U.K. Manchester

University of Manchester

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Core Competence

Virtual environment software systems, collaborative virtual environments, augmented reality, real-time rendering, reconstruction of environments from video and images, image-based rendering, unencumbered interaction

Head of the Institute
Roger Hubbold

History

Founded in 1991 to explore systems for, and applications of, virtual reality. Since 1993, has succeeded in attracting over 2.5M euros in direct funding, and over 3M euros of collaborative funding for its research. In 1999, released the MAVERIK software system, adopted as a component of the Free Software Foundation's GNU project. Has a broad range of collaborative projects with other research centres and companies (see web for details).

Staff

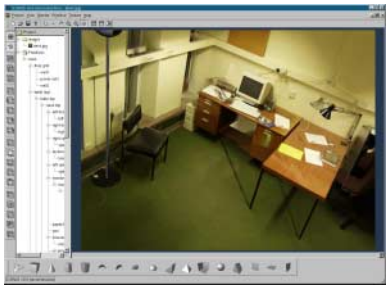
3 Academic staff: Roger Hubbold, Toby Howard, Steve Pettifer.
5 Research associates: Simon Gibson, Jon Cook, Mashhuda Glencross, James Marsh, James Sinnott.
10 PhD students, 8 MSc students

Financing

Infrastructure (academic posts, office space) funded by University. RA positions and equipment funded by grants from UK research council, industrial collaborators, and EC projects.

Current Structure and Important Partners

The group works collaboratively with other VR and visualization groups. Through collaborations and shared grants we have access to a CAVE system at University of Salford, and a Reality Centre in Manchester Visualization Centre. Other partners vary, depending on projects. We have worked with many leading groups in Europe: SICS, FhG-IGD, INRIA/LORIA, Universities of Bristol, Nottingham, Lancaster, University of North Carolina at Chapel Hill.



Rooms and Locations

Occupies 6 offices in the Kilburn Building, plus two dedicated VR laboratories, equipped with SGI Onyx, two HMDs, three projection-based displays, two Polhemus tracking systems, various digital still and video cameras. We have lost count of the PCs we use, mostly with GeForce graphics
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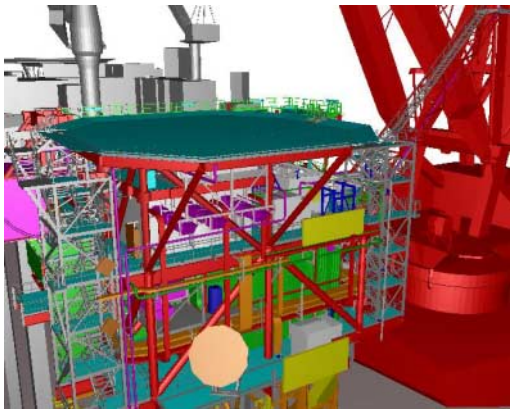
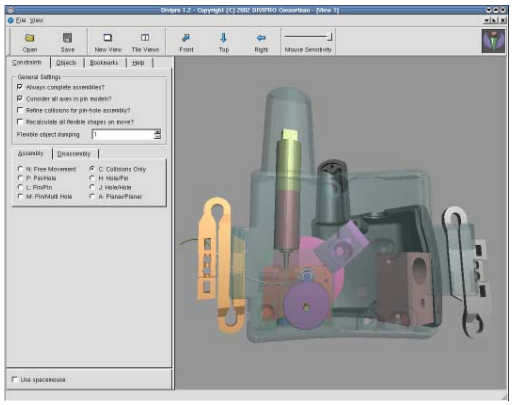
Important Recent Project Participations

See web pages for details:



- “VRLSA” - virtual reality for large-scale industrial applications
- “DEVA” - Software system for distributed virtual environments
- “REVEAL” - Reconstruction of virtual environments with accurate lighting
- “DIVIPRO” - Distributed interactive virtual prototyping
- “ARIS” - Augmented reality image synthesis



Important Recent Industrial Partners

CADCentre Ltd (AVEVA), Brown & Root Ltd (Haliburton), Sharp Labroatories of Europe Ltd, Greater Manchester Police, Labein, Eurocopter, Sener, DLR, Sun Microsystems.

Current Research

Currently there are 3 main areas of work: (1) VR software systems for collaborative virtual environments, sharing and synchronising VEs over wide area networks, experiments with network lag and jitter and techniques to. compensate for them; (2) large model rendering, using geometric and image-based methods; (3) reconstruction of virtual environments from still images and video sequences, including robust camera calibration, model building, texture synthesis and global illumination.

Future of the Lab

We are continuing to focus on distributed virtual reality, and on developing techniques for collaboration between multiple distributed participants. Specifically, we are exploring camera tracking techniques for unencumbered interaction, haptic collaboration, and construction of environments from images. We also have new projects in scientific visualization: climate modelling (OCEANS project), and tools for bioinformatics (gene sequencing -- UTOPIA).