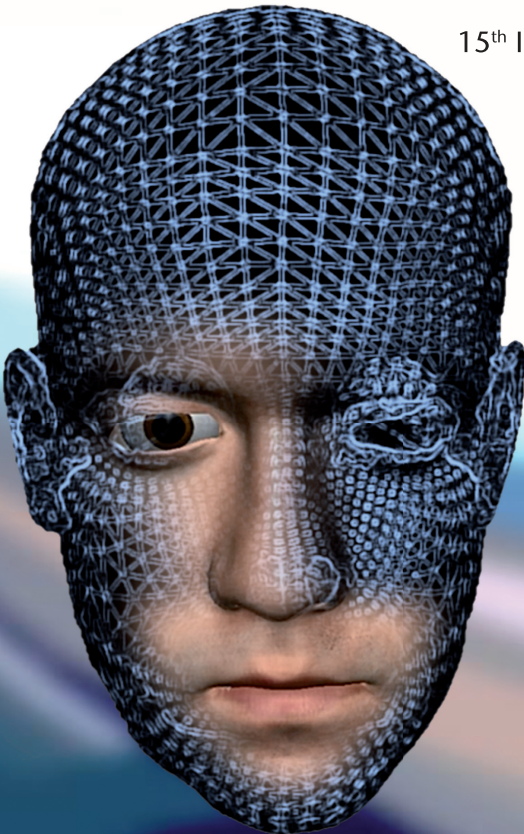


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(Eds.)

Challenging Presence

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Poster Abstracts

Abstract 001

Measuring valence and naturalness of statements made by virtual agents

Magdalena Schuler, Larissa Wolkenstein, Mathias Müller, Andreas Mühlberger & Christian Plewnia

The presented pre-study, that was conducted in the context of a larger project investigating the influence of negative social interactions on executive functions aimed to validate different interactions with virtual agents regarding their emotional valence, and to ensure that statements of the agents are perceived as natural. The virtual environment is an open-plan office with five virtual agents sitting at their desks. Participants are instructed to ask their virtual colleagues different questions during consecutive tasks. In the experimental (negative) condition the agents respond negatively to those questions whereas in the control (neutral) condition the responses are supposed to be neutral. The agents are able to respond to six different tasks. To enhance feelings of (co-)presence of the social interactions with the virtual colleagues the agents' responses shall be designed as natural as possible (vocal/facial expression, slight body movement). In the current study these responses were evaluated. Two demands were defined for the evaluation of the tasks: Firstly, the difference in the perceived valence of the two conditions of the tasks had to be significant and secondly the difference in valence had to be sufficiently high (predefined critical values for neutral and negative valence). Among the tasks that met these demands those three tasks were selected that were perceived as being most naturally. The present study demonstrates how validation-processes can be designed to ensure (a) the intended effect of experimental conditions (neutral/negative), and (b) that virtual scenarios are perceived as natural in terms of a high (co-)presence.

Keywords

Valence; naturalness; evaluation; virtual reality; social interaction; virtual agents

Abstract 002

Enhancing Human Rights Activism Using Copresence Technologies and Approaches

Sam Gregory

The Poster explores applications of presence technologies and approaches for human rights activism, with a particular focus on how copresence tools can be utilized to enhance participation in and the effectiveness of activism. Based in the presenter's experience as a practitioner and academic in this area working at the human rights group WITNESS (www.witness.org) and as a Future for Good Fellow at the Institute for the Future (www.iftf.org), it considers current copresence approaches as well as trends and potential signals of relevant future developments. A particular focus will be on how real-time copresence approaches can better tap into under-utilized 'distributed willingness' in order to build shared understanding, solidarity and em-

pathy between geographically separated individuals, and optimize utilization of globally distributed skills, leverage, capacity and willingness. It considers practical approaches that translate co-present populations' presence, engagement and participation into i) acts of distributed sense-making, analysis and support, ii) exertion of leverage in terms of preventative or persuasive pressure on perpetrators or decision-makers, iii) mobilization of rapid reaction responses and timely action, iv) mobilization of a meaningful and embodied solidarity and v) expert analysis that is not present in a local context. Within the particular context of current debates within human rights activism, it also notes contemporary examples that highlight ethical dilemmas present in human rights uses of co-presence technologies and approaches: including those around privacy, voyeurism, and the dangers of over- emphasis on first-person experience and crisis moments or of false presumption of understanding based on the sense of "being there".

Keywords

Human rights; copresence; ethics; activism; solidarity

Abstract 003

Investigating the impact of image quality on telepresence, attitudes toward brands, and purchase intentions

Cheryl Bracken

In an experiment manipulating the image quality of television ads, 127 participants watched television commercials in either high or low image quality. The participants rated each ad for their attitude toward the ad and purchase intentions. Additionally, sensations of telepresence and transportation were assessed. The participants who viewed the ads in higher image quality reported more positive attitudes towards the brands, and higher levels of telepresence. The implications are discussed.

Keywords

Telepresence; Image Quality; Attitude towards the brand; Purchase Intention

Abstract 004

Context reinstatement of eyewitness memory of recorded events using virtual environments

Joanne Carroll, Grainne Kirwan & John Buckley

Context reinstatement is a process used to improve memory of material and events when recalled in an environment similar or identical to the environment in which they were initially learned or experienced. It can therefore be of use in retrieving information about a crime from eyewitnesses to the event. Actual return to a crime scene can be problematic as the scene could have altered sig-

nificantly since the event, or due to the emotional upset for the victim that return to the scene could cause. This study describes the first in a series of experiments that examine if an immersive virtual reality system can benefit the recall of details of a crime by eyewitnesses of that event. After watching a video of an event, participants are asked to recall the event in one of four conditions. In the experimental condition, participants view the video and are asked to recall the events in an immersive Virtual Environment replicating the room the video was witnessed in. These results are compared to individuals who are asked to recall the events in the same room that the video was played in, or in a neutral interview room, or in an immersive Virtual Environment replicating the neutral interview room. Results are discussed, and implications of the findings for cognitive psychology and eyewitness testimony are considered.

Keywords

Context Reinstatement; Immersive Virtual Environment; Eyewitness Recall; Virtual Reality System; Memory

Abstract 005

Using immersive virtual reality for developing novel lighting applications

Leon van Rijswijk & Antal Haans

Recent public discourse on the negative consequences of public outdoor lighting has increased pressure on lighting manufacturers and local and national governments to think about novel outdoor lighting implementations that can save energy and reduce light pollution. One example of a novel outdoor lighting solution is a LED-based outdoor lighting system that is equipped with sensor technology that can detect street users and provide lighting only where it is needed. One key issue in the development phase of such a novel solution is that we need to understand how such a system affects the users of that system. How much lighting do people need? Where do they need lighting? Finding the answers to these kinds of questions can be very costly if that means that we have to develop and operate a fully functional prototype for experimental purposes.

In our work, we explored the possibilities for using an immersive virtual reality environment for studying user's responses to different lighting implementations. The poster provides an overview of two studies showing (a) that we can successfully replicate the results from a previous lighting preference study performed on an outdoor test site in a virtual environment, (b) that self-reported measures of presence did not affect the extent to which we were able to replicate these effects, and (c) how we used the results obtained from a subsequent preference study in virtual reality to determine optimal lighting scenarios for a test implementation of an intelligent dynamic street lighting system in a residential area in the city of Eindhoven.

Keywords

Method validation; Virtual Reality; Perceived Safety

Abstract 006

Presence of Classroom Technology

Patrick MacDonald

As teachers continue to search for better ways to connect their students with class material, administrators also continue to push for further technology integration into the classroom. With many different technologies available for use within the classroom, it may be difficult for educators to make informed decision on which ones to choose for integration. This poster will take an initial look at common technologies that are used within higher education classrooms and implement a guide for comparing the presence of each of these technologies. The goal of this project is to give educators examples and criteria for gauging presence within a wide range of educational technologies. By exploring the presence available tools and platforms, educators and administrators will have the means through which to make informed decisions about the technologies that they integrate into their classrooms. These criteria are gathered from presence research and research on specific educational technologies. This project does not present an exhaustive list of educational technologies used in the classroom, but will present some of the more widely used technologies available and used by institutions of higher education.

Abstract 007

Clean to the Bone: A Phenomenological Analysis of Grotesque Movement

Tyson Foster

Although Virtual Reality (VR) systems have been available for many years, their popularity has undergone a sudden surge with the availability of affordable, consumer friendly VR solutions. As the popularity of VR hardware increases, the expectation of games designed to leverage the unique ability of VR to create the illusion of being physically present in the game space will continue to grow. This raises questions about characters and how they affect player presence. Do we, the audience, have an increased expectation of the authenticity of movement in fantastic characters when viewed in a VR simulation? If so, do we therefore need to take greater care to ensure the believability of character performance remains plausible? The research project, *Playing with Others*, proposes that in order to best exploit the immersive possibilities of gaming in a VR environment, fantastic characters need to be created with greater anatomical physicality in order to maintain audience immersion in the VR world. Margerko (2007, p. 79) suggests that "believability of behavior is a function of what is expected by the observer". This means if a digital character is presented to the player with a high level of facial articulation whenever the character fails to meet this expectation due to articulation issues (such as arm or torso deformation problems), the character's believability is lost. Studies have been conducted on the response of audiences to facial animation fidelity of digital avatars, with methodological and data analysis tools discussed by J. Matias Kivikangas et al., in their paper *Developing a triangulation system for digital game events*, observational video and psychophysiological data to study emotional responses to a virtual character. A phenomenological analysis of body mechanics will be conducted using Grounded Theory to ensure the qualitative data gained from player observation

is studied without bias during eidetic reduction. This poster presentation will focus on delivering the research in progress analysis of human, animal, and fantastic anatomy in order to generate naturalistic musculoskeletal systems for fantastic creatures in VR simulations. It will also include pre-confirmation research and a discussion of the research methodologies underpinning the practice-led research project.

Keywords

Virtual Reality; Performance; Anatomy; The Fantastic

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- Kivikangas, J., Nacke, L.E., Ravaja, N. (2011). Developing a triangulation system for digital game events, observational video, and psychophysiological data to study emotional responses to a virtual character. *Entertainment Computing*, 2(1), 11-16. Video Games as Research Instruments (Special Issue). doi: 10.1016/j.entcom.2011.03.006.
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Abstract 008

Sounding Professional, Not Robotic: Teaching Students to Incorporate Social Presence Cues in Business Writing

Scott Christen & Stephanie Kelly

Business communication instructors teach their students a number of rules dictating workplace communication: be formal, be concise, be clear, be confident while using appropriate subordination, end with a call to action, etc. What these rules produce in our students are clear guidelines to sound like a very professional robot. The purpose of this ongoing project is to develop an effective classroom activity for teaching students how to write professionally while avoiding creating messages that are boring and may be perceived as automated. Using the Community of Inquiry model of social presence (Garrison, Anderson, & Archer, 2000), students are taught to write professional correspondences; revise those manuscripts using standard business guidelines; and then revise again to add affective, interactive, and cohesive language. Qualitative feedback has been collected from students at the end of each lesson to continually adapt and improve the teaching tool. Students benefit from adding interactive, affective, and cohesive communication in into provided formal messages, color coding each type of communication to be certain that all three types of have been added.

Keywords

Social Presence; Affective; Interactive; Cohesive; Teaching

Reference

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Abstract 009

Evaluation of the usability and utility of virtual environments for treatment of PTSD caused by criminal violence

Georgina Cardenas-Lopez & Julia Pruessner

Background: In Mexico and especially in the City crime rates are extremely high: 21.3% of the population over 18 years has suffered from a crime, 86.3% of the population feels unsafe. However, hardly any psychological treatments for victims are available. This is why new technologies like virtual reality environments (VREs) are tested to develop better treatments available to more patients. **Objective:** The usability (user-friendliness) and utility of two VREs were tested for use in exposure therapy of criminal violence victims with posttraumatic stress disorder (PTSD).

Method: A sample of 45 adults (34 with prior criminal violence experience, 11 without) evaluated the VREs' usability. Stress levels were measured using skin conductance response (SCR) and questionnaires both before and during (resp. after) exposure in order to determine whether the VREs activate fear structures, which is necessary for therapy to be effective. **Results:** Both VREs caused significantly more arousal in participants with prior criminal violence experience than in those without which confirms activation of fear structures. The more criminal events participants had experienced and the less time ago, the more stressed they became during exposure. Usability was in a satisfactory range regarding presence, enjoyment and external awareness, sound quality was very good and almost no simulator sickness was reported.

Conclusions: The present data indicate a promising future for the use of VRE in therapy, as usability and utility seem satisfactory. More exhaustive studies have to be conducted to see whether findings can be replicated in a more representative sample.

Keywords

PTSD; criminal violence; Virtual reality; usability evaluation

Abstract 010

Measuring Presence in a VR treatment for PTSD in urban crime victims

Georgina Cardenas-Lopez, Anabel De la Rosa Gomez, Ximena Duran Baca & Lorena Flores Plata

Exposure to violence is associated with mental health problems such as depression and substance abuse. However, one of most important psychological repercussions associated with victims and

witnesses of violence is Posttraumatic Stress Disorder (PTSD). Based on the efficacy of virtual reality (VR) treatments for PTSD to provide treatment to witnesses and victims of traumatic events in Ciudad Juarez with Mexican population and the need to ensure effective and efficient psychological treatment programs to support this socially relevant problematic in Mexico, a new study just began to offer psychological services to PTSD victims of assault with violence, express kidnapping and kidnapping in Mexico city. This paper will present the correlation between the level of presence and the clinical outcomes from a controlled trial using VR for PTSD treatment for urban crime victims in Mexico City. 36 participants will be randomly assigned to one of three treatment conditions (G1=VR exposure therapy, G2=VR prolonged exposure, and G3=Waiting list control) PTSD symptoms, anxiety, depression, presence and treatment satisfaction will be evaluated. Treatment will be delivered in 12 individual sessions conducted once a week; using four VR models that were previously evaluated and adjusted regarding their usability before their employment in the PTSD exposure therapy. We expect data generated by this controlled trial will support the outcomes obtained from the PTSD study with victims of criminal violence in Cd. Juarez, which showed prolonged exposure technique was effective in reducing symptoms of re-experiencing, avoidance and hyper arousal.

Keywords

PTSD treatment; Presence; VR exposure therapy, urban crime victims
