



Press information

For immediate release

A Breakthrough in Acoustic Simulation for Buildings and Games

At the IST Event 2006 in Helsinki, November 21-23, 2006 the Uni-Verse project exhibits a breakthrough in acoustic simulation of buildings. This simulation is unique in several ways. Firstly, it can use an architect's usual 3D CAD model as input. Secondly, it is interactive in the sense that you can change the building during the simulation. You can, for example, move a wall or change the materials in a room and more or less directly hear the difference in acoustics.

The Uni-Verse project develops real-time collaborative 3D tools, connected over the net using the Verse protocol. The Uni-Verse tools can speed up content creation in several areas. One example is that architects and customers can collaborate on the design of a building, over the Internet. The protocol and applications utilizing the protocol are developed in a project, partly funded by the European Commission, coordinated by KTH, the Royal Institute of Technology and the Interactive Institute, Stockholm, Sweden.

In the past, acoustic simulation has been done with a hand-made simplified model of the building where small objects are excluded and complex objects are replaced with more simple objects. In the Uni-Verse project we have developed a reduction algorithm for acoustic simulation which removes objects that don't affect the acoustics and simplifies complex objects automatically. Moreover we have developed an acoustic simulation engine, the Uni-Verse Acoustic Simulator (UVAS), which supports dynamic changing geometry and materials during the simulation. To achieve this unique property an advanced algorithm has been used but several simplifications in the simulation has also been made. The current simulator, for example, disregards from that audio waves can bend at obstacles (diffraction).

Verse, the protocol which Uni-Verse project is based on, replaces time-consuming file transfers and cumbersome file conversion with real-time communication. Instead of storing 3D objects as files, they are stored on a server, which can run locally or at a remote location. Applications connected to the server will automatically get up to date copies of the 3D data. All changes are transferred immediately. This means that all applications can work together with the most recent 3D data. The Uni-Verse tools can be utilized in many areas like content creation for animated movies, games, Virtual Reality etc. Below we present a scenario from an architect's office:

During a construction project where one architect designs the geometry and another architect selects colours and materials, both architects can now work at the same time, on the same model, perhaps with different tools connected through the Verse protocol. Thus they can more easily collaborate on the project, avoid file exchanges and conversions, and use the most appropriate Verse-enabled tool for each task and still combine them into a production pipeline. Also by using the Uni-Verse acoustic simulation module acoustic design will change. Today this is usually done separately by an acoustic consultant working with a specific acoustic model of the building. With Uni-Verse the architect and the acoustic expert can work together, even remotely, with the same model and they can move a wall or change the material and directly get an idea of the result.

The Verse protocol and most of the tools developed in the project are open source and are downloadable from the web site. The Verse protocol and some of the tools are published under the BSD license, which has few restrictions. Other tools are dual licensed, i.e. both under a GPL license, not compatible with closed-source development, and a commercial license allowing closed-source development.

Partners in the Uni-Verse project: Royal Institute of Technology, Sweden, Interactive Institute, Sweden, Fraunhofer IGD, Germany, Blender Foundation, Netherlands, Helsinki University of Technology, Finland, Minusplus Architects in Hungary and Paregos a Swedish media design company.

For more information

<http://www.uni-verse.org/>

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