

Scalable City 0.7a

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ABSTRACT

The Scalable City is a set of projects that explore the externalization of algorithmic approaches to urbanization that intersect with geographic, political, economic and aesthetic zones of conflict. Version 0.7a of the Scalable City is a multi-media exhibition consisting of various manifestations of landscape demarcation, personal embodiment and domicile transformations. Procedures governing the arrangement and operations of these discrete areas, are interchanged across domains – moving them from a more familiar basis to distorted and exaggerated extremes of patterns and juxtapositions. Through these processes, which reveal the procedural basis of the development of cultural forms, the mechanistic processes of social formation are highlighted. The forum for this version of the work is the US/Mexican border where collisions of cultural forms, political structures, economies and landscape are distinctly overt.

Categories and Subject Descriptors

J.5 [Fine Arts]: Multi-Media Exhibit

General Terms

Documentation, Design, Experimentation, Human Factors, Theory.

Keywords

Multi-media, Collage, Assemblage, Montage, Procedural form, Installation.

1. INTRODUCTION

One of the profound transformations that we are undertaking is the transformation of physical reality by the operations and methodologies that we have developed through electronic media. Media has engendered a literacy and facility for understanding relationships between elements that inscribes itself upon how we construct, experience and desire physical relationships. Technologies such as 3D computer games, virtual reality, computer aided design, computer aided manufacturing and rapid prototyping, further blur the lines and cross the semantics of physical space and media space.

I have been developing my aesthetic approach to this situation through a number of projects that engage a formal and conceptual vocabulary derived from collage, montage and

assemblage. This approach, defined as Troiage[1], renders articulations of a formal transformation of culture, revealing aspects of emergent social structures.

The Scalable City has several manifestations of its conceptual, aesthetic and technological interests along the way to its development as a multi-user, shared virtual environment. For this exhibition, three primary components of the work are presented, each within their own cardinal plane. Within each, interactions occur between its contained elements. Actions move across the three planes, and as they do so, a type of ideological anxiety is provoked by the differences and similarities of effect that the application of the same algorithmic transformations have upon differing datasets that represent an individuals sense of self, personal architecture and social environment.

My engagement with the construction of a digital city of refuse, celebrates the actuality of living within a situation of in-betweenness that is the condition of border cultures. Looking at the architectural forms that result from occupying these zones, acts of survival are undertaken in ways that enact a cross-cultural collage, creating a map of the tensions of economies, culture, value systems and landscape which are most evident at its edges. The city itself becomes one that is built with edges as its primary form, revealing its underlying desires through its encoded processes which manifest this form..

2. ENVIRONMENT

For this exhibition, the project consists of 3 streams of computer graphic projections on intersecting planes of translucent scrim (see figure 3) or on a stack of flat panel displays (depending on space limitations). Different scenario's are played across the displays, under procedural control of a master program. The elements within the scenario's are provided with differing start conditions, and the scenes then play themselves out, dependent upon the behaviors designed into each element. This version is set up in a self-contained mode – participant interaction isn't facilitated. Subsequent versions develop the multi-user interface.

Shown in a projected mode, each display is on a different image plane – one of the cardinal Cartesian planes of XY, YZ and XZ. Upon each plane, a different component of the procedural environment plays out its condition. Plane 1 is "The Land". The landscape is "zoned" by algorithms that reshape the relationships between the natural landscape and its urbanization with overtly patterned interventions. The patterns refer to optically decadent baroque stylizations, engaged by both the underlying 3D geometry of the landscape as well as by the texture map information.

Plane 2 is “The Self”, manifest as various particle systems, comprised of the apparatuses used to navigate and occupy these landscapes. The particles from each of these systems stick in the environment, but not all in typical ways.

Plane 3 is the “The Dwelling”. It is the mediation between the “The Self” and “The Land”. It is constructed by collaged detritus, working to achieve a set of ideal forms of dwelling – but each piece of refuse has its own rules of how it can be used. The resultant forms have a dynamic tension between the actual and the ideal.

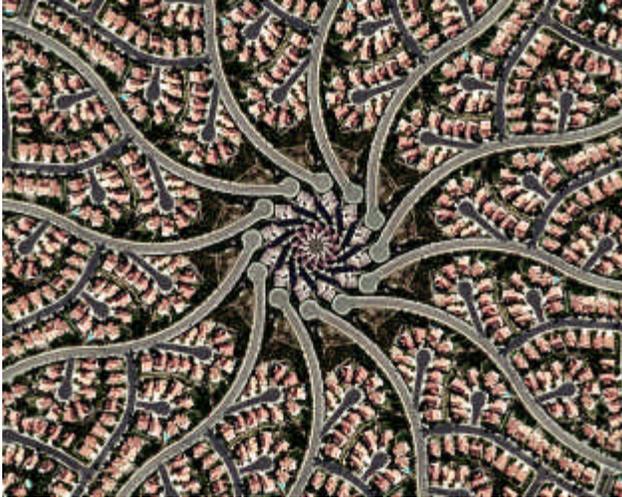


Figure 1. Frame Grab of “The Land”.



Figure 2. Frame Grab of “The Self”.

3. TECHNIQUES

This project is created through the *ersatz* software framework that I have developed over the course of three large scale, multi-user virtual environments including, *Smoke and Mirrors*[2], *Mi Casa es Tu Casa*[3], and *Istoria*[4]. Briefly, *ersatz* is custom software package, written in C, which integrates several middleware libraries, derived from computer gaming and scientific visualization. This includes the Renderware rendering library [5], the Havok Physics engine [6], Quazel MMPOGnetwork environment [7], and Sammy SCORE [8] technology. *Ersatz* is a wrapper that integrates these packages with an interactive scene editing environment which builds the interactive components in each element. The elements in the environment are all created with rule attributes that are procedurally controlled in the interactive environment. The resulting environment is an ongoing composition based upon the

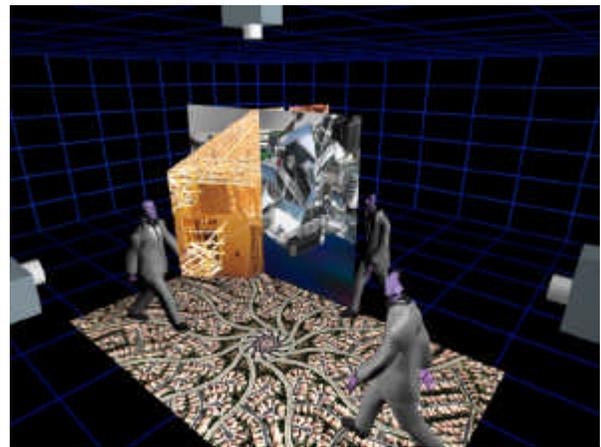


Figure 3. Projection Based Installation View.

interactions of these attributes.

4. REFERENCES

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- [5] <http://www.renderware.com>
- [6] <http://www.havok.com>
- [7] <http://www.quazal.com>
- [8] <http://www.sammystudios.com>