

# WORLDVIZ

Santa Barbara, March 2007

## World's Largest Immersive VR System

**Application:** Spatial cognition research

**Equipment used:** WorldViz PPT X8 optical tracker, WorldViz Vizard 3D software toolkit, NVIS nVisor SX head-mounted display, InterSense InertiaCube 2

**Client:** Miami University, Ohio, Psychology & Computer Science Departments

Professor David Waller and his fellow researchers have transformed a 120 feet by 60 feet gymnasium space into the "HIVE" (Huge Immersive Virtual Environment), currently the largest immersive virtual environment in the world. "The size of the system is particularly important for studying spatial cognition, because ways of interacting with and thinking about space differ depending on the scale of the space", explains David Waller. In his research he investigates "how people learn and mentally represent spatial information about their environment".



Wearing the nVisor SX high-resolution (1280 x 1024) head-mounted display by NVIS and carrying a laptop-based dual pipe image generator in a backpack, users can wirelessly walk through extremely large computer generated virtual environments.

The head position of "HIVE" users is tracked by the WorldViz PPT X8 optical tracking system at 60Hz. PPT X8 covers the massive walking area at a level of precision and accuracy that provides both high-quality experiment data, and allows users to experience compelling jitter-free immersion in the nVisor SX head-mounted display. With eight wall-mounted optical sensors, PPT X8 can track up to eight targets simultaneously. "No other system on the market both offered such precise large-area tracking, and fit our economic situation as well as PPT X8" says David Waller.

To design and render their VR worlds, he and his researchers are using the virtual reality rapid development toolkit VIZARD, also made by WorldViz. VIZARD natively supports most common VR peripheral hardware, such as trackers, haptic interfaces and visual displays, among them all hardware used in the "HIVE". VIZARD's easy-to-use scripting interface allows David Waller to concentrate on creating interactive high-performance 3D graphics for the "HIVE" without getting caught up in low-level programming.

