

PRESENCE 2008 PANEL PROPOSAL

A Grand Challenge for Presence

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Abstract

How do we create the experience we call reality? How does it affect and is affected by the way we relate to others? How are rapidly evolving interaction technologies changing it? Presence is a field studying the science, technology and social impact of digitally mediated interaction. It consists of research strands studying both how to produce "real"-feeling experiences (Physical Presence) and the impact of new interaction technologies on social dynamics and social networks (Social Presence).

Both strands are concerned with how our living experience, as individuals or groups, is affected by ever more powerful digitally mediated interaction technologies.

Presence is intensely interdisciplinary: it is a scientific and technological multi-disciplinary field requiring joint work in Human and Social Cognition, Human-Machine interaction and Machine Cognition. Although many interesting research lines in Presence are presently being pursued, it is apparent that it would be beneficial for the field today to focus community efforts on a Grand Challenge in core science and technology of Presence in either or both of the strands.

In Social Presence, the goal of the field is to develop science and technology to achieve successful digitally mediated interaction at the individual or group level, and open up a wide range of powerful applications and study their social impact.

This panel will discuss and propose ideas for a Grand Challenge project in Social Presence with a 5 to 10 year horizon, to reach a consensus on the key objectives and questions addressed by Presence.

1. Introduction

PEACH (Presence Research in Action) is a coordination action on Presence. The project's main objective is to stimulate structure and support the Presence research community, with special attention to the challenges associated to the interdisciplinary character of the field, and to produce visions and roadmaps to support the construction of the Presence ERA. One early but important conclusion in PEACH is that there is a clear need for unification of efforts in this multidisciplinary field around a challenging and visionary project centered on one of the main goals of Presence Science and Technology (the core of Presence). Such a project could bring together several communities working today in the field, and should have a time scale of around 5 to 10 years.

PEACH is therefore conducting during its third year a pro-active consultation within the Presence research community with the goal of establishing a consensus on **the key objectives and questions addressed by Presence**. The possibility of setting boundary conditions within the large spectrum of applications and theories related to Presence is sought. A possible method to approach this task is the

definition of a Grand Challenge for Presence. Such a project would create a focus for the work and perhaps an objective and measurable target for the Presence community. The setting of this target would facilitate the creation of the boundary conditions. In Presence 2007 we focused on Physical Presence Grand Challenges (see <http://peachbit.org>). During Presence 2008, we intend to focus on the other main strand in Presence, Social Presence.

The starting point for the discussion is a set of requirements for such a Grand Challenge for Presence.

Goal GCP 2008: to develop science and technology to achieve successful digitally mediated interaction at the individual or group level, open up a wide range of powerful applications and study their social impact.

Requirements for a Grand Challenge Project in Presence

Basic requirements

- Such a project should be at core of Social Presence: to develop science and technology to achieve successful digitally mediated interaction at the individual or group level, open up a wide range of powerful applications and study their social impact.
- Should be ambitious, hard, medium to long term (~10 year horizon with 3 yr milestones say)
- Should engage the needed communities in Human Cognition, HMI and Machine Cognition around a focal problem
- Should lead to major advancement in Presence Theory, Experiment and Technology

Science requirements

- Should lead to major advancement in the socio-cognitive foundations in Presence
- Should deliver globally accepted standards for benchmarking of Social Presence
- Should provide clear guidelines for technology development
- Should have the potential to lead to a scientific paradigm for research in this area (we mean "paradigm" in the technical sense of Thomas Kuhn).

Technology requirements

- Should deliver unobtrusive technologies for researchers everywhere
- Should deliver new tools to analyze social interaction in mediated environments
- Should deliver tangible technologies and applications

Impact requirements

- Should deliver at least one immediate powerful, important application

2. Rationale

There exist today several working definitions of presence, including these and other variants:

Qualia view: targets the subjective experience of *being there (alone or with others)* and how to achieve and modify that experience in virtual or augmented environments.

Cognitive view: studies how the human brain constructs the model of reality and self through replacement/augmentation of sensorial data and interaction (VR, AR and beyond). Belongs to a wider class studying how cognitive systems build models of their environment and interact with it.

Technology driven view: addresses the cognitive experience of being somewhere and developing technologies to generate and augment it (being someone or something, somewhere, sometime, without physically being there).

Measurable view: Presence studies the successful replacement/augmentation of sensory data with virtual generated data, with success defined by analyzing the response of the subject in physiological, behavioral, emotional, cognitive and subjective terms in relation to a potentially real situation.

Designing and carrying out a visionary project with a challenging goal in some concrete form within the scope of Social Presence would have the benefit of concentrating the efforts and building a strong community, while opening up a large set of powerful applications.

The panel will cover the topics described in the next section. The first will overview the rationale for a Grand Challenge.

3. Panel Structure

It is envisaged that the panel would last for 2 hours, divided between the 6 talks with time for questions and discussion both within each talk and at the end.

00-15 min A Grand Challenge for Presence (G Ruffini)

15-30 min Networked Presence: augmentation and confluence in mediated social environments (L. Gamberini)

30-45 min Are objects present? Social presence and the Internet of things (A. Gaggioli)

45-60 min Grand Challenges in the Study of Social Presence (R. Schroeder)

60-75 min Present with Companions: from human-computer interaction to relationships with technology (D. Benyon)

74-90 min Presence as a performed and collective experience (G. Jacucci)

90-120 min Discussion

References

[1] Ruffini, G. [Ed.], et al., PEACH: Presence Visions, Roadmaps and the ERA Issue 2 (2008), <http://peachbit.org>.