MIMESIS, A VISUAL AND MUSICAL INSTRUMENT

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ABSTRACT

In this demonstration we present Mimesis, a virtual environment with interactive stereoscopic real time graphics and interactive sound that works as a visual and musical instrument.
We have developed two display systems, a spatialized sound system and a passive horizontal stereoscopic visual system, that help users create visuals and music. Both systems work together increasing the sense of immersion of the user in the virtual environment and facilitating her navigation and interaction with the elements of the environment.

1. INTRODUCTION

One of the challenges in designing a virtual environment that acts as a visual and sound instrument is the development of an interactive model that articulates the communication between the user and the environment. Such model requires a visual and sound language that can be easily understood, a rich graphic and sound user interface, and a display technology that facilitates the interaction and the immersion of the user in the virtual worlds.

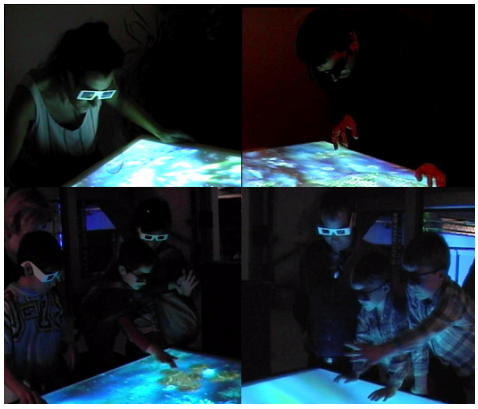

Figure 1. Mimesis, pictures of the installation.

In Mimesis, we have developed a language inspired in mimetism, an interesting coevolutionary phenomenon of nature known in every culture, as the basic language to articulate the narrative of the environment and the user's interaction. The graphic and sound interface allows users to manipulate the inhabitants of the environments to produce visuals and music selecting and moving them, reconfiguring their components, as well as mixing them. Finally, we have developed two display systems, a spatialized sound system and a passive horizontal stereoscopic visual system, which facilitate interaction and increase immersion.

2. MIMESIS, THE ENVIRONMENT

Mimesis is initially inhabited by microstructures with familiar bonds. Each microstructure is associated to a matrix with a set of characteristics that define its dynamics, as well as its appearance. Users can organize the microstructures establishing mimetic relationships to create macrostructures. The macrostructures will have their own behaviors, visual and sonorous characteristics, based on the combination of the microstructures that form them.

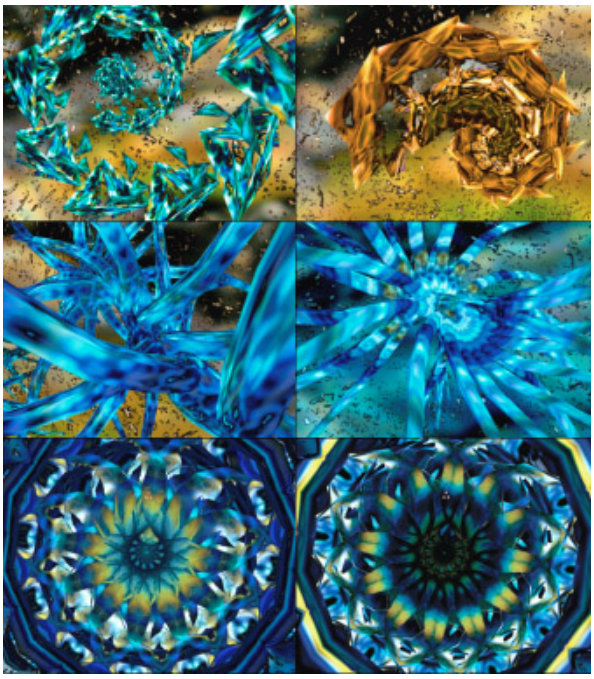

Figure 2. Macrostructures created in Mimesis.

3. MIMESIS, THE SOUND SYSTEM

The compositional layout is a result of the exploration of the semantics of simple sound processes as a means of representing the virtual environment's inner structure and properties. The core of the sound system is based on an audio information retrieval engine attached to a database interface that can take both local audio recordings and real-time remote sources (on-line users or other audio streams). The selected and organized sounds, by means of queries to the database, are the elements that, through

content dependent processing, build up the sonorous structures. Manipulation of the graphic interface provides control over the sound spatialized across 10 speakers, resembling a set of fluid sound sculptures.

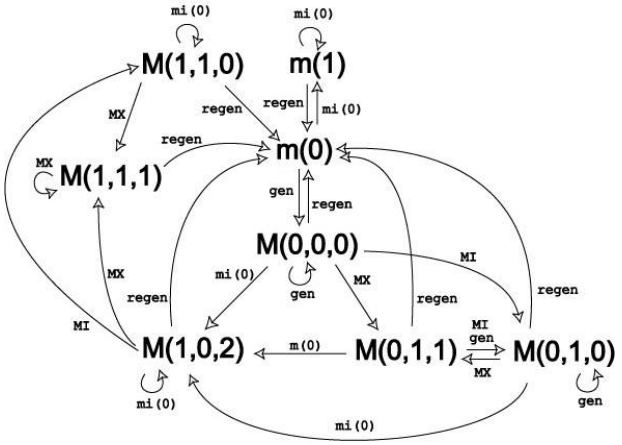

Figure 3. Sound design: kinematic graph for a single structure.

Acknowledgements

IUA (UPF, Spain), School of Fine Arts (UPV-EHU, Spain), Phonos Foundation, MTG (Music Technology Group). Contributors: as software consultant Narcís Parés, in programming David Forteza.