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SoundScapes - Beyond Interaction... in search of the ultimate human-centred interface

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Report on ICAT 2006

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I. INTRODUCTION

The 16th International Conference on Artificial Reality and Telexistence took place from November 29 to December 1, 2006, in Hangzhou, China. The conference was co-sponsored by the Virtual Reality Society in Japan (VRSJ), the VR Committee, and the China Society of Image and Graphics (CSIG-VR). The conference was organized by the Zhejiang University of Technology, China. Over 250 participants and VR experts from different countries – including China, USA, UK, Germany, New Zealand, South Africa, France, etc. came to the ICAT conference for presenting their newest research results. The conference received 523 submissions from 21 countries. 138 papers were accepted for the Conference Proceedings and have been published in the Lecture Notes on Computer Science (LCNS), 11 papers were invited to be published to the special issue of the international Journal of Virtual Reality (IJVR, 5(3)). Finally, additional 142 submissions were accepted to be presented at the conference and were published in the workshop proceedings (92 full papers and 50 short papers). Consequently, more people could attend the conference.

Fig. 1. The lake of Hangzhou is really impressive.

II. CONFERENCE

The Opening Ceremony started with two keynote speeches, presented by Prof. Deren Li, Wuhan University of China. In his talk he presented the possibilities of using Virtual Reality in the construction of timber-frame buildings. Timber-frame buildings are the gems of the Chinese ancient buildings and complicated to be constructed. In his talk, Prof. Li addressed the importance of VR technology in reconstructing these buildings. The second speech was given by Prof. Alyn Rockwood, Vice-President of ACM SIGGRAPH. Prof. Rockwood presented a new modeling tool which allows a fast and rapid prototyping of complex models. He also demonstrated his tool in action – within few mouse-clicks he is able to create complex 3d models and easier handling of smooth surfaces, even not fighting with the control points of B-splines. His new design method, called AB modeling, enables freely designable technologies and floating curves of any parametric form.

The conference had 12 paper sessions (with 10 papers presented in each session):

- Anthropomorphic Intelligent Robotics, Artificial Life,
- Real-Time Computer Simulation,
- Ubiquitous/Wearable Computing,
- Virtual Heritage, Virtual Medicine and Health Science,
- Virtual Reality,
- VR Interaction and Navigation Techniques (I/II),
- Innovative Applications of VR/Tools and Techniques for modeling VR Systems (I/II),
- Motion Tracking, Haptic,
- Augmented Reality / Mixed Reality (I/II).

A lot of the presentations were really interesting and impressive. One interesting presentation was given by Jochen Ehnes, PhD student at the University of Tokyo, supervised by Prof. Michitaka Hirose. In this talk "Projected Reality – Content Delivery Right onto Objects of Daily Life", Jochen presented the possibilities of using a controllable projector-camera-based setup which augments the content directly onto real objects (cf. Fig. 2).
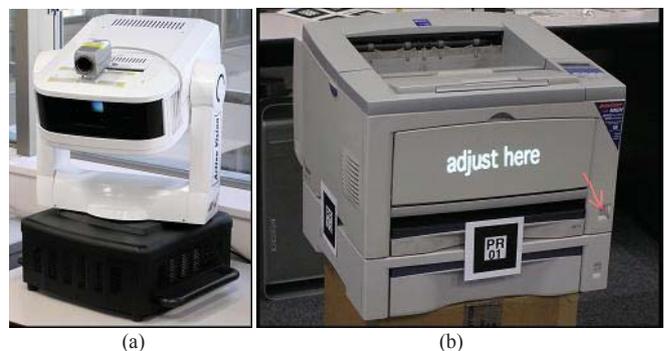

(a) (b)

Fig. 2. The projector can be rotated and moved by the the controllable pan and tilt device Active Vison AV4 (a). Consequently, digital content can directly be projected on real machines (b).

The performance and the results of their approach were convincing and open the way for new challenging applications. Interesting was also the presentation given by Ronald Sidharta from the Hirose-Tanikawa Research Lab, Japan. In his talk "The Development of Multi Depth Pepper's Ghost Display for Mixed Reality System", he presented the possibilities of using a new display material based on Polymer Dispersed Liquid Crystal (PDLC). This material allows switching between an opaque and a transparent mode. Ronald used several layers of PDLC plates, which can be switched on/off individually. Accordingly, the projected content is visible or not visible on the different layers which allow a new way of depth display.
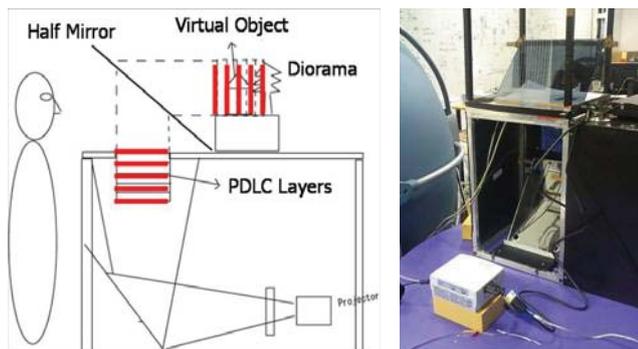

Fig. 3. The setup using the PDLC displays.

Participants had the possibility to test five demos during the conference and to discuss with the programmers and researchers. The second day started with two keynote speeches, given by Prof. Haruo Takemura, Cybermedia Center, Japan. In his talk "Seeking for Better Communication using VR/AR/MR Technology" we was presenting the possibilities of improving conventional meetings by using Mixed Reality (MR) technologies. Although a lot of researchers are now looking for better tabletop environments in combination with MR, it still seems to be a challenging research topic and a lot of problems are still unsolved. The second keynote speech was given by Dr. Tony Brooks, Aalborg University, Denmark. Tony is a great artist and presented a new, but very important, way of using Virtual Reality. In his presentation he demonstrated several VR based application for people with special needs. In his videos, Tony showed how these persons can interact more easily and learn things quickly by using a full body movement.

The conference was flavoured by additional three invited talks. Prof. Martin Reiser from the Fraunhofer Gesellschaft presented the challenges of using new media in the next decade. The second talk was given by Prof. Mark Billinghurst from the HITLabNZ. He was talking about the new research directions and challenges of Augmented Reality. Prof. Billinghurst strongly believes AR has still a lot of potentials, but researchers should also focus more on developing useful AR applications which also requires a lot of usability studies. Finally, Prof. Gordon Clapworthy, University of Bedfordshire, UK was talking about the possibilities and challenges of virtual avatars in a virtual world.

III. SOCIAL EVENTS

The final afternoon of the conference was reserved for a sightseeing tour, visiting the Westlake Museum, which showed the history of Hanghzou. In the later afternoon, the participants had the possibility to see the Song Dynasty Town. The live performance was absolutely impressive and really worth to be seen. The artists demonstrated a spectacular show with all special effects and great artistic skills.

Fig. 4. The sight-seeing events in the museum (including a 3d cinema) and the show in the evening were outstanding

IV. CLOSING

Fig. 5. Committee of ICAT 2006.

Finally, the committee announced that the next ICAT 2007 conference will be held in Esbjerg, Denmark and we do wish that the conference in 2007 will as successful as ICAT 2006. Thank you again, Hanghzou, the beautiful city of China. We hope to see you soon!