Guest Editors’ Introduction

The special section in this issue of Presence comprises extended versions of three of the best papers from the RAVE 2011 meeting. The annual RAVE (Real Actions in Virtual Environments) symposium was launched in 2008, and is dedicated to presence research examining people’s reactions and actions in immersive virtual environments. The key theme is the use of objective physiological or behavioral measures in experimental virtual environments to provide an empirical foundation going beyond subjective measures such as questionnaires.

RAVE 2011 was held on June 14, 2011 in Barcelona. The event was sponsored by the European Union, Future and Emerging Technology project BEAMING (Being in Augmented Multi-Modal Naturally-Net-worked Gatherings, http://beaming-eu.org). Prof. Henry Fuchs of the University of North Carolina-Chapel Hill shared his view of the research field in his keynote presentation, “Toward Improved Telepresence: The New Being-There International Research Centre for Telepresence and Telecollaboration.” For the scientific program, ten oral presentations were accepted based on submitted abstracts. Authors of the best submitted long abstracts were then invited to submit full papers to Presence, undergoing the normal review cycle. Three papers were finally selected for inclusion in this special section.

First, in the review paper “The Sense of Embodiment in Virtual Reality,” by Konstantina Kilteni, Raphaela Groten, and Mel Slater, the elements that contribute to embodiment of virtual bodies are carefully analyzed and decomposed into the sense of self-location, agency, and body ownership. Body representation/ownership is an expanding area in different fields including neuroscience and psychology, and virtual reality is proving to be a critical tool for its study.

The second paper, “Multimodal Data Capture and Analysis of Interaction in Immersive Collaborative Virtual Environments,” by William Steptoe and Anthony Steed, describes a reference architecture for collecting multimodal data in virtual environments. The key target is to consider the synchronous and multimodal nature of interaction.

Finally, in the contribution “Acting Rehearsal in Collaborative Multimodal Mixed Reality Environments,” by William Steptoe, Jean-Marie Normand, Oyewole Oye-koya, Fabrizio Pece, Elias Giannopoulos, Franco Tecchia, Anthony Steed, Tim Weyrich, Jan Kautz, and Mel Slater, both embodiment and system architecture come together to develop a particular application: two actors and one director, all remotely located, come together virtually to rehearse a scene out of Woody Allen’s 1977 movie Annie Hall. The system is described, as well as all the challenges in achieving a sufficient level of presence under these conditions to transmit not only actions but also emotions.

Together, all the papers touch aspects related to the notion of “action at a distance.” They provide a broad basis for scenarios where users digitally transport themselves to a remote location and interact with the local people there. We believe that this research direction will be of great importance in the coming decades, the goal being to provide a new technique of virtual transportation, where a user is physically embodied and interactive with others over a distance of possibly thousands of kilometers.

In keeping with past practice, papers belonging to the special section are indicated in the table of contents by an “S.”

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