

Keho



the place for the Presence community

- Keho:** 1. (Finnish) referring to the phenomenology of mind and body.
2. a new e-zine, a virtual place for the Presence community.

www.peachbit.org

Contribute

Keho is the Peach FP6 Coordination Action on Presence e-zine for the wider Presence research community. Issue one will be available to view and download from the Peach website in early 2007.

Keho is currently looking for articles, letters and news items related to Presence. If you have a viewpoint on Presence research, an interesting project you would like to highlight or something else to contribute please contact:

keho@peachbit.org

What is Presence Research?

For humans, a sense of presence is a fundamental phenomenon enabling us to interact with, and feel connected to, the world outside our own physical bodies. The aim of presence research is to understand, describe and recreate this experience of being situated in a particular spatial, emotional or social space.

Recent advances in the field of neuroscience, together with new developments in ICT technologies, such as software infrastructures, multi-modal interfaces and sensors, are now making it increasingly possible to create mixed reality, immersive environments informed by an increased understanding of human presence and interaction theory. It is clear that presence research encompasses a wide range of disciplines including neuroscience, psychology and software engineering. These areas of work will ultimately impact on the design of future technologies, increasing their usability and effectiveness, and starting to define a vision of multisensory multimedia standards.

Presence research will lead to the design of innovative new technologies that are more affordable and usable in the workplace, at home, in school and on the move.

Presence is:

“acting/behaving in the VR world as in the real world”

Presencica Project

“the subjective experience of being in one place or environment even when one is physically situated in another”

Witmer and Singer (1998)

“the illusion of non-mediation”

Lombard and Ditton (1997)



Information Society
Technologies

Peach and Presence

Presence is a new scientific and technological field focusing on understanding and achieving control over the experience of being somewhere. In the context of Presence research the term "somewhere" may refer to a physical, spatial place, here and now, or being in another time, under another identity.

Peach is a FP6 Coordination Action on Presence. Its objective is to stimulate structure and support the Presence research community, with special attention to the challenges associated with the interdisciplinary character of the field, and to produce visions and roadmaps to support the construction of the Presence ERA. Secondly, because Presence research is set to produce disruptive technologies which can cause profound social impact and raise serious ethical issues, Peach will study the relationship between Presence technologies and society, looking at areas such as trends, ethics and legal aspects. Peach is also working to foster contact between researchers and the market, and enhance the public understanding of Presence research and technology.

www.peachbit.org

Presence: towards human machine confluence

First Peach Summer School

The first Peach Summer School will take place in Santorini, Greece, from July 4th to 6th 2007.

Further information is available on the Peach website:

www.peachbit.org

Keho

the place for presence research

Edited by: Centre for Interaction Design, Napier University, Edinburgh, UK

A new online publication is in production as part of the Centre for Interaction Design's involvement with Peach and Presence research. Aimed at the wider presence research community, the new e-zine will be available in 2007 via the Peach project's website. The e-zine is entitled **Keho**, referring to the phenomenology of mind and body in the Finnish language.

Focus on Partners: Napier's Centre for Interaction Design

The research emphasis of the Centre is on new methods of interaction design and new paradigms and modalities of interaction within a wide range of computationally enhanced environments. Current projects include; the Companions project that is focusing on the interaction design of artificial companions, Peach, the coordination action for Presence Research, Speckled Computing that looks forward to the future of ubiquitous computing and wireless sensor networks, Ensemble that looks at computationally enhanced jewellery, and personalisation of automatic teller machines. The centre is also home to research into accessibility and interaction design for the less able, particularly those with cognitive impairments. The design of soundscapes and haptic interaction are also areas of interest. In 2006 the centre hosted a summer school for Convivio, the European Network for Interaction Design.

www.napier.ac.uk

View Keho online at www.peachbit.org.

Peach Partners:

Starlab, Spain

NU, Scotland

ITI-CERTH, Greece

ITIA-CNR, Italy

FhG/FIT, Germany

Telecom Italia, Italy

OII, England

FER, Croatia

TUM, Germany

Presence debated at Enactive/06

The relationships and differences between Enaction and Presence will be explored in November at a special session at the 3rd International Conference on Enactive Interfaces. Members drawn from the Presence community by the Peach Co-ordination Action in Presence Research, will debate fundamental concepts, philosophical roots and practical examples of enactive interfaces and presence with people drawn from the Enactive network. The debate will concern questions around:

Believability in the virtual, non-interactive worlds of literature, film, theatre and other media.

The sense of familiarity or strangeness invoked in response to levels of realism in simulations of the real world.

Feelings of connectedness and influence created by interfaces that provide high levels of presence by interpreting movement and gesture.

The sense of immersion created by realism, consistency and believability in mixed reality environments.

The 3rd International Conference on Enactive Interfaces takes place on November 20th and 21st, in Montpellier, France.

www.enactive2006.org

Edinburgh International Science Festival

April 2-15 2007

Virtual reality will be under discussion in two talks organised by the Edinburgh International Science Festival in Spring 2007. This major annual festival, which includes shows, workshops, exhibitions and talks, is aimed at a very wide audience, including both adults and children.

For more information about the 2007 programme visit www.sciencefestival.co.uk.

Future Places: Augmenting the real with virtual worlds

David Benyon

As computing power continues to increase whole new experiences are opening up for people. New display technologies allow the projection of computer generated images onto surfaces and into spaces in the real world. This is the era of 'mixed realities' when the digital world co-mingles with the real world. Architects can see new building projects in situ, students will play games that combine virtual and real actions and images, distant family members will appear as if they are sitting in your lounge. This mixing of realities raises important issues for the sense of presence. Presence concerns people's abilities to distinguish the real from the unreal and to know where they are located. Mixed realities allow people to see, hear and touch distant objects and to engage with other people at a distance as if they were co-located. Mixed realities make the virtual appear real. Presence is the feeling created when technologies become unnoticeable and people are connected directly with something far away. From the more outrageous scenarios of intimacy at a distance through tele-dildonics, to the incredible reality of computer generated characters such as Gollum in *Lord of the Rings* to the prosaic enjoyment of virtual tourism and the scientific significance of virtual archaeology, mixed reality promises new experiences. It also challenges you to know where you are.

Social Interaction within Virtual Environments

Mel Slater

This talk will review a number of experimental studies involving interaction between humans and virtual humans in the context of immersive virtual environments. In these systems a person enters into a virtual reality and interacts with one or more virtual characters, typically partially controlled by an unseen experimenter. The scientific question is the extent to which people respond to such virtual characters as if they were real, and the conditions under which such a realistic response occurs. The general background to this research is the study of presence within virtual environments, that is the degree to which virtual sensory data successfully replaces real sensory data – so that people respond realistically to virtual objects and events as if they were real. Research in this area involves the attempt to understand scientifically the conditions under which presence tends to occur – both from the technical computational and neuroscience point of view. One important application area of social interaction within virtual environments is psychotherapy, and the talk will encompass examples in social phobia and paranoia.

Future and Emerging Technologies

Four Integrated Projects were submitted under the Presence II initiative, which started in January 2006 and will last for 4 years.

The projects cover all aspects pertinent to the call including building blocks, from high-end immersion to low-cost for massive use; systems for engineering presence into diverse forms of interaction; scenarios in learning, therapy, entertainment, communication, work, urbanism. A wide range of relevant disciplines are involved from brainscience, neuroscience, psychology, anthropology, social science and art, to, of course, computer science and engineering.

All projects incorporate appropriate measures and targeted studies concerning ethical issues and social implications. Nevertheless the projects are highly complementary: PRESENCIA being the most fundamental, IPCity using a strong participative methodological framework, PASION being strongly service oriented and IMMERSANCE being more technology driven. They represent a cost of 33MEuro of which 23MEuro are covered by the EU.

<http://cordis.europa.eu/ist/fet/home.html>



PRESENCIA

Presence Research Encompassing Sensory Enhancement, Neuroscience, Cerebral-Computer Interfaces and Applications.

This research project, co-ordinated by the Universitat Politècnica de Catalunya, in Barcelona, has as its major goal the delivery of presence in wide area distributed mixed reality environments.

PRESENCIA undertakes a comprehensive study of the presence response, i.e., the human response to fake stimuli as if they were real. This involves cellular, neuronal, physiological, psychophysical, cognitive, emotional and behavioral aspects, all of which are studied within a unifying framework, called correlational presence.

The environment will include a physical installation that people can visit both physically and virtually, and which will be the embodiment of an artificial intelligent entity that understands and learns from its interaction with people. People who inhabit the installation will at any one time be physically there, virtually there but remote, or entirely virtual beings with their own goals and capabilities for interacting with one another and with embodiments of real people.

The core methodology will be to achieve this through the identification, understanding and exploitation of cerebral mechanisms for presence in conjunction with advances in the underlying technology for mixed reality display and interaction, with special attention to the interaction between people, and also between people and virtual people. Such cerebral mechanisms will be the basis for a core aspect of the IP which is the exploitation of brain-computer interfaces.

Processes within the environments adapt and correlate with the behaviour and state of people, and in addition people are able to effect changes within the environment through thought as well as through motor actions.

www.presencia.org



IPCity

Integrated Project on Interaction and Presence in Urban Environments

IPCITY takes urban life as the setting to study presence from a participative and social angle, viewed as an experience that is extended in time and distributed in space.

Technologically, this translates into developing portable environments for on-site configuration, mobile and light-weight mixed reality interfaces with the ambition to weave them into “the fabric of everyday life”. Methodologically, this calls for moving “out of the lab” with field trials in

real settings, applying a triangulation of disciplines and methods for evaluation. These range from interpretative-ethnographic to quasi-experimental approaches and include cognitive science, social-psychological, and cultural-anthropological disciplines.

The vision of the IPCity project is to provide citizens, visitors, as well as professionals involved in city development or the organisation of events with a set of technologies that enable them to collaboratively envision,

debate emerging developments, experience past and future views or happenings of their local urban environment, discovering new aspects of their city.

The showcases include urban renewal projects, large scale events, and explorative edutainment and story telling applications.

www.ipcity.eu



IMMERSENCE

Immersive Multi-Model Interactive Presence

The overall objective of IMMERSENCE is to enable people to freely act and interact in highly realistic virtual environments with their eyes, ears and hands. The key word is multi-modal: Human senses shall be integrated into a single experience allowing comprehensive immersion. In order to achieve this new level of immersion, the main focus is on the investigation of the tactile dimension in order to catch up with the remarkable progress made in the fields of visual and auditive devices.

Most of today's systems receive the user merely as a passive observer. Whenever interaction with the virtual world is inevitable, like in the case of computer games, human action is restricted by basic devices compromising significantly the feeling of “being there”. Immersence is to fundamentally change this very restrictive situation. Users of Virtual Environments (VE) shall be able to manipulate items of various shapes, sizes and textures as well as to interact with other users including physical contact and joint operations on virtual objects.

This work is framed by research in the underlying psycho-physical and neurological mechanisms.

www.immersence.info



Presence Research is:

Designing and creating innovative systems that recreate the different experiences of presence and interaction in mixed reality environments.

Understanding, measuring and describing inherent characteristics of presence: perception, cognition, interaction, emotion and affect.

Investigating the social and ethical aspects, and long-term consequences of using presence technologies.

PASION

Psychologically Augmented Social Interaction Over Networks

PASION, co-ordinated by Telecom Italia Learning Services in Rome, has as its working hypothesis that communication messages in mediated environments will take completely new forms, specifically for group interactions. As current communication technologies are ineffective in conveying the social, non-verbal and contextual information required for effective communication, PASION will deliver an innovative shared virtual environment where a pioneering mediated social communication will take place.

www.telecomitalia.com

www.peachbit.org