Building Compelling VRML Worlds

Organizer:
Delle Maxwell
Panelists:
Clay Graham, Silicon Graphics
David Blair, Artist
Delle Maxwell, Independent Designer
James Waldrop, Construct

This panel proposes to explore and compare several different directions in large-scale sites built using VRML that show what 3D on the Web can offer: multimedia, and responsive, changeable, and expandable worlds. Being "large-scale" is not necessarily correlated with the heft of the files; if anything, a better goal is a balance between ideas, visual design, and navigability. With this balance in mind, each panelist is exploring a different domain: the formation of a vocabulary for "virtual architecture," the reconstruction of a lost archaeological site, the exploration of hybrid narrative and the creation of a "procedural cinema," and the creation of a VRML-based web site business. The panelists will present the ideas behind their work, and will as address issues they all have in common: how one weaves motion, lighting, architecture, sound, animation, history, navigation, and narrative into a fabric of interactive experience.

A panel is the most suitable format for this kind of discussion, as it allows the participants to show their most up-to-date work. This is an important consideration in a field that is so fast-moving that "three months make up a Web Year." [1] With that in mind, we expect features like animation, behaviors, sound, and real-time interaction to be integrated into the work that will be shown in August. And in an effort to strike an important balance between the artistic and the technical, we have included panelists that represent both these aspects.

Clay Graham

Clay Graham, a Virtual Architect, will present examples and ideas about a new type of architecture, which is less about physicality and shelter than it is about "Space, Place, Symbol and Sign." [2] His statement is a short synopsis of the book he is currently writing on the subject.

Introduction

VRML holds unknown potential, allowing ordinary people to create unique places and share them with the world. With this democratization of creation comes some responsibility. Just as the artist uses the language of symbolism to communicate the stirrings of the soul, the new architect or designer will communicate through a sculptural and architectural language.

Space

The architectural metaphor serves as a natural point of reference from which the user can read the data. The "space" articulates the domain in which a particular query has taken place. All data extracted from the query resides within the architectural domain. This domain should be constructed with spatial archetypes that are an extension of the way we already see the world. In this way the archetypal elements of wall, floor, datum and column guide the user through the data intuitively without coercion by a modal interface.

Perspective also infers that there is a human scale and texture, and it creates the need to assist the explorer in seeing the spatial domain of optimum interaction. Not only does a space have form, it also has context, or an organizing principle. The question "Where am I?" alludes to the need to define context. This leads to the discussion of Morphology and Topology: the criteria of how are things organized and how are they represented. To represent and organize information with meaning, the designer must look at how the individual elements will interact to become a collective. They will also need to break the information out of its original context to be reorganized dynamically. This leads into the discussion of construction and de-construction, and how the architectural metaphor deals with the creation and reorganization of context. Finally, once one has determined the relations that will create the space,

it is necessary to apply construction techniques to create the most interactive and optimum performing space possible.

Place

A place is created by the interaction of objects, the space, and the user. By combining the context or theme for the application with objects that run as "applets," a complex and dynamic relationship develops. These relationships can be refined into a set of guidelines for creating virtual architectures. By determining the type of place, the designer can determine the best model for user interaction and object behavior.

For this reason the world of behaviors relates to the issue of place, because it will be the method whereby interaction is determined. Right now these behaviors are being implemented in scripting languages, such as Java, with the scripts creating events for the behaviors. An interesting problem is recognizing archetypes of behaviors and determining how to incorporate them into successful spaces.

Symbol

Meaning comes not just out of concepts themselves, but through their interrelation and context. Thought is not a thousand islands separated by an ocean, but a complex ambiguous rule system derived from the cross reference and overlap between those elements. This is the primary thesis behind the concept of symbolic arrays.

Art, religion, and culture depend on this overlap to communicate meaning. The cathedral, temple, and masterpiece are not representations of static sign, but rich and complex symbolic systems meant to communicate an ambiguous concept or concepts greater than the sum of their identities.

Sign

Sometimes a designer may wish to create an index to what an object is, or to what it contains explicitly. Signs can be used to create a direct connection to an object or space so that it can be identified easily. Signs act as the direct indexes either to what the object is or to what it contains.

David Blair

Though video hasn't easily yet dropped onto the public digital networks, 3-D (e.g. VRML) does offer a time-based element that qualifies as a procedural cinema. Working from an interest in the instantiation of a unified narrative across multiple media, I am currently designing my next feature in parallel with a 3-D based network site. The beginning crossovers are easy to understand – models for the film become procedural "movies" on the site; these "movies" can return to the film itself as moving images. The potential technical plasticity of this convergence interacts with the strangeness of storymaking; I focus my interest at this point.

Delle Maxwell

I will present a reconstruction of the Aztec ceremonial precinct of Tenochtitlan, the capital of the Aztec/Mexica empire. It is built in collaboration with the Inventor/VRML team at Silicon Graphics. The purpose of this site is educational, as well as experimental: we wish to create a site where exploration of a model can be done in conjunction with readings about its history and meaning in a way that allows one to get a fuller sense of the subject.

The Aztecs were the most powerful civilization of the New World, alternately amazing and horrifying to the Spanish colonizers of the 16th century. The original temples' site was almost completely destroyed by Hernan Cortez and the conquistadors by 1521, and even the location was lost until 1978, when work on Mexico City's subway system uncovered their remains. Archaeologists have since been excavating this site in the heart of present-day Mexico City in hopes of gaining more insight into Aztec culture.

In this case, VRML is used to recreate a place that has, in reality, been lost, except for some building fragments, statuary, offerings, and historical and archaeological texts. The model [4] is connected with this information about the Aztecs and their lives, mythology, and history. Writings on the confrontation of the two cultures, with views from both sides of the same events, are also included. From these fragments we can begin to reconstruct what the environment of Aztecs of over 450 years ago might have been like.

James Waldrop

James and his colleagues at Construct are in the enviable position of building a business that lets them experiment with the kind of web site building referred to as "fun projects" – often collaborations with artists, designers, and architects. Declaring itself an "Internet Design Company," Construct has positioned itself at the forefront of 3D interface design. [5] Making use of tools such as VRML and Java, Construct has created virtual environments that range from the highly realistic – the VRML ArcGallery (for the Interactive Media Festival) – to the abstractly hyperspatial – a network visualization of Tierra. James Waldrop, Construct's Technical Director, will present some of Construct's latest and most interesting projects, including a real-time visualization of the Internet, a completely virtual technology expo, and a 3D asynchronous conferencing interface. Discussion of these projects will include extensive detail surrounding both the design and implementation of interactive, networked 3D spaces.

Notes

[1] Attributed to Mike McCue, founder of Paper, Inc.

[2] Clay's homepage is available for perusal at:
`http://reality.sgi.com/employees/clay/`

[3] "Waxweb" can be accessed via
`http://bug.village.virginia.edu/`
"Jews In Space" is still under construction and not yet available for general viewing. The web address will be available at SIGGRAPH.

[4] This model is based on the original reconstruction in the Museum of Anthropology in Mexico City, by Ignacio Marquina. Thanks to Bob Galbraith for his interpretation and model, which I then rebuilt and augmented for interactive performance. Since this web site is still under major construction, it is not yet available as a URL to the public. The web address will be available at SIGGRAPH.

[5] Check out `http://www.construct.net/` for information on Construct.