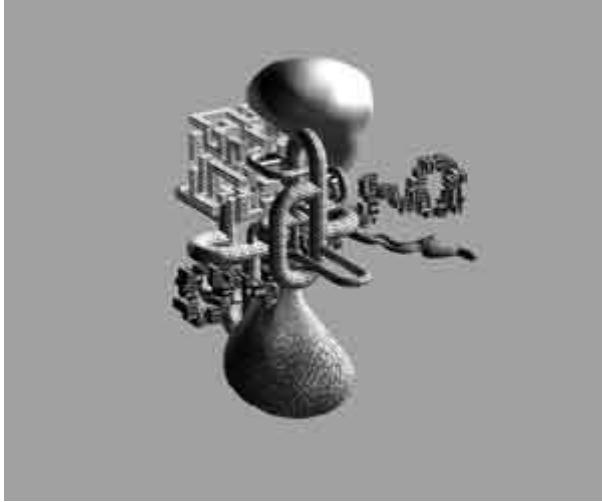


Peter Kogler / Franz Pomassl
CAVE



"CAVE" was commissioned by the Ars Electronica Center, and produced collaboratively by Peter Kogler, Franz Pomassl and the Ars Electronica FutureLab. The project seems to be a logical continuation of Kogler's confrontation with architecture beyond space and style. Liberated from spatial and physical constraints, the CAVE offers ideal preconditions for a free-wheeling mode of dealing with elements of architectural design. As is typical of his work, Kogler employs modules—here as textures for a three-dimensional, computer-generated model. Thus, images that were previously scanned have found their way back into the digital dimension.

The point of departure for the construction of the model was the CAVE, a cube measuring 3x3x3 meters. A system of spaces that can be sensorially experienced was designed in collaboration with Dietmar Offenhuber of the Ars Electronica Futurelab. Proceeding from the basic shape of a cube, what then developed were six paths leading to different virtual configurations of space, each of which is endowed with a specific character by means of a combination of shape and texture.

Its primary elements are the strongly perspectivistic impression of space, the illusion of movement and speed, and various forms of disorientation that can lead to psychedelic experiences. These are further enhanced by special effects such as "crashes," amorphous spaces, inverted graphics, special light simulations, and partially transparent textures that open up dizzying vistas of lower-lying levels. The system ultimately develops into a sort of labyrinth that induces physical reactions on the part of users making their way through it.

Kogler plays upon the human urge to attain orientation, and his work calls into question the means that enable one to determine one's position in space. Observers who rely on their optical and acoustic receptors are made cognizant of the relativity of their capacity to determine their position in the CAVE and, subsequently, at any other place as well.

The individual modules are ants, pipes, brains, and biomorphic forms. The graphic elements exist in relationship to the spatial construction, whereby the model has been custom tailored to the characteristics and effects of each particular module. The ants populate a labyrinth composed of narrow tunnels, the brains consist of an amorphous, winding passageway, and the geometric pipes make up paths composed of cubes linked together side by side... .

Visitors can elect to navigate through the model independently using the "WAND" (the CAVE's 3-D mouse), or they are "sucked" through the model on a preordained path. An additional option is to switch to the exterior of the model where visitors can continue their explorations while seeming to adhere magnetically to its outside surface. This function intensifies the impression of being on a free-floating body with its own gravitational field. However this sensation as well is revealed as an absurdity as soon as the user returns to the model's interior and "ascends" the walls there. A major portion of Ars Electronica Futurelab staffer Gerald Schröcker's programming job involved producing precisely this innovative navigational option.

An additional effect is the ZOOM function implemented by Ars Electronica Futurelab staffer Markus Greunz which makes it possible to observe the model from a fixed, external point of view. Users can thus cause the model—in any given size—to rotate freely in the CAVE, and can select any viewing perspective they wish. This mode illustrates the role of architectural-sculptural dimensions which only begin to emerge during the formation of the model, in addition to the dynamic process of confrontation with it by the viewer.



Sound Concept

Analogous to the structure of the visual 3-D model, Franz Pomassl creates acoustic spaces in the form of "audio rendering pipelines," the objectives of which are to expand the human system of perception and, in doing so, to intensify the plasticity of the application.

The visitor to the auditory 3-D environment determines the interactive sound syntheses by means of his positioning in and on the visual object and the dynamics of his movements.

The activity of the user in moving about in virtual space can, accordingly, be seen as an operation on a dynamic audio mixing console. In individually selectable channels, specific sound characteristics are assigned to the pipeline systems characterized by Kogler's textures.

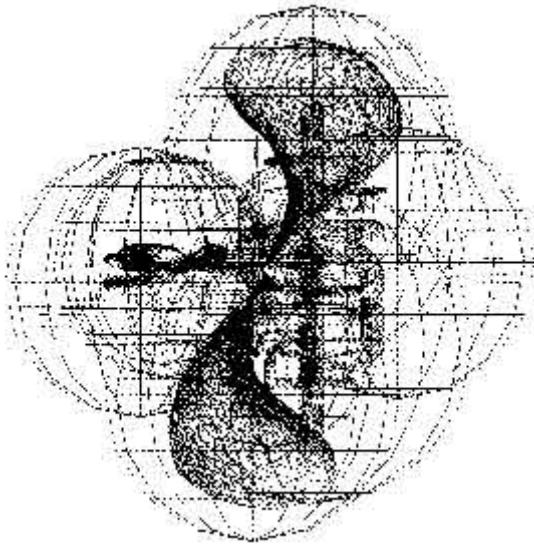
At the junction of the channels, all volumes are maintained in a constant relationship to each other; if the relative position changes, the mix relationship of the volumes shifts in conformity with the distance of the coordinates to the respective sound triggers.

Pomassl's sound architecture is based on potential device-immanent audio information, algorithmic constants and the production process of the sound material itself. In creating them, he surpasses the prescribed auditory parameters of the technical equipment, exploring potential barriers of acoustic reception and uncompromisingly eliminating them.

The effects achieved thereby often come about through the use of frequencies that are inaudible or barely audible to the human ear, but nevertheless are especially aimed at the audiotactile system of the human body with its sensors and membranes on the skin surface.

Thus, the CAVE as well underwent an examination of its unique acoustic characteristics and was specially modified for this sound concept. A Sensourround Sub sound system was integrated into the CAVE equipment in order to enable Pomassl's conception of the project to be implemented.

Text: Pascal Maresch



Project Crew

Markus Decker (Sound and Trigger Programming)

Markus Greunz (Programming)

Jürgen Hagler (3-D Model/Animation)

Horst Hörtnner (Supervisor)

Peter Kogler (Artistic Director)

Pascal Maresch (Coordination)

Dietmar Offenhuber (3-D Model and Technical Conception)

Franz Pomassl (Sound Concept)

Gerald Schröcker (Programming)

Gerfried Stocker (Project Leader)

Klaus Taschler (Video)

Project commissioned by Ars Electronica Center

