

The Engineering Reality of Virtual Reality 2009

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Editors

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Introduction

This year's conference collected a wide range of papers. The day started with several papers addressing the need to track things in VR spaces. Two papers from Japan illustrated the advances in camera based tracking by extracting features. The paper presented by Takafumi Taketomi illustrated an optimization of an algorithm which had been presented at a prior conference and showed tracking and registration in an outside environment. The third paper in that group addressed the problem of tracking a person's head with a stereo pair of monochrome cameras to ease presentation in front of a projector.

Haakon Faste, a PhD student from PERCRO, got the next session off to an interesting start by presenting his approach to structuring one's thinking about compelling virtual experiences and how to organize virtual experience design based on what he categorized as technocultural conditions. We look forward to seeing some of these aspects realized in the coming years. David Stork illustrated some of the computer graphics and VR simulations being undertaken to better understand the use of lighting by painters such as Vermeer and Velazquez in their artwork of the mid 1600's.

Micha Cardenas from UCSD followed and explored the themes of self image and body image. These themes were explored in the context of spending two weeks (365 hours) immersed in Second Life. Using head tracking and a head mounted display, Cardenas engaged with the world of Second Life by intersecting the boundaries between virtual world and real life in a public performance.

Silvia Ruzanka and Ben Chang explored the parallels in public perception during the introduction of the telegraph with that of the internet today. Interesting parallels also emerged in the way in which people interacted with time and space using the medium of the telegraph. Just as Cardenas noted that people in Second Life interact in sometimes more personal ways than they would in the real world, Chang and Ruzanka explored how relationships are affected in the context of the telegraph. A VR piece was created to reflect these explorations.

Isil Demir from Sabanci University reconfigured Spanish painter Joan Miro's concept of four dimensional painting in a project to design an avatar and control certain aspects of the avatar in Second Life using EEG recordings. Another presentation from Singapore demonstrated interaction using tracked hand gestures to control a game interface for "scratching" as a virtual DJ.

Jackie Morie from ICT at USC presented her insights into how veterans of the recent conflicts in Iraq and Afghanistan react to certain spaces and places in Second Life and discussed her work to create a healing space in Second Life for these veterans. A ski lodge atmosphere has been modeled; creating an inviting

common room for veterans. These veterans, who may have served in the same unit but live in different parts of the country, can now connect “in person” and receive services to assist in integration back into mainstream society.

Two papers then explored hydrological modeling along the coast being done at the LITE facility at the University of Louisiana at Lafayette. These data sets are modeled using collected data sets and satellite imaging. A collaborating researcher from the German Aerospace Center showed how these data sets are registered and rendered on the stereo displays.

Also in the environmental area, we learned from Robert Pope about the ways in which aerial photography is used in litigation to create virtual models of the evolution of various environmental impacts. These models are used to gain insights into historical intent and to guide ground survey crews on what to look for and where.

Art, science, and technology again intersected in a presentation of biological data in an artistic experience: ATLAS in Silico is a piece installed at Immersive Visualization Laboratory UC San Diego.

The day concluded with a presentation given by Chris Shaw for Diane Gromala on the uses and experiences of using VR to ameliorate the perception of pain. This was discussed in the context of chronic conditions.

All in all, a varied and interesting day.

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Margaret Dolinsky