and viewers into a new degree of intimacy. Real-world 3D photographic landscapes, together with spatial soundscapes, audio spotlights, animations, and real-world stereo video bring new life to each scene (Doornbusch and Kenderdine 2004). The panoramas are displayed at life-sized scale, and point to the way in which sophisticated "augmentation" of panoramic scenes can generate rich narratives of experience. The Virtual Room is an eight-sided octant stereo display which allows users free circumambulation around the panoramic scene (figure 15.4). Advances in computer graphics hardware have meant that the augmented animated features are not distinguishable from the real-world photography. In addition, the stereographic nature of the work allows for the geometry of the scene to be derived so 3D models can be made, providing for scientific image-based modeling requirements.

Conversations is a distributed multiuser virtual environment comprising three discrete virtual reality stations produced by the iCinema Centre for Research in Interactive Cinema.⁴⁰ Each station consists of a head-mounted display, a head tracker, a navigation device, headphone, and microphone, providing three users access to a dynamic virtual world. The story simulates the escape of two prisoners from Pentridge Prison in Melbourne in 1965. The three virtual reality stations, connected by a high-bandwidth