The Cultural Spiral: 
Virtual Spaces as Records of Time – VRML Technologies

Presenters

Michael Meany
New Media Coordinator
Communication and Media Arts
The University of Newcastle
http://www.newcastle.edu.au/department/ma
http://www.newcastle.edu.au/department/ma/staff/meany
02 4921 7361 (ph)
02 4921 6944 (fx)
michael.meany@newcastle.edu.au

Dr Keith Russell
Head of Department
Communication and Media Arts
University of Newcastle
http://www.newcastle.edu.au/department/ma
http://www.newcastle.edu.au/department/ma/staff/russell
02 49 21 6408 (ph)
02 49 21 6944 (fx)
krussell@mail.newcastle.edu.au

Abstract

The purpose of this paper is to explore the possibilities of VRML technologies as foundational tools in the exploration of real and virtual cultural times and places.

VRML allows for the 3D presentation of objects in space and of space as defined by objects. Starting from a specific cultural focus, such as a public work of art, VRML enables the perception of pathways to the focus. Situating the object then allows for the situating environment to be included, within the circularity of a VRML movie. By adding hot spots to the VRML, the viewer is then able to break out of the fixed circularity of the panovision, into the enlarged world. Within this enlarged world, information is able to retain its connectedness with the fundamental experience of the object in its environment. Information is also allowed to claim its own particular shape. That is, through varieties of documentation, including detailed views, historical documents etc. the viewer is able to encounter a variety of cultural foci.

VRML can enable new kinds of texts and inter-texts. Current work, on a VRML project, using Throsby Creek, Newcastle as the site, illustrates the advantages of VRML as a foundational technology in opening up new kinds of understanding about the ways that we “read” and “write” the world.

Introduction

VRML, Virtual Reality Modeling Language, is a text-based markup language that allows developers to describe and manipulate three-dimensional models. (Tannenbaum, p 661) By contrast, QuickTime Virtual Reality (QTVR) is a photography-based “immersive” technology that is becoming increasingly accessible with the introduction of graphical WYSIWYG (What You See Is What You Get) software packages. There are three types of QTVR media: Panorama movies; Object movies; and, Scenes. (Christol, URL)

QTVR panorama movies are created by taking several overlapping still pictures from a tripod with a panning head. Special software is used to “stitch” the pictures together, fusing them into one seamless 360-degree picture. The “stitched” picture is then converted into a QuickTime VR panorama. (Christol, URL) The panorama can then be displayed in a web browser using the QuickTime plug-in or displayed by the stand-alone QuickTime player.

QTVR object movies are created by placing an object on a turntable and taking a number of still pictures of the object as it is turned around or by ‘circumnavigating’ a large object and photographing it from several angles. The pictures are then used to make a linear movie and finally, a QTVR object movie. (Christol, URL)
A QTVR scene is a QTVR movie comprised of several QuickTime components. These components can be ‘traditional’ QuickTime video movies, QTVR panorama or object movies, or still images. The components are all tied together with hidden regions called “hot spots”, similar to hyper-text links. “QTVR scenes can be very powerful, enabling you to navigate from panorama to panorama and virtually examine objects inside the space. A QTVR Scene acts as one stand-alone movie, although it contains several QTVR movies it is ‘self-contained.’” (Christal, URL)

The ability to “hot spot” panoramas, objects, and scenes allows this media form to integrate text and audio files by linking to HTML (Hyper-text Markup Language) documents. This capacity of QTVR technology makes possible a greater depth and density of information.

Cyclorama v. Panorama

QTVR panoramas have the effect of centering the viewer within a virtual space. By revolving the panorama, the viewer perceives a 360-degree representation. This effect is more accurately the effect of cycloramas, that is, “a picture exhibited a part at a time by being unrolled before the spectator” (Merriam-Webster OnLine, URL). Large scale cycloramas were popular spectacles in the late 19th Century. They ranged from murals painted on canvas that were mechanically looped before an audience to imposing circular buildings with huge, highly detailed murals that spectators promenaded in front of.

The Fitzroy Cyclorama in Melbourne was almost forty metres in diameter and over fifteen metres high; the picture was 1858 square metres. The first scene exhibited was The Battle of Waterloo. By 1891, there were five cycloramas in Australia, one each in Adelaide, Launceston and Sydney, and two in Melbourne. Their profitability was threatened, however, by the depression of the 1890s and their claims to ‘wonderful realism’ were soon challenged by motion pictures. (Naughton, URL)

Much of the “wonderful realism” of these large-scale cycloramas can be attributed to the control that the technology had over the position of the viewer. The viewer was positioned at the appropriate viewing distance from the scene and foreground ‘stage setting’ established visual continuity for the scene. “The realistic effect is increased by putting, in the space between the spectator and the picture, things adapted to the scene represented, and in some places only parts of these objects, the completion of them being carried out pictorially” (Naughton, URL).

Likewise, QTVR panorama technology offers a similar level of control. The center of a panorama, the viewer’s position, is both inescapable and disembodying as the viewer is reduced to an axis around which the panorama revolves. This effect is heightened to a disconcerting level in Cubic VR movies where it is possible to rotate the scene through 360 degrees on both axes, reducing the viewer to a point, a singularity. This control over the central rotation axis allows for the accurate depiction of the perspective throughout the mapped projection.

Although QTVR is a technology based on photography, many of the traditional “rules” of photography have to be applied judiciously in production. A list of ten photography tips from PhotoSecrets.com included: Put The Sun Behind You; Get Closer [fill the frame]; Include People [add human interest]; Use Proportion [the ‘rule of thirds’]; and, Position The Horizon [position the horizon a third up or down the frame] (http://www.photosecrets.com/p03.html) Due to mechanics of production which involves the use of a rotating head on a tripod and the selection of a fixed point of rotation no individual frame has precedence over any other. Once setup the procession of images that will make up the final panorama are dictated by the selected position of rotation. Some frames, if the panorama is shot in daylight, will be shot into the sun. Zooming in to pick out a particular detail or to adjust proportion in a single frame will destroy the continuity of the panorama. In addition, if the tripod is accurately leveled during setup, the horizon should appear in the exact middle of the frame.

The production of photographic panoramas is as much a measure of time as it is a record of space. Moreover, “‘Scientific people,’ proceeded the Time Traveller, after the pause required for the proper assimilation of this, ‘know very well that Time is only a kind of Space.’” (Wells, p15) The inclusion of people in panoramas is challenging; they tend to move in both time and space. While shooting the required series of images people may walk through one frame and enter another, having a ghostlike representation in many parts of the finished panorama. Image artifacts such as these tend to have a Brechtian effect on the viewer, disbelief is no longer suspended and attention is drawn completely toward the ‘virtual’ status of the presented ‘reality’.
Object v. Subject

QTVR object movies allow for the viewing of an object that is rotated around its own axis. That is, unlike in panorama movies where the viewer rotates, the viewer watches the object rotate and can control the degree of rotation and the level of detail displayed.

The production process for creating object movies of small-scale objects follows much more closely the tenants of traditional photography. The object is placed on a turntable and a series of frames are shot as the turntable is rotated through 360 degrees. This process can be repeated with the camera set at higher or lower angles to allow the final object movie to be manipulated in three dimensions giving views from above and below the object. For larger objects that cannot be rotated on a turntable, the images are shot by circumnavigating the object. The traditional tips for ‘filling the frame’ and image composition come back into play as long as the object is shot from equidistant points around the circular paths.

The artifact displayed in an object movie becomes both the object and the subject of the production. Context is subsumed by the primacy of the object. To enhance the illusion of the artifact being manipulated in space small objects are usually shot against a black or white background, total absence of context. Larger objects are shot from close range using a wide-angle lens to enhance the ‘presence’ of the object in the environment.

Scenes / Hyper-text

The preceding sections have outlined production processes and individual limitations of QTVR panorama and object movies. However, the limitations of these individual forms are overcome when they are mixed and connected with other digital forms.

QuickTime architecture allows for movies of all varieties to be linked via ‘hotspots’. Further, these hotspot links can be employed to connect to HTML documents and other digital media forms. An object could be examined in detail as an ‘object-subject’ then by following and embedded hotspot the object could be seen in its context as part of a panorama. The link can be followed in both directions. A subsequent link could be made to a hyper-text document that supplies information about the both the object and the panorama.

The advantage this technology offers over traditional HTML links is that the relationships between the texts is strengthened and maintained. Information, be it image, animation, or language based, is allowed to be access at time that is meaningful to the viewer and pathways between loci can be expanded laterally or explored in depth.

Throsby Creek - Public Art

The website associated with this paper provided an interpretive, virtual tour around Throsby Creek near the dockside suburb of Carrington, Newcastle. (http://www.newcastle.edu.au/department/ma/vrml)

To coin an ugly term this is a ‘hyper-virtual’ environment. Carrington, formerly known as Bullock Island, was largely constructed of discarded ballast from ships loading coal in Newcastle harbour. Throsby Creek was in the closing years of the 19th century a site for tanneries, abattoirs and laundry businesses. (Hartley, http://www.throsbylandcare.org.au/hist_throsck.html) As such, it quickly became degraded and the advent of heavy industry in the 20th century did little to improve its condition. Throsby Creek did not, and to some degree still does not, have a ‘clean’ reputation. In recent years, Carrington and Throsby Creek have been topographically shaped by the Honeysuckle Corporation, including the facetiously named ‘Mount Carrington’. Little in this landscape is ‘real’.

As the scene tours around Throsby Creek public artworks can be viewed in several locations. The artworks are simultaneously represented as objects of attention and as elements of larger panoramas. The technology allows for the reading of the art ‘texts’ both in and out of their geographical context. Further, the technology allows for the development of links to connected information and critique.

For example, The Newcastle City Council’s publication “turning Spaces into People Places – A walking guide to Public Art and Placemaking in Inner Newcastle” states that “placemaking is all about turning public spaces into places where people feel comfortable, where they can meet or just feel involved” (Newcastle City Council, p3). By contrast, Richard Holt, speaking at the Public Art Conference, Watch This Space, at the University of Newcastle (September 1999) described ‘placemaking as the stuff of the ‘warm and fuzzy’ style of bureaucracy. They are, for all that, fundamentally bureaucratic strategies which

QTVR technology allows for another reading of the place. Information and critiques are viewed in relation to that reading giving a greater depth of information while maintaining an intrinsic connectedness to the objects and environment.

[For the HTML version, complete with QTVR scenes, visit URL: http://www.newcastle.edu.au/department/ma/vrml/]

References


