

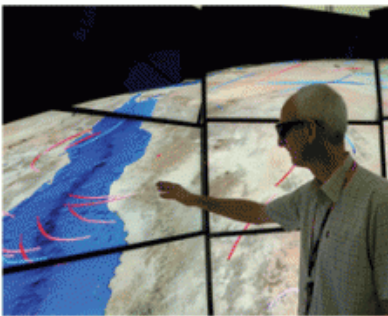
## 3D virtual environment

The California Institute for Telecommunications and Information Technology (Calit2) is using JVC's **GD-463D10** 46" 3D LCD monitors as part of its next immersive visualisation system, NexCAVE. It was prototyped in June at the University of California, San Diego, and the first full-scale version was recently installed at King Abdullah University of Science and Technology (KAUST) in Saudi Arabia.



Calit2 research scientist Tom DeFanti, along with partner Dan Sandin, started designing visualisation systems more than 35 years ago. They conceived of the original CAVE system using projectors to reconstruct a 3D surround environment back in 1991. However, early projector-based VR systems were generally limited by two major factors. Resolution was fair at best, due to limitations in computer processing power and projector technology. Plus, these systems required a very large dedicated space – front projectors were not practical because users could block the images, so rear projectors, which need sufficient throw distance, were needed.

StarCAVE, a five-wall plus floor VR room that supports 3D imagery, was built by Calit2 last year. With 34 JVC DLA-HD2K projectors, the system improved resolution and provided a 360-degree immersive environment. However, it still requires too much room and is not portable. In contrast, the new NexCAVE design uses JVC 3D monitors, which are less than two inches deep. The basic setup includes 10 panels; a 3x3 matrix in a semi-circle ring and an extra monitor below the centre column. In August, UC San Diego installed a 21-panel, 3x7 NexCAVE at KAUST, Saudi Arabia. The system was developed as a result of a special four-year partnership established between UC San Diego and KAUST last year to collaborate on visualisation research.



The LCD panel-based system is a fraction of the cost to construct when compared to projector-based systems, and the JVC monitors provide excellent images. The quality is just gorgeous, DeFanti says. The stereo separations are quite good. It has great blacks and very vibrant colours. Since these HDTVs are very bright, 3D data in motion can be viewed in a very bright environment, even with the lights on in the room. Lights-on is something that just wasn't possible with the StarCAVE.

The GD-463D10 provides flicker-free 3D HD images using its integrated Xpol polarising filter. As a result, it uses inexpensive polarised (passive) glasses, which DeFanti prefers to more expensive, shutter-based 3D systems. We're really pleased, he added. Good tracking and good imagery – it's a knockout.