



# Presence

## for everyone

a short guide to presence research

Edited by: David Benyon, Michael Smyth and Ingi Helgason



# Presence

## for everyone

a short guide to presence research

Edited by:  
David Benyon  
Michael Smyth  
Ingi Helgason



Published by the Centre for Interaction Design  
Edinburgh Napier University, UK  
2009  
[www.peachbit.org](http://www.peachbit.org)

Photo p48 by Antimodular Research

ISBN 978-0-9562169-0-8



# Contents

Acknowledgements . . . . .	5
Introduction . . . . .	7
Background to the Peach Project . . . . .	9
Presence and Reality . . . . .	11
Supporting Networked Presence through Augmented Communication . . . . .	17
Presence and Consciousness . . . . .	21
The Presence of Happiness . . . . .	25
Presence as Cognitive Process. . . . .	29
Virtual Humans: From Researcher's Passion to Mass-market Technology . . . . .	33
Second Skin. . . . .	39
Ethical and Social Issues in Presence Research . . . . .	45
Presence in Urban Art . . . . .	49
Augmented Technologies . . . . .	53
Telecommunications Applications. . . . .	57
As Ever and Never Before . . . . .	63
Social Interaction and Haptics . . . . .	67
Further Reading . . . . .	70





**In virtual partner dancing the recreation of the haptic exchange is a major challenge.**

*Research work carried out by the IMMERSENCE Integrated Project*

# Acknowledgements

This book has been produced as part of the IST FET PEACH Coordination Action (<http://peachbit.org>, FP6 Coordination Action 33909) with the support of scientists from the four FET Presence projects (PRESENCIA, IMMERENCE, IP-CITY and PASION).

Presence is intensely interdisciplinary, requiring collaboration in fields as diverse as human and social cognition, human-machine interaction and machine cognition. It consists of research strands studying how to produce “real”-feeling experiences and the impact of associated technologies on social dynamics. Peach is a three year Coordination Action on Presence, ending May 2009, funded by the European Commission. The project is coordinated by Starlab under the Future Emerging Technologies (FET) Information Society Technology (IST) program nursery of novel and emerging scientific ideas. Our main objective is to stimulate, structure and support the interdisciplinary Presence research community and produce visions and roadmaps for the field.

You can contact the PEACH Coordinator, Dr. Giulio Ruffini, Starlab Barcelona SL, and the PEACH team at [info@peachbit.org](mailto:info@peachbit.org).





The important issues that Presence research addresses impact on everyone.



# Introduction


David Benyon

Edinburgh Napier University, UK

This publication is about research into the area of study known as 'Presence'. A serious challenge for much research activity is to demonstrate its relevance to society and to people outside the researchers' immediate community. In putting together Presence for Everyone we hope to rise to this challenge.

Presence for Everyone is an important part of the outreach and public engagement work undertaken by Edinburgh Napier University within the Peach coordination action. In this book we have brought together a number of researchers from the presence community to share their thoughts on the nature of Presence research. We hope that by dipping in and out of the book readers will come to understand the important issues that Presence research addresses. They impact on everyone.

The contributors to this volume address all these issues with the eloquence and enthusiasm that comes from many years of working with the art and technology of Presence. Of course the contributors have different views. Readers will not find a single simple definition of presence here. That is not the aim of the book. On the contrary with this publication we want to fascinate and draw people in, to inform, to enlarge the community and to reach out; to provide presence for everyone.



**In this document researchers will explain to you their research results, their potential impact on society and what still needs to be researched. I'm sure you will be fascinated and also convinced that they have been working for you.**

*5th, 6th and 7th EU Framework Programmes for RTD:  
[http://cordis.europa.eu/fp7/home\\_en.html](http://cordis.europa.eu/fp7/home_en.html)*

# Background to the Peach Project

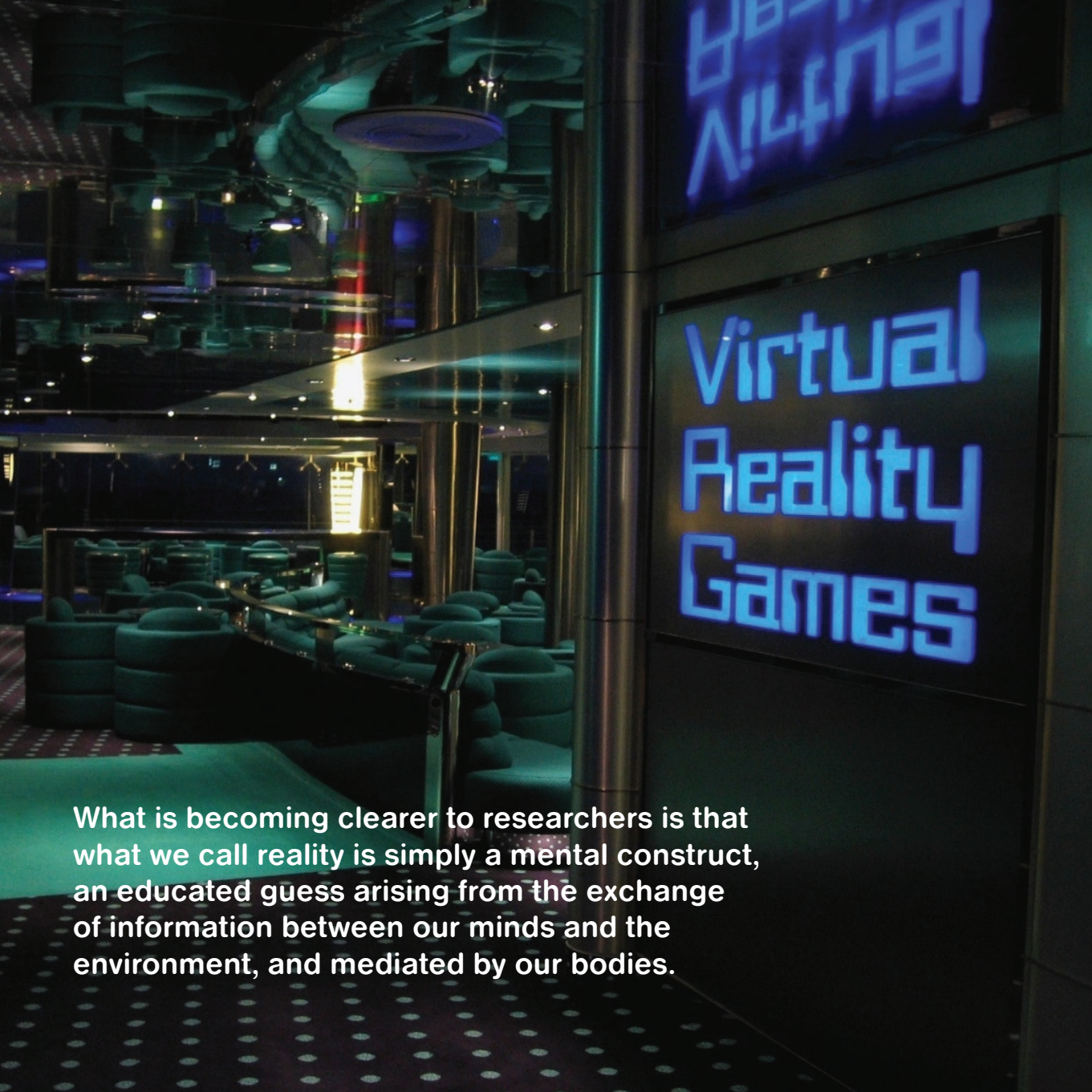
Jean Marie Auger  
European Union, Brussels

I'm very pleased to be given the opportunity, in this introduction section to Presence for Everyone, to underline the role played by the European Union in supporting the research community involved in the fascinating domain of Presence Research.

The EU contribution took place through the Future and Emerging Technologies (FET) programme which is part of the multi annual EU framework programmes for research and technological development. The specific mission of FET is to identify and support the exploration of new visionary research ideas that promise to be of long term relevance and impact on future technologies and society.

This was exactly the characteristics of Presence Research in the late 90s when it was first considered to receive EU funding. The definition of the domain and the research community were at that time only emerging. Over the years some 25 research projects have received approximately 50 million euros of EU funding. This sustained effort significantly contributed to better definition and investigation of the themes central to Presence Research, and also organised the truly multidisciplinary community involved. Many contributions in this document come indeed from researchers involved in EU funded projects.





What is becoming clearer to researchers is that what we call reality is simply a mental construct, an educated guess arising from the exchange of information between our minds and the environment, and mediated by our bodies.

# Presence and Reality

Giulio Ruffini

Starlab, Spain

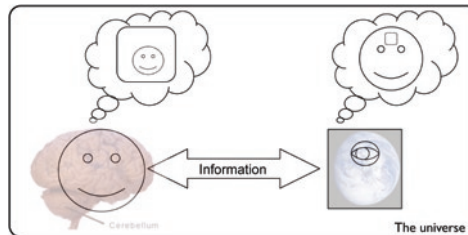
What is Reality? Is there something out there, or are we all figments of your imagination? Science fiction fans may recognize these questions from movies like the Matrix or books such as Permutation City (G. Egan) and Neuromancer (W. Gibson), which have addressed this issue in a brilliant, thought-provoking and very entertaining way. But this question has now transcended both fancy and philosophy and is an active area of research with a potentially tremendous social impact.

What is becoming clearer to researchers is that what we call reality is simply a mental construct, an educated guess arising from the exchange of information between our minds and the environment, and mediated by our bodies. To be sure, science has always been concerned with the phenomenon of reality and the development of means to study it beyond our senses. The microscope, the telescope, radio astronomy, particle accelerators, remote sensing satellites, are examples of artificial means to extend our senses and thus produce an augmented, more thorough picture of what is out there. Moreover, there is a growing trend in physics today to view reality as, well, information. As asked last century by the physicist J. Archibald Wheeler, is “It from bit”?

## Presence is an elusive target because, as at its core, it refers to a qualia, a subjective experience

Or, as stated more recently (Anton Zeilinger), “information is the irreducible kernel from which everything else flows [...] the question why nature appears quantized is simply a consequence of the fact that information itself is quantized by necessity.” There are more and more hints today that information plays a crucial role in our notions of reality, even from the fundamental physical perspective.

However there is another way to study reality-building in the brain. The term Presence refers to an emerging research field seeking to understand the experience of being and developing technologies to generate and augment it (being someone or something, somewhere, sometime, with others and without physically being there). The central idea is that reality is a product of our brains: we construct reality in our heads from our (actively controlled) sensorial inputs. Ergo, if we “hack” the sensorial data stream, we can substantially alter our subjective perception of reality. Using new



## How do we hack a human brain?

input/output technologies (audio, video, tactile displays and actuators, for example), a computer can “immerse” us in a virtual world shared with other real people (avatars) or virtual people (agents).

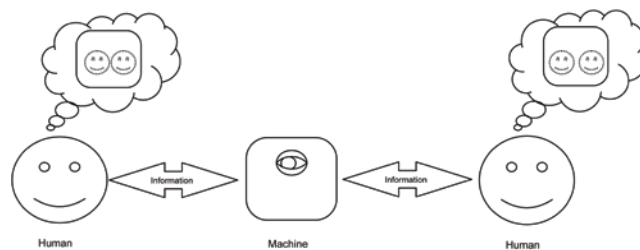
But before we get into the technology, how can we measure such a subjective feeling? Presence is an elusive target because, as at its core, it refers to a qualia, a subjective experience. It is not possible to carry out direct scientific research with qualia. But we can ask experimental subjects about it (“Did it feel real and, if so, how much?”), observe their behaviour, and objectively measure how the body responds to the tricks: are parameters such as heart rate, perspiration, respiration, brain activity (EEG, fMRI) in line with those of a real situation?

How do we hack a human brain in practice? We are still in the early days, and much work needs to be done. Cinema is an old and quite a crude but relatively effective way to fool a brain, and, at least for a while, we may forget we are in a movie theatre and be “there” in the film in some sense. Now more powerful technologies are being developed, such as the CAVE: a space with computer-controlled wall/floor/ceiling displays which, thanks to tracking systems that know where we are and where we are looking, can fool us into seeing and hearing things that are not there—in 3D. Although it is still early days, such display devices can be surprisingly effective (a fact which is partially explained by the active nature of sensing and the Bayesian nature of

## Blurring the line between what is real and what is not will require responsible use and transparency.

perception and cognition). Wearable, comfortable, transparent multimodal “display” technologies with bandwidths matching our own are still to be developed. Moreover, to effectively fool a brain we also have to manage its outputs (actions). In the CAVE example, one can physically move about or move a hand to “touch” something. Sensory-motor correlations (i.e., an agreement between what you do and how the world reacts) are crucial for the phenomenon of Presence to occur, and difficult to establish and maintain.

Clearly, one key aspects of this field is inter-disciplinarity, which requires joint research in human cognition, human-machine interaction and machine intelligence. Machine intelligence is key, as the machine provides the background or even agency as well as acting as the mediator in co-presence (being there with others).





- RAVE: pi+psi*
- 10 Mapping our brains to computers (the singularity)
  - 9 Jacking in (invasive interaction)
  - 8 Non-invasive Brain 2 Machine + Machine 2 Brain interaction
  - 7 Immersion (HMD/CAVE + haptics + ...) (also MR/AR) using natural senses
- 
- FUZZY Raving DIVIDE*
- 6 Disneyworld; 2nd Life;
  - 5 Cinema/IMAX; telepresence
  - 4 Theater
  - 3 Books, mobile phones, chatting
  - 2 Storytelling
  - 1 Imagery

As a technology, Presence is opening the a powerful door to study the human brain, partly because it allows for more controlled inputs and better measured outputs of the brain. It is being studied to study the relation of our brain to our bodies, because the body can be treated as part of the brain's external environment itself. It is also a powerful technology, and as such it can be used in good or bad ways. Blurring the line between what is real and what is not will require responsible use and transparency. Yet, positive impact on society (e.g., reducing travel, enhancing learning and training and design) will be significant, as it can potentially allow us to radically shift viewpoints and learn more about ourselves, about living with others and about the universe that surrounds us.

**Computer-supported social networks, together with increased participation possibilities, bring about some serious weaknesses.**



# Supporting Networked Presence through Augmented Communication

Luciano Gamberini, Anna Spagnoli, Francesco Marino, Concetta Alberti  
Human Technology Lab, Department of General Psychology, University of Padua, Italy

The advances of digital technology are accompanied by the development of new forms of communication and participation in the social system at large. People can exploit a considerable array of technical resources to make new acquaintances, promote themselves and their work, make their opinion publicly available, share their personal diaries, co-author encyclopedias and inhabit virtual worlds. Network Society is the core concept to describe this social landscape, introduced by sociologist Jan van Dijk and elaborated in the monumental writings of Manuel Castells. According to Castells, Network Society is not just about “social networks, because social networks have been very old forms of social organization. It’s about social networks which process and manage information and are using micro-electronic based technologies”.

Computer-supported social networks, together with increased participation possibilities, bring about some serious weaknesses, including making the individuals powerless with respect to the dynamics of the large aggregate they are part of. Therefore, a great challenge consists not only of developing and creating new media that support interactions among remote people, but also of sustaining the sense

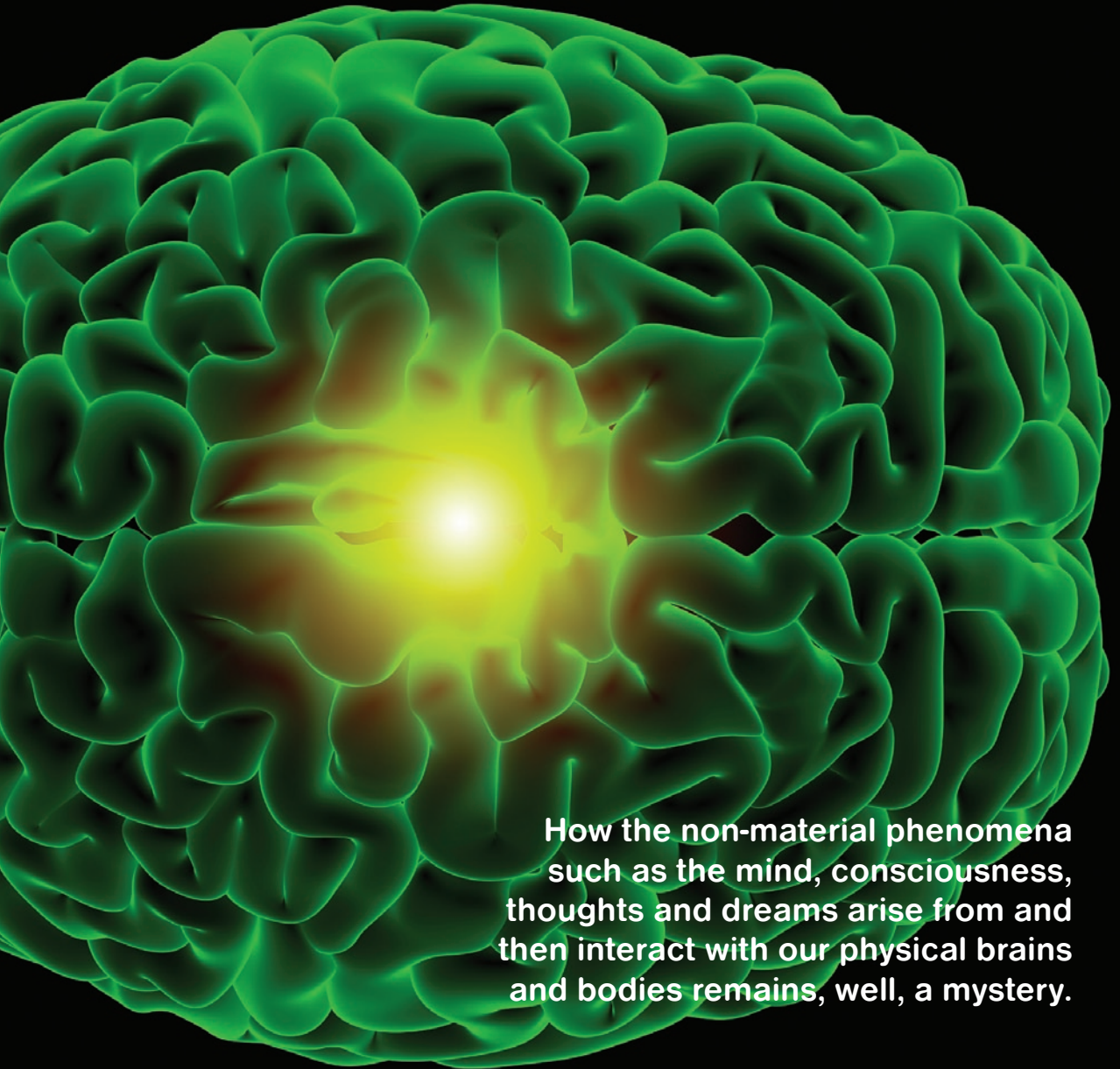
of presence at a level that goes beyond one-to-one interaction and beyond a mere appreciation that there is another actor in the environment. By exploiting the unique possibilities that technology offers, it should be possible to enhance the sense of Networked Presence, i.e. the sense of being part of a larger web of interdependent actors, connected at a pragmatic level, where it is possible to have an impact.

The configuration and dynamics of the emerging social aggregates is worth being studied to shed more light on the nature of (mediated) human exchanges and the actual process of working, cooperating, organizing, playing, making business, advocating with on-line tools. Exploring social networks means to observe and understand the interaction among members, the role technical constraints play on communication patterns, and the emerging topology that describes the structure of these forms of participation and influence.

In parallel, criteria to ameliorate social interaction and improve participation over networks need to be devised. Mediated environments can be endowed with affordances that turn users into consequential actors able to see and affect processes of a large scope (networked presence). Social Network displays and shared activity displays, exemplify an affordable augmentation strategy, where cues are inscribed in

the medium to make selected social network more perceivable and real. This strategy is adopted within the PAsION project, where feedback is displayed to augment the presence in the group. This feedback, based on several indices of users' activities, presented as intuitive graphic visualizations, offers the user a representation of the emergent properties of the network derived from his/her mediated interactions. The project, involving laboratory studies and trials in the field, is a testbed for the abilities of augmentation services to facilitate users' appropriation of the dynamics in which they are involved, in games and at work. It also reflects on the policies that should to be enforced in order to avoid manipulative usage of feedback and augmentation.

**By exploiting the unique possibilities that technology offers, it should be possible to enhance the sense of Networked Presence.**



**How the non-material phenomena  
such as the mind, consciousness,  
thoughts and dreams arise from and  
then interact with our physical brains  
and bodies remains, well, a mystery.**

# Presence and Consciousness

Phil Turner

Edinburgh Napier University, UK

For most people, consciousness is the high point of human intellectual development. It is the basis of our sense of self and of who we are. It distinguishes us from (most) other animals. For the philosopher Descartes, thinking was the only thing of which he could be certain (“I think therefore I am”) and as such it became the bedrock upon which we have built the sciences, the arts and the religions.

Yet consciousness is also one of the greatest remaining everyday mysteries facing every one of us. Just how can a couple of kilogrammes of cool, grey, fairly unappetising matter (I’m describing our brains) give rise to consciousness? For centuries this question has tasked philosophers. For example, Daniel Dennett has argued that there must have been a time when there was no human consciousness. Consciousness therefore, must have evolved and evolved from simpler, unconscious components. How the non-material phenomena such as the mind, consciousness, thoughts and dreams arise from and then interact with our physical brains and bodies remains, well, a mystery.

**So, quite surprisingly, consciousness not only  
relies on higher cognitive functions (“thinking”)  
but our feelings and bodies too.**

However the last 20 years has seen the appearance of presence research, which combines neuro-science, psychology, philosophy and virtual reality technology. While much of this research may end up creating practical applications such as training environments or the next generation of games and home entertainment, it has also opened up radically new ways of exploring this fundamental, human-defining attribute. The technology allows us the extraordinary freedom to be present in different worlds in different bodies, in short, to experience and be conscious of new, synthetic worlds. Our sense of presence not only requires consciousness but as Revonsuo (2006) has observed, consciousness is our reality. A reality which is experienced as a richly detailed three dimensional world, “Pure consciousness is organised in such a way as to bring about being-in-the-world or self-in-the-world experiences”. Thus the senses of being present and being conscious are intimately related and may indeed be synonyms.

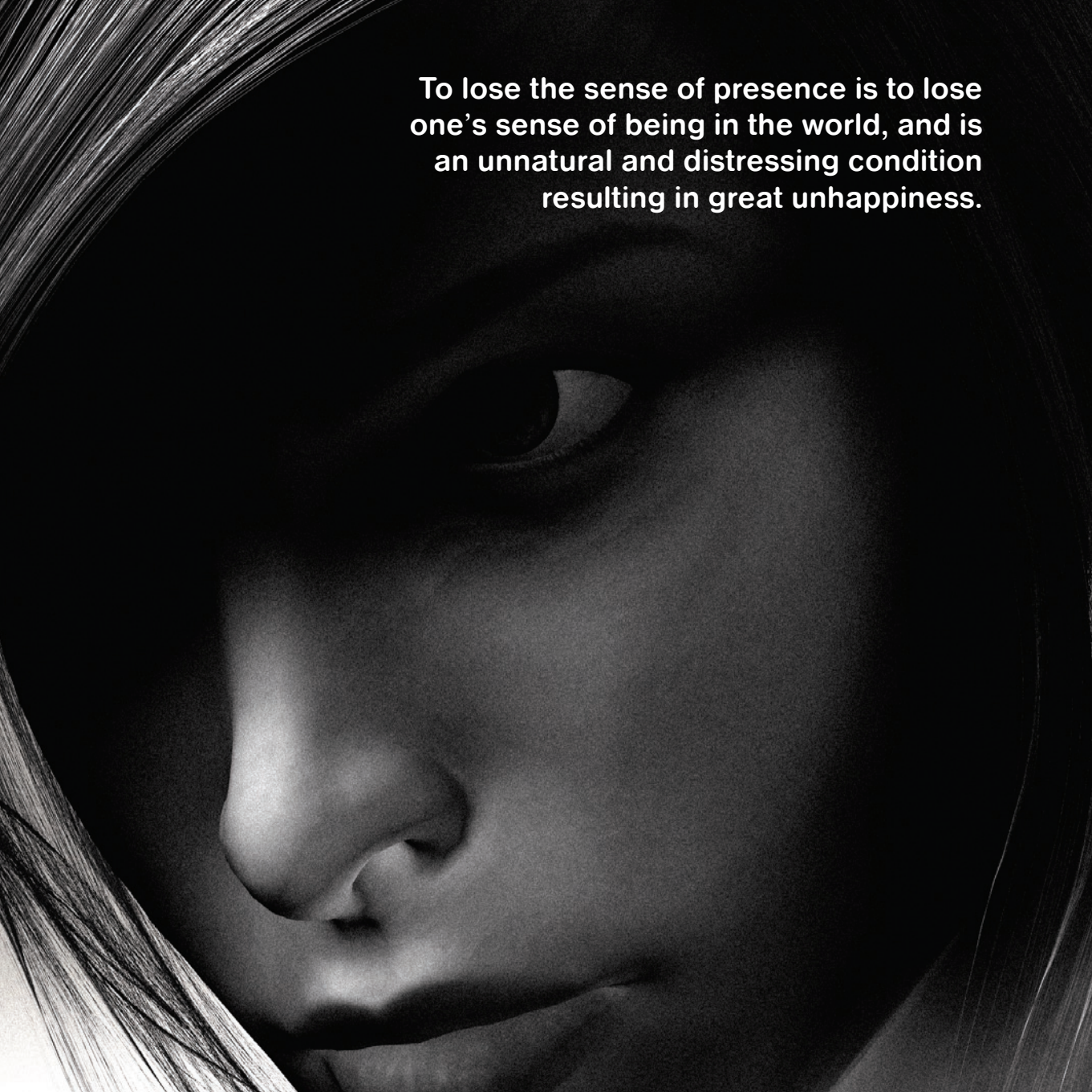
This research allows us to ask fundamental questions about consciousness through our experience of presence in virtual environments. We have found that people report feeling more present if they are emotionally engaged with the virtual world they find themselves in. People have also reported feeling dis-embodied in the virtual world if they are not provided with a complementary set of virtual hands and a virtual body.



So, quite surprisingly, consciousness not only relies on higher cognitive functions (“thinking”) but our feelings and bodies too and, of course, these may be the simpler, unconscious components of which Dennett spoke.

For those of us interested in the nature of consciousness (and that’s all of us), we are now free from the ‘armchair’ of philosophy to grapple with the head-mounted displays and motion trackers of presence technology in the cold light of the computer science lab.

**The technology allows us the extraordinary freedom to be present in different worlds in different bodies, in short, to experience and be conscious of new, synthetic worlds.**



To lose the sense of presence is to lose  
one's sense of being in the world, and is  
an unnatural and distressing condition  
resulting in great unhappiness.

# The Presence of Happiness

John and Eva Waterworth  
Umeå University, Sweden

Do you really feel present in the place where your body is currently located? In other words, do you feel a sense of your own presence in your current physical surroundings? Almost certainly you do, at least to some extent, unless you are asleep; but then again, maybe not all that much. It all depends on where your attention is focused and why. Is your awareness really occupied by what is happening around you, in which case you are indeed mentally present? Or are you more absorbed in your own thoughts, plans or memories, in which case you are more or less absent from what is happening around you?

Suppose you are sitting in a lecture hall listening to a speaker, but the talk is utterly boring. At first you try to attend to the talk, to be mentally present in the room, but your attention wanders towards thinking about the fun you had during a night out the previous meeting. For a while, the lecture hall is little or no part of your experience; you have become absent. But gradually the hardness of the seating and the coldness of the room draws your attention back to the room, and you become somewhat present again. You try again to take in what the speaker is saying, but drift off into thinking

about what to have for dinner and the shopping you are going to do on the way home. Suddenly, a crazed looking person crashes into the room near the speaker, and moves towards the audience wielding a large axe, which appears to be dripping blood. In an instant, and for the first time, you are totally present in the room.

To be happy in life is to feel yourself function effectively according to your own personality, interests and abilities. Our view is that this requires appropriate levels of presence and absence over time, according to changing external and personal circumstances. Maximum happiness is a matter of dynamically achieving optimal levels of presence as events unfold. How present you feel varies widely according to your activities, moods, energy level and age, amongst many other things. It varies from

**To function effectively, our focus of attention must shift appropriately between the outside world and our private world of thoughts, plans, memories and reflections.**

day to day, and even moment to moment, as in the situation described in the previous paragraph. This is entirely normal and necessary. To function effectively, our focus of attention must shift appropriately between the outside world and our private world of thoughts, plans, memories and reflections.

In contrast, we suggest that unhappiness often results from an imbalance in the relative levels of presence and absence. Most frequently, it arises from a tendency to feel too little presence, sometimes in only specific situations, sometimes more generally. The sufferer focuses too exclusively on their idea of what is happening and their own place in it (their internal model of the situation or world), at the expense of experiencing their actual presence in the current external situation. To lose the sense of presence is to lose one's sense of being in the world, and is an unnatural and distressing condition resulting in great unhappiness. On the other hand, too much presence at the wrong time can also be extremely disturbing. Your attention is drawn to the details of the external world, when you should see the bigger picture of the meaning a situation has for you and your life - how things and events fit into a realistic view of a self functioning effectively in the world and feeling good. The key to happiness is being present, or being absent, to the right degree and at the right time.



What is presence for?  
Is it a specific cognitive process?  
What is its role in our daily experience?

# Presence as Cognitive Process

Giuseppe Riva

Istituto Auxologico Italiano, Università Cattolica del Sacro Cuore, Italy

In its more general use in relation to experiences mediated by digital information technology, the term presence has referred to a widely reported sensation experienced during the use of virtual reality. However, as commented by Frank Biocca and agreed by most researchers in the area, “while the design of virtual reality technology has brought the theoretical issue of presence to the fore, few theorists argue that the experience of presence suddenly emerged with the arrival of virtual reality.”

One group of researchers describes the sense of presence as “Media Presence”, a function of our experience of a given medium. The main result of this approach are the definitions of presence such as the “perceptual illusion of non-mediation” produced by means of the disappearance of the medium from the conscious attention of the subject. The main advantage of this approach is its predictive value: the level of presence is reduced by the experience of mediation during the action. The main limitation of this vision is what is not said. What is presence for? Is it a specific cognitive process? What is its role in our daily experience? It is important to note that these questions are unanswered even for the relationship between presence and media.

To address to these questions, a second group of researchers considers presence as “Inner Presence”, a broad psychological phenomenon, not necessarily linked to the experience of a medium, whose goal is the control of the individual and social activity. In this paper we will support this second vision, trying to detail its main claims.

Recent research in neuroscience has tried to understand human action from two different but converging perspectives: the cognitive and the volitional. On one side, cognitive studies analyze how action is planned and controlled in response to environmental conditions. On the other side, volitional studies analyze how action is planned and controlled by subject’s needs, motives and goals. Here we suggest that presence is the missing link between these two approaches. Specifically, we consider presence as a neuropsychological phenomenon, evolved from the interplay of our biological and cultural inheritance, whose goal is the enaction of volition: presence is the prereflexive perception of successfully transforming our intentional chain into action (enaction). Within this vision, we suggest that the ability to feel “present” in a virtual reality system – an artifact - basically does not differ from the ability to feel “present” in our body and the surrounding physical environment in which we are situated.

More in detail, the presence process can be described as a sophisticated but unconscious form of monitoring of action and experience, transparent to the self but



## **One group of researchers describes the sense of presence as “Media Presence”, a function of our experience of a given medium.**

critical for its existence. The main experiential outcome of this process is the sense of agency: we feel that we are both the author and the owner of our own actions. In this view, a higher level of presence is experienced as a better quality of action and experience: the more the subject is able to enact his/her intentional chain in a successful action, the more he/she feels present. We also suggest that it is the feeling of presence that provides to the self key feedback about the status of its activity. The self perceives the variations in the feeling of presence and tunes its activity accordingly.

For this reason, the feeling of presence is not separated by the experience of the subject but is directly related to it: a higher feeling of presence is experienced by the self as a better quality of action and experience. The agent perceives directly only significant variations in the feeling of presence: breakdowns and optimal experiences. Why do we consciously track presence variations? Our hypothesis is that they are a sophisticated evolutionary tool used to control the quality of behaviour. Specifically, the subject tries to overcome any breakdown in its activity and searches for engaging and rewarding activities (optimal experiences). It provides both the motivation and the guiding principle successful action.

**What can be more fascinating than trying to reproduce the image of ourselves - walking, talking, communicating, intelligent human-like beings?**



# Virtual Humans: From Researcher's Passion to Mass-market Technology

Igor Pandzic

University of Zagreb, Croatia

The fundamental driving force of scientific progress is the researchers' fascination and deep passion for their research topic. In few fields is this as obvious as in virtual humans: what can be more fascinating than trying to reproduce the image of ourselves - walking, talking, communicating, intelligent human-like beings. It is therefore no wonder that efforts in this direction have been going on since decades. In particular, in the last two decades or so researchers have been working on Embodied Conversational Agents (ECAs). ECAs are animated virtual humans capable of engaging the human counterpart in a meaningful conversation. If we consider the ultimate ECA as a system that would actually look, behave, and offer the information and service just like the real human being, it is clear that this technology can have wide applications and an enormous economic and societal impact. So, what do we have to show after all this work? To put it briefly, today's virtual humans are:



### **Amazingly good looking**

Progress in computer graphics allows us to create images of virtual humans that are almost indistinguishable from real people. Try to distinguish between real and virtual people in the following images! Most people make some mistakes.

*(Answers on page 37).*



### **A bit wooden and robotic, unless perfectly trained by humans**

We have all seen fantastic animations of human-like figures like Gollum in the Lord of the Rings, Shrek or other movie characters. However, such productions require an army of highly talented artists and huge resources. Interactive, real-time animations are still much less sophisticated.



*Figure shows snapshots from an automatically generated real-time animation.*

### **Hard of hearing**

If we want to talk to the virtual human, we need Automatic Speech Recognition technology. Today's systems can achieve high accuracy in recognizing spoken words, but only in fairly noiseless conditions and after some training for a particular speaker.

### **Speaking with beautiful, expressionless voices**

We use Speech Synthesis technology to give voice to virtual humans. Current technology is based on recording large samples of voice spoken by a person, then using appropriate chunks of recorded voice to put together any desired words. As a result we get really nice voice (after all, it is basically the recorded human voice) but not much control over intonation and expressiveness.

### **Almost blind**

When we talk with real people, they are very sensitive to our facial expressions, gestures and body language. These nonverbal channels are extremely important in our everyday communication. Although there is a lot of research in using computer vision or other techniques to capture gestures and/or expressions, even the most sophisticated virtual humans actually miss the majority of nonverbal signals, and many virtual human systems are completely blind to them.

### **Not really smart just yet**

Tremendous progress has been made in the fields of natural language processing and generation, dialog management and simulation of conversational functions such as turn taking and listener behavior. All this led to systems capable of engaging in a meaningful conversation, and even show skills such as negotiation. Still, these systems are still limited to a very narrow context and we can not speak of general intelligence just yet.

### **Emotionally underdeveloped**


As part of a more general interest in affective computing (computing that relates to, arises from, or deliberately influences emotion or other affective phenomena), in recent years we have witnessed intensive research in making virtual humans capable

## **There is a tremendous amount of work still in front of us on the road to truly interactive and believable virtual humans.**

to simulate emotional behavior and/or detect emotions of people they engage in conversation. Results range from fairly simple displays of emotions through universal facial expressions such as joy, to more complex models that simulate the emotional states as a result of perceived events as well as personal goals and personality.

All things considered, while huge progress has been made, there is a tremendous amount of work still in front of us on the road to truly interactive and believable virtual humans. At the same time, we have reached the stage of development where numerous applications for virtual people are springing up. In parallel with the research work, we are witnessing an increased entrepreneurial activity in this field in the recent years. Beyond movies and games, virtual humans are appearing as tutors, advisors, receptionists, personal avatars or companions in a whole array of application fields including health care, finance, retail, communications, entertainment and others. This is an exciting trend that is likely to continue and intensify as technology improves.

*(p34 answer: images 1 and 5 are real, others are virtual)*



By day my life was your classic poor filmmaker trying to get by by story. By night I was an aspiring Jedi in Star Wars Galaxies.



# Second Skin

Victor Piñeiro, Juan Carlos Piñeiro Escoriaza  
Pure West, USA

The recent feature film *Second Skin* introduces viewers to the real people who populate online virtual worlds in MMORPGs - massively multiplayer online role-playing games - like *World of Warcraft* and *Second Life*.

Couples who have fallen in love without meeting, disabled players whose lives have been given new purpose, those struggling with addiction, Chinese gold farming sweatshop workers, wealthy entrepreneurs and legendary guild leaders - all living within a world that doesn't quite exist.

In this interview, two of the filmmakers, Victor Piñeiro, producer and writer, and Juan Carlos Piñeiro Escoriaza, director and editor, discuss this investigation of the lives of people for whom the virtual world, and its social relationships, is every bit as real as the physical world.



## Overall I think a person's avatar and online identity is central to the game.

### **Why did you decide on MMOs (massively multiplayer online games) as the subject matter for your film?**

**Juan Carlos:** By day my life was your classic poor filmmaker trying to get by story. By night (in late 2005) I was an aspiring Jedi in Star Wars Galaxies. My brother Victor had just gotten the game from a friend of his. Ben, my brother's friend, was really far ahead of us in the grand scheme of things. He was already a major contributor to a city, and deeply entrenched in a guild which was like a second family. The more we played, the more his double life fascinated us. By day he was a teacher who was about to get married, and by night he was an important guild officer with serious responsibilities. I was sitting there thinking about it, virtual economies, the implications of it on the future, and it was like two nodes converging. I love filmmaking. I love video games. What if we made a documentary about MMORPGs?

### **Which do you think is more important for the people in your film, the game or the social aspect of the whole experience?**

**Juan Carlos:** I think a quote from Matt Firor, game developer for Dark Age of Camelot, says it best, "People play MMOs for other people playing MMOs." These games at their core are very entertaining social networks. Most times, especially at higher levels, you need a group to complete an objective. The game is conducive to

it, and most people I've met who play MMOs say that some of their best friends are online. Probably half of those even claim their guild in game is much like a second family.

**One thing that was evident from the film was how much of their lives people devoted to gaming. How important were the avatars to the gamers and was the creation and representation of their identities central to the game?**

**Victor:** Overall I think a person's avatar and online identity is central to the game, though it manifests itself differently with different types of players. On the one hand you have power gamers, who want to have the most powerful avatar on the server. Though they might argue that they don't care about who they play online, they spend all of their time finding the weapons and armour to make their avatar mighty. Strip their avatar of their loot and I guarantee they'd be seething. On the other hand you have the social gamers, who often use their avatar as a conversation piece, or as an extension of their own personality. One of our interviewees, a Second Lifer, broke it down into three categories. Either your avatar is an almost perfect reflection of you, an exaggerated version of you, or a complete departure from who you are. Because almost all of these games are played in third person POV, you are always looking at your avatar - it really does become your identity, whether you're conscious of it or not.

**The people in your film were clearly engaged by the games they played, what do you think was more important, the level of representation of the game world or the fact that there were other people in the world.**

**Victor:** Of the seven main characters in the movie, I would say that six of them cared more about the fact that there were other people in the world. I know our couple was very social in-world, and spent a great deal of their time catching up with friends while they were in a raid, or playing an instance. Our Ft. Wayne gamers stayed in the game because of their huge network of friends, many who lived far away and who they primarily met within the game. I think the addict in our movie also cared more about the real-life population in-world, but for him it represented a challenge to be the best player among real people - it made his goal to be the best all the more satisfying. However, all seven of the gamers prefer a specific game (World of Warcraft or Everquest 2) and are loyal to it because of its game world's level of representation (among other things).

**In the future will many more of our relationships be like the ones in the film?**

**Victor:** I think that inevitably most of our relationships will eventually be like those in the film. I met my wife online (not in an MMO) and more than half of my friends have also met their significant others online. While most met on dating sites or social

networks, MMOs have the added appeal that you are sharing experiences with other people, rather than just reflecting on experiences (as you would on phone or email). I think MMOs will continue to bring more and more people together, both in a romantic and platonic sense. I've seen it over and over as we created this movie.

*[www.secondskinfilm.com](http://www.secondskinfilm.com)*

**Either your avatar is an almost perfect reflection of you, an exaggerated version of you, or a complete departure from who you are.**



MORAL AND RELIGIOUS SENTIMENTS.

PERFECTING GROUP.

INTUITIVE,  
REASONING, REFLECTIVE,  
FACULTIES.

LITERARY  
OBSERVING KNOWING  
FACULTIES.

Presence technologies raise the question of manipulating people's thoughts.

# Ethical and Social Issues in Presence Research

Ralph Schroeder

Oxford Internet Institute, UK

The social implications of presence technologies are so many and varied that they are almost un-overviewable. They include ethical and legal issues as well as questions about the social impacts of the technology – all of which are, of course, interrelated. Hence it is useful to focus on a few:

One area where ethics have come to the foreground is that new social sciences have become possible in experiments with presence technologies. This is because these technologies are a goldmine for social science researchers: they allow, for example, manipulating people's appearance as avatars, and so it becomes possible to study how people interact in experimental conditions that are unlike in real or face-to-face situations (for an example of a lab that does this, see the Virtual Human Interaction Lab <http://vhil.stanford.edu/>). For example, why not see how people act when their avatar has a different appearance – say, when they are taller or have a different skin colour from their real selves? Or what about seeing how they interact with others when the appearance of those avatars is changed? Normally, these experiments would not raise ethical questions. However, there are extreme situations when the boundaries

of what is ethically admissible are being tested: One example might be carrying out experiments in which people (or avatars) in virtual environments inflict violence on each other: even if the aim in this case may be a useful one, how far should such experiments go? Should we hold up similar standards similar to those in real-life experiments, or should there be some leeway in virtual environments to explore situations that go beyond real-life situations - since virtual worlds arguably involve only the artificial setting of 'pretend' interaction?

Presence technologies also raise the question of manipulating people's thoughts. For example, the direct coupling between the brain and the environment, as in brain-computer interfaces which allow people to control objects by thinking certain thoughts, hold great promise for those with disabilities who may be able to control the environment (see for example the technology of <http://www.gtec.at/content.htm>, which has shown great promise). However, such technologies also potentially allow researchers to read and manipulate people's thoughts, as when they might design the interaction so as to evoke a certain response. This takes the manipulation of people's behaviour into new territory: if the brain is directly coupled to the environment via 'reading' people's thoughts, then those thoughts controlling the environment also become manipulable. Brain interface presence technologies can thus be used for good, but also potentially for evil - if thoughts are controlled in ways that people may not wish.



## **Will people begin to lose the ability to distinguish between the virtual and the real world?**

A final new area for ethics and social issues are virtual worlds such as Second Life (<http://secondlife.com>). These have become very popular, with millions of people now regularly spending several hours per day in these environments. In these worlds they interact with others in landscapes and cities that have often largely been built by the inhabitants themselves. This inevitably raises the question: as people spend more time in online virtual worlds, will they begin to lose the ability to distinguish between the virtual and the real world? And with what consequences? This question has in the past often been raised in relation to videogames and violence. Yet virtual worlds do not typically involve violence, but rather establishing relationships with others. However, relationships in online worlds can be seen as escapist, as fleeing from real relationships, or as less authentic than real ones inasmuch as people will not necessarily know the 'real' nature of the person they are interacting with – as in the case of deception. It can be argued that this issue is overblown, since we often interact with other people via media, and the possibility of deception exists outside of virtual worlds too. However, as long as relationships between avatars in virtual worlds are still novel and unfamiliar to many people, these ethical and social questions are unlikely to go away.

The spectators' bodies activate the installation, but the installation responds by activating their sense of embodiment.



# Presence in Urban Art

Kriss Ravetto-Biagioli

University of Edinburgh, UK

Rafael Lozano-Hemmer's large-scale installations challenge us to think about how surveillance and advertising technologies have transformed a sense of embodiment in public space. He treats embodiment as an effect of a series of relations between the spectator and his or her own image, and between the spectator and the work of art. Describable as a form of "shadow play," his installations make spectators aware of their presence and role in the work and of the fact that they are being watched, but do so in a way that confuses the voyeuristic erotic relationship between artwork and audience. The spectators' bodies activate the installation, but the installation responds by activating their sense of embodiment, thus demonstrating how new media figurations anticipate and control bodily responses.

In *Under Scan* Lozano-Hemmer uses computerized surveillance technologies to detect the movement of passersby in the urban centres of cities. By shining intense light down onto town squares and thoroughfares, a tracking system can detect and follow the shadows of the passersby and then project a video portrait within the contours of those shadows. At first, the personae projected in the shadows seem to be sleeping, but once the passersby interact with them (by turning toward the video portraits,

or stepping on them) they appear to wake up and address the spectators. Those looking at the video portrait see the moving image of another person that appears to be as interested in watching the spectators as the spectators are in watching it. These portraits create an illusion of intimacy – an ephemeral contact with an “other”— and yet this seemingly personal interface is uncannily impersonal, not unlike the advertisements on the walls and in the windows of near by stores.

Every seven minutes, the public’s interaction with their own shadows and with anonymous doubles (possible others, possible selves) is suddenly revealed as an interaction with shadowing devices when the fourteen different matrices on which the pedestrians are mapped and tracked are suddenly projected onto the ground. These matrices swirl around and finally converge into one large grid, where individual shadows of passersby are replaced with a white line (indicating where the passerby is and where he or she is headed). Both the video portraits and the matrices point to the fact that we are caught in the act of watching and being watched. And yet, when we look at the projected image of the matrix we see only a copy of the various grids used to map out our locations and trajectories, signaling the transformation of a human image (the video portrait) into a nonhuman image (the matrix). The spectator is enframed by this image not as a human but as an index or a vector.

It is hard to place Under Scan in specific category of art practice, since it employs aspects of performance, digital installation, as well as site-specific and interactive

## **Both the video portraits and the matrices point to the fact that we are caught in the act of watching and being watched.**

art. Lozano-Hemmer defines his own work as “relational architecture” and “relation-specific art”. He sees his art as one that does not create a form of consensus, but fosters various forms of feedback. It is not clear, however, what “feedback” might mean within the framework provided by “Under Scan,” where human agency does not seem to have much to do with the work’s own power to activate or modulate us affectively. After we activate the video portraits, we can only choose to ignore, interact with, or turn away from them. The surveillance devices can instead trace our trajectories, disguise their own presence through decoy images (the video-portraits), make their presence known, and make our movements known to others around us. Public reactions are not coordinated — some people respond respectfully to the video portraits, walk gingerly around them, or try to communicate with them, while others jump on the images, or insult them. At the same time, pedestrians are related — excessively so — by the surveillance technologies and their own awareness of being watched by each other and by those devices. This creates rather complicated forms of relationality as series of assemblages, layers, and processes — between one person and another, between man and machine, and machines and machines. When the surveillance grids are revealed, the passersby who stop to look at the video portraits suddenly find themselves grappling with a series of uncertainties — are they framed or activated? Spectators or actors? Observers or observed?



**CityWall is a large multi-touch display which has been on show in various locations across Helsinki.**

# Augmented Technologies

Rod McCall

Fraunhofer FIT, Sankt Augustin, Germany

The real world provides us with a rich set of social and physical experiences. Whether this is feeling a sense of euphoria at a football stadium as Bremen win a European cup match, through to walking through a cathedral and experiencing its' architectural beauty or meeting someone for the first time; it is clear that whether the developers of Second Life like it or not reality is here to stay. With this in mind the IPCity project has focused on blending advanced presence technologies with the rich tapestry of urban life. The objective being to alter our sense of presence so that we feel as if we are in new hybrid realities which extend from games and storytelling, through to large scale events and urban planning. All this using technologies ranging from augmented reality (AR) visors (which augment computer generated objects into the view of the user), mobile phones, multi-touch displays, location aware systems and mixed reality tabletops.

Location aware mobile technologies, whether these are AR visors or mobile phones are for many the first step in unlocking what lurks beneath the cityscape. Through graphic and sound augmentations TimeWarp aims to make people feel present in

## **the IPCity project has focused on blending advanced presence technologies with the rich tapestry of urban life.**

the City of Cologne in the past, present and future and unlike virtual environments lets people do this as they walk round the city itself. This in turn opens up a new form of presence which relies as much on the designed TimeWarp experience as the random and unplanned nature of city life. Even lighter weight technologies such as mobile phones can at the very least alter our sense of place as we walk around the city. The original version of StreetBeat for example took tourists (and city residents) on a tour of the underground scene of Berlin (e.g. bars and clubs) was said by many to have changed their view of the city and for some where they felt present. All this was achieved through a carefully chosen mix of locations, music, narratives and images which created a rich story world in within which the users navigated.

While StreetBeat and TimeWarp are largely single user experiences, and are not shared by those without the relevant technology CityWall approach to presence intervenes in the cityscape. CityWall is a large multi-touch display which has been on show in various locations across Helsinki. Here people can interact with content (e.g. pictures or video clips) which have been sent in by other people. Here the presence of others, e.g. their images that is shared but importantly the content creates new roles for those who view it, from those who simply look at it to those who start to play games (such as pong) using the pictures with others. In this context the presence others becomes an instigator of other experiences, rather than necessarily the experience in





itself. The collaborative aspects are further explored within the Colour Table system which allows all stake holders in an urban planning process to take part in discussing, designing and envisioning the project through the use of real objects augmented into a video of the real cityscape.

Across all these experiences it is therefore much more than implementing new technologies which becomes important, it is understanding how to integrate reality (e.g. the passerby, the object, the building, the busy road or the café or simply chatting with others) in to the new mixed reality world. Indeed it would seem a waste to ignore what we already have and do not need to create from scratch.

So is Second Life old hat? Most likely not but mixed and augmented reality technologies allow us to utilize what we already have in real life while allowing for rich and diverse new experiences to arise and in some cases they even encourage a little physical rather virtual life exercise!

*The author acknowledges the work of other members of the EU funded IPCity project ([www.ipcity.eu](http://www.ipcity.eu))*



**Conferencing solutions are evolving towards immersiveness, approaching the level of social interaction of a real meeting.**

# Telecommunications Applications

Gianluca Zaffiro

Telecom Italia, Italy

There are mainly two ways in which Telecommunications can benefit from Presence. Creating the illusion of communicating as if situated in the same place, and generating and augmenting the social experience of being, communicating and collaborating with someone else, regardless of being in the same place. These achievements refer to dimensions, presence and co-presence (or social presence), that, as being orthogonal, can enhance the communication quality on different levels. Applications can be found in Mediated Communications, Collaboration Systems, and Communication Agents.

## **Mediated Communications**

Tele-presence, or virtual meeting, is one distinctive application of Presence technologies. Remote meeting solutions can avoid the cost and inconvenience of travel. Conferencing solutions are evolving towards immersiveness, approaching the level of social interaction of a real meeting. These solutions offer life-size or near-life-size displays, high quality audio, full-motion video capabilities and virtual eye-to-eye contact. Most of the high-end systems are also provided as customized rooms with everything included – cameras, displays, microphones, speakers, desks, chairs, wall

treatments, lighting and acoustics. One commercial example is Halo, provided by HP. Webcams are making videoconferencing more common also at the mass market level. Social Presence can add non-verbal cues, emotions and contextual information to the standard mediated communication, currently ineffective in conveying such information. It improves remote collaboration systems by decreasing the artificial character of a remote encounter, and plays an important role also in Instant Messaging that, even with its low bandwidth, text only format, evokes a sense of 'being together' or 'emotional connectedness'. The growing use of computer mediated communications will end in the blurring of virtual/real reality.

*MetaSight by Morphix can model relationships defined by e-mail communications and elaborate contact network maps.*





*HP's Halo meeting room*

### **Systems for Collaboration**

Computer-based solutions for collaboration, also known as computer supported cooperative work (CSCW) and computer supported collaborative learning (CSCL), can support a working task, a learning activity, an entertainment activity, and a knowledge based task. Geographically distributed work teams – or virtual teams – can improve their performance by implementing identification, structural interdependence, and leadership through social presence processes. By analysing email, SMS, phone calls or other mediated behaviours, virtual groups can identify their own structure of individual's social network and visualize the landscape for self-awareness. Such a process is known as Social Network Analysis. Communicating explicitly some indices

elaborated via the Social Network Analysis leads to support mediated interaction behaviours for individuals. Knowledge management support in mediated interactions enables to visualize connections between people & ideas and making the social ideas creation and decision mechanisms explicit and leveraging on “collective intelligence” and “collaborative intelligence”. For instance Morphix ([www.morphix.com](http://www.morphix.com)) is a US company offering MetaSight, a product based on Social Network Analysis which supports knowledge sharing and e-mail management for the geographically dispersed enterprises.

### **Communication Agents**

Communication can take place between two persons or between one person and one virtual interactant or agent, which has some level of artificial social intelligence. Artificial social intelligence is a basic knowledge used to implement and evaluate non-verbal encoding and decoding abilities and dialog management systems in so called anthropomorphic interface agents. The interactant can be a computer-synthesized voice that manifests a personality, or a virtual human that interacts through a desktop screen or similar display, sometimes known as digital assistants. It is known that both the substance of the interaction (what is being proposed and what the agent says)

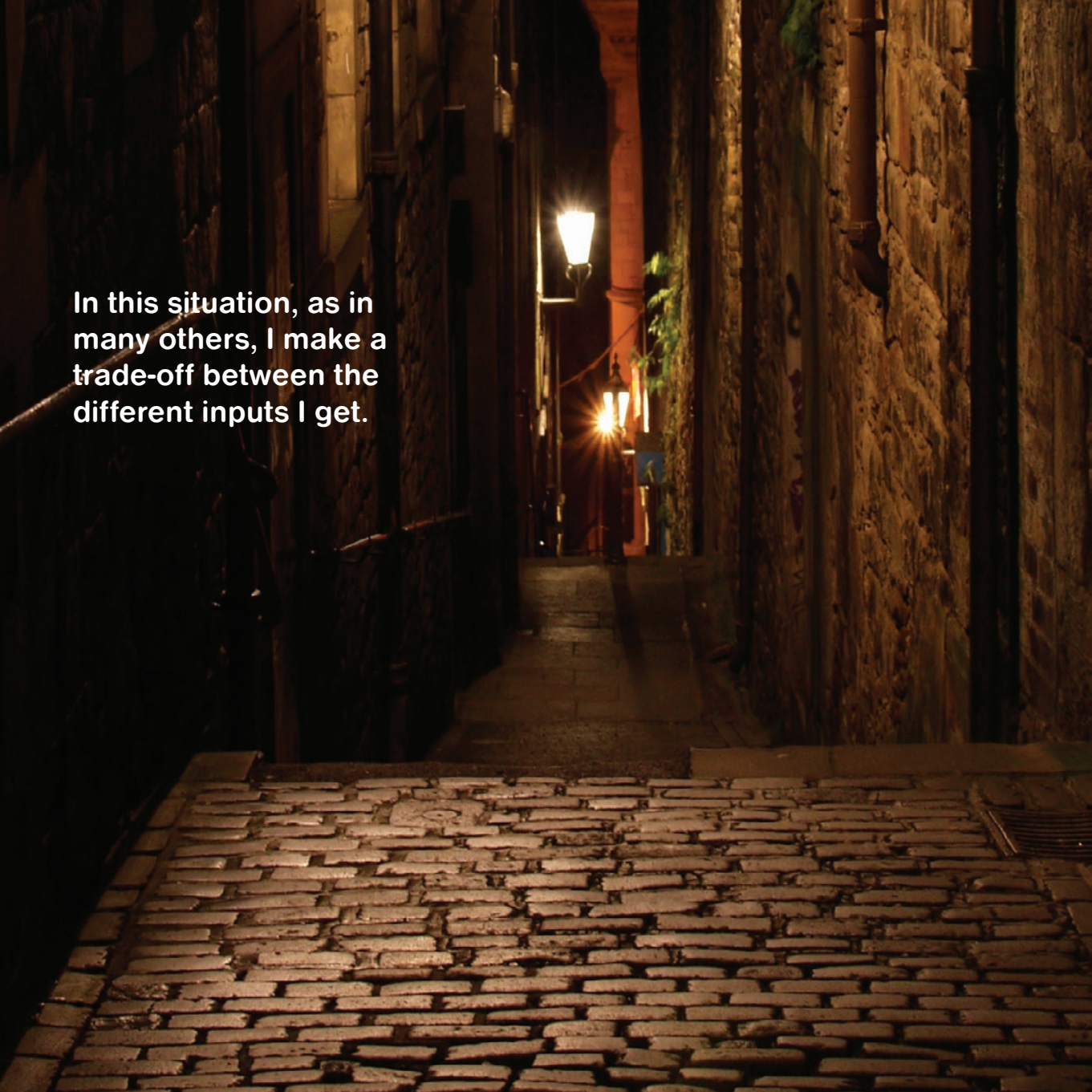




*Digital Assistant for Telecom Italia “187”  
Customer Care and Caren, the human digital  
assistant by H-Care who appears, acts,  
speaks, interacts “like” a live operator.*

and the form of interaction (how information is presented, what is the appearance and personality of the agent) influence for instance trust, persuasiveness, emotion and liking of the interaction. These communication agents are applied to e-commerce, as filters to call-centres, or online/mobile news reader. There are several companies working on communication agents. For instance Loquendo ([www.loquendo.it](http://www.loquendo.it)) and H-Care ([www.h-care.it](http://www.h-care.it)) have deployed a human digital assistant, called Caren, that Telecom Italia’s customers can interact with through the webportal.

In this situation, as in many others, I make a trade-off between the different inputs I get.





# As Ever and Never Before

Caroline Nevejan

Free University of Amsterdam, Netherlands

Can you break up with your boyfriend, ask your employer for a raise or get the results of a medical test by way of SMS? Should an international organization pay for fifty airplane tickets to bring its employees together when launching a new campaign? Should one log the chat of one's children or monitor the people they meet? Some of these questions will sound silly, while others will give reason for debate. The new ways of communicating facilitate being present in other people's lives as was never possible before. Depending on how one relates to another person and depending on whether one can act and interfere, we have come to accept a variety of media that make it possible to trespass centuries old frontiers of time and place. An SMS, an email, a chat, a phone call or a videoconference, have the potential to change our life profoundly. In these new 'presence-designs' fundamental issues of trust surface, as ever and as never before.

That night I was passing through a dark alley; I heard my footsteps bouncing off the walls. It seemed as if someone else was also walking the alley. Slow and heavy steps sounded at a distance and I saw a man approaching. I checked out the situation. How



am I? I am not wearing high heels, I wear a simple jacket and I am in good condition. How is he? He looks rather old, but still strong. He does not smile or anything, he seems to be in his own world. He is very heavy though and rather athletic. He must hear or see me by now. Why is he not communicating? I check my speed of walking and his speed and without consciously making a calculation I realize that I have only a few seconds to make up my mind. Shall I run? Shall I scream? Shall I say Good Evening? Do I trust this guy? Do I trust myself? Do I trust the situation? And before answering this, I make up my mind and walk the other way. When I hear him speed up, I just run...

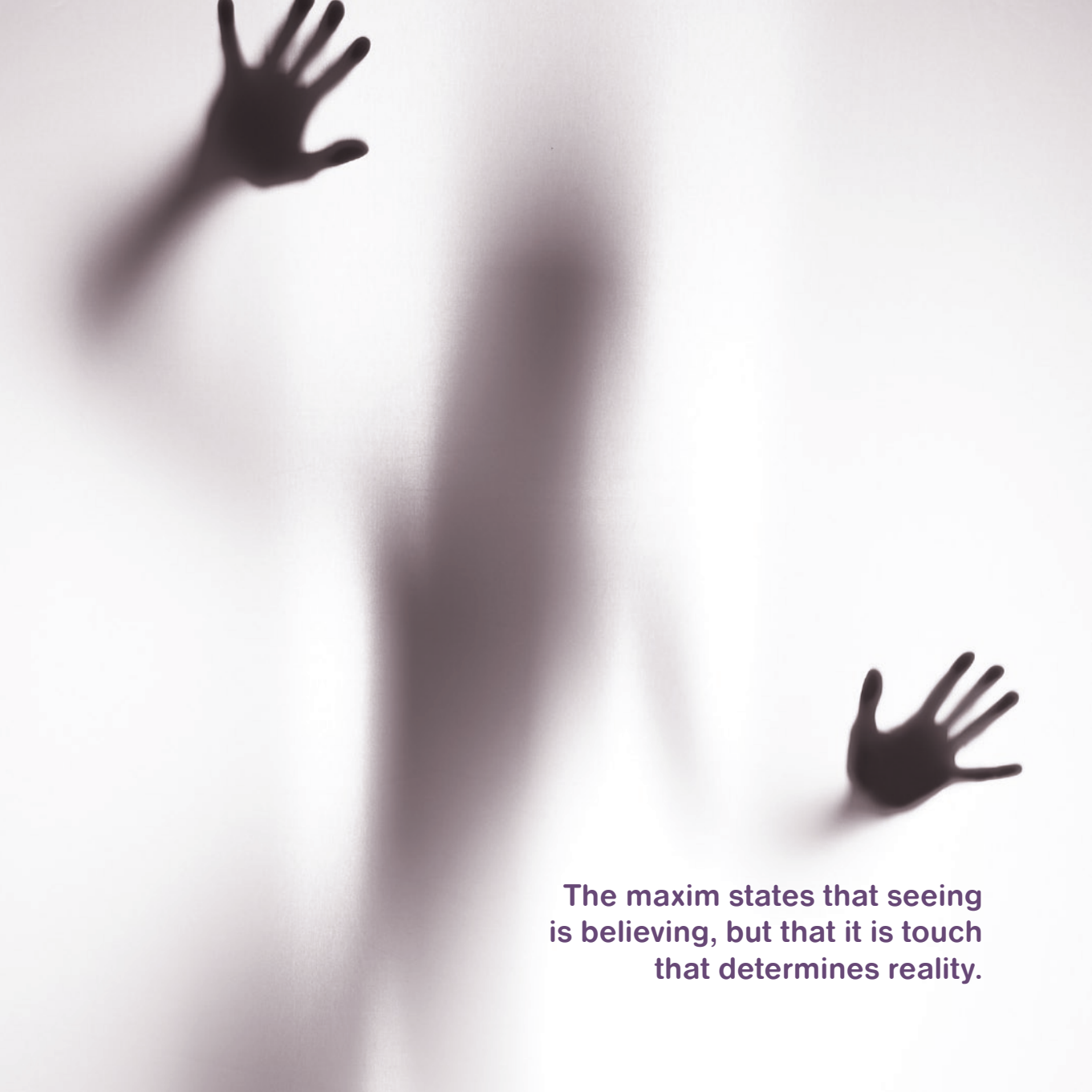
The moment that I decide to run is the moment that I settle for a certain amount of information about the situation to base my actions upon. I hear the rhythm of the footsteps, I see his appearance, I feel my own state of being, I know things get out of hand in alleys regularly, and based upon all this information I decide to run. In this situation, as in many others, I make a trade-off between the different inputs I get. My senses have limited perception, my body has limited action potential and my knowledge is never complete. Yet at a certain point I settle for a certain truth upon which I base my trust or distrust and decide to act. In the media landscape and in the

## **Others will be able to confirm the fact that I truly exist, that my information is correct and that I am the persona I pretend to be.**

many kinds of communications that surround me, I make similar trade-offs. As a result I trust or distrust what is in front of me and as a result I tune and pitch my presence in specific ways.

Being a professional on the market in 2009 one needs to establish one's presence online to be credible for employers and clients: handling and presenting one's archive, one's past and one's future possible connections and plans. In online social network environments like Hyves, FaceBook and LinkedIn it seems normal and beneficial to give as much information about one self as possible to establish one's authenticity online. Even in dramatic environments like Second Life, congruence of character seems unavoidable to obtain. Others will be able to confirm the fact that I truly exist, that my information is correct and that I am the persona I pretend to be. People trust each other's judgement and trust the link-to-link-to-link-to-real-life situations. And so not only our habits, but also our identities merge into a common denominator, which can be known by anyone at anytime in anyplace.

What if my mobile phone shows me that the guy in the alley is 'a friend of friend of a friend'? Shall I run?



**The maxim states that seeing  
is believing, but that it is touch  
that determines reality.**

# Social Interaction and Haptics

Michael Smyth

Edinburgh Napier University, UK

The importance of social interaction to humans cannot be denied and throughout human history people have gathered together for festivals, meetings, discussion and business. When face-to-face contact is not possible because of separation through time or space, social interaction can be mediated by technology. The seemingly ubiquitous mobile phone illustrates the desire for social interaction. Increasingly, touch-based, or haptic, technologies have been studied as a means of supporting social interaction with and through tangible artefacts. This work has focussed on how haptics can augment the experience of social connectedness between geographically distributed individuals in either the physical world or in shared virtual environments. Research into the support of social interaction in the physical world has sought to culturally embed the resulting artefacts and subsequently the work has been influenced from the perspective of interaction design.

Presence is closely related to interaction, for good interaction appears unmediated. Interacting through a device should provide the feeling of connectedness with the domain. Well designed interactive experiences and presence technologies allow us to extend our reach into distant worlds. Whilst interaction is well understood in terms of

designing for screen-based human-computer interfaces, it is still poorly understood for audio interfaces, touch interfaces, and simultaneous interaction with multiple devices. For example, interacting with an invisible pervasive network, created by individuals to support a task for a fixed period using nanotechnology will make new demands on users. Full body interaction, and the idea of the body as interface, need to be explored more fully along with research into gestural and tangible interfaces.

The maxim states that seeing is believing, but that it is touch that determines reality. Instinctively we reach out to touch those objects that attract or perplex. Touch conveys an intimacy both at a physical and an emotional level. In the pursuit of the digital world, the sense of engagement that touch offers has largely been sacrificed. Instead the Graphical User Interface has been created, the ubiquitous portal into the digital world, with its levels of indirection acting as a constant challenge to Human Computer Interaction practitioners and users alike. Interaction has lost its grounding in physicality.

The vision of an environment populated by interactive and interacting artefacts, as articulated by ubiquitous computing and tangible media, offers the opportunity to reclaim the interface and return it to the physical world. Form and function will be reunited leading to the design of artefacts that both engage and provoke interaction. There will be a move away from the safety of the Henry Ford school of design that practitioners too often currently adopt, to a world populated with bespoke technologies. Breaking “the box” raises the question of where will these technological



## **Presence is closely related to interaction, for good interaction appears unmediated.**

artefacts go? Most probably the migration from the desktop will be either into the environment or onto our skins. Technology will be more personal and form will impact on how users relate to and interact with these devices. This is more than product semantics; form and function are inextricably linked to the affordances conveyed by these new artefacts. Touch is a pleasurable sensation; the sweep of a curve, the precision of an angle, the tactile quality of a material. What is less well understood is how such haptic qualities play a role in the creation of a sense of engagement, and a linkage with the body that underpins much of our learning.

A number of research projects have sought to explore how haptic technologies could be integrated into wearable artefacts as a more subtle and personal mechanism for social interaction. These wearables can employ conductive yarns and also incorporate various actuators in order to represent communication. Another strand of research into social interaction and haptics centres on the creation of tactile installations in the home, purpose built gallery spaces or in the urban environment.

Emotional characteristics need to be woven into our understanding of presence. We need a theory of presence that will take into account the various expressive and receptive uses of the body in mediated settings, grounded within the physical and social context of both the virtual and the real. Interaction needs to be reconnected to the body if we are to feel present during such technologically mediated experiences.



# Further Reading

- von Borries, F. Walz, S.P. Bottger, M. **Space Time Play: Computer Games, Architecture and Urbanism - the Next Level** (2007)
- Brugnoli M. C., Morabito F., Walker R., & Davide F. **The PASION Project: Psychologically Augmented Social Interaction Over Networks.** (2006). PsychNology Journal, 4(1):103-116.
- Castells, M. **Identity and change in Network Society. Conversations with Manuel Castells.** (2001). Available at <http://globetrotter.berkeley.edu/people/Castells/castells-con4.html>.
- DiMicco, J.M., Hollenbach, K.J., Pandolfo, A. and Bender, W. **The impact of increased awareness while face-to-face.** (2007). Human-Computer Interaction, 22: 47-96.
- Heidegger, M. **Being and Time** (1978) Wiley Blackwell.
- Martino, F., Baù, R., Scarpetta, F., Alberti, C., Spagnolli, A. & Gamberini, L. **Augmenting Group Presence: A Study with Activity Feedback.** In Presence 2008, Proceedings of the 11th International Workshop on Presence 47-55.
- Merleau-Ponty, M. **The Visible and the Invisible (Studies in Phenomenology and Existential Philosophy)** (1969).Northwestern University Press, U.S
- Morris, M. E. **Social Networks as health feedback displays.** (2005). IEEE Internet Computing, 9 (5): 29-37.



- Riva, G. **Enacting Interactivity: The Role of Presence.** (2008). In Enacting Intersubjectivity: A cognitive and social perspective on the study of interactions. 97-114. Amsterdam: IOS Press: Online: <http://www.emergingcommunication.com/volume10.html>
- Riva, G., Anguera, M. T., Wiederhold, B. K., & Mantovani, F. **From Communication to Presence: Cognition, Emotion and Culture Towards the Ultimate Communicative Experience.** (2006). Amsterdam: IOS Press: Online: <http://www.emergingcommunication.com/volume8.html>
- Riva, G., Davide, F., & IJsselsteijn, W. A. (Eds.). **Being There: Concepts, effects and measurements of user presence in synthetic environments.** (2003). Amsterdam: IOS Press. Online: <http://www.emergingcommunication.com/volume5.html>.
- Schroeder, Ralph, **The Social Life of Avatars: Presence and Interaction in Shared Virtual Environments,** (2002). Springer
- Sheppard, P. J. Walker, G. R. **Telepresence,** (1999). Kluwer Academic Publishers.
- Spagnolli A. and Gamberini L. **A place for presence. Understanding the human involvement in mediated interactive environments.** (2005) Psychology Journal, 3: 6-15

## Websites

Peach: presence research in action [www.peachbit.org](http://www.peachbit.org)

Keho, the Peach ezine <http://keho.pbwiki.com>

International Society for Presence Research <http://ispr.info>

FET Presence projects:

PRESENCIA [www.presencia.org](http://www.presencia.org)

IMMERSENCE [www.immersence.info](http://www.immersence.info)

IP-CITY [www.ipcity.eu](http://www.ipcity.eu)

PASION [www.ist-pasion.com](http://www.ist-pasion.com)



Presence is indeed for everyone. Every day in countless interactions you and I use media to immerse ourselves in virtual environments of information, gaming, video, and social networking. For these moments we are not fully present in our rooms, offices, and streets. Connected by interfaces our brains simulate a presence in a different environment, one engineered of bits, but made tangible and sensible as clever virtual images, sounds, and touch. With each new advance in presence technologies the strength of the illusions increases slightly. With each step we feel ever more present with virtual others in work and play, our minds joining networked tribes running together in virtual worlds.

Like a guide this book reaches out for the reader's hand and brings you to an understanding of presence. Accessible but intelligent, this beautifully designed volume is a wonderful introduction to the technical, philosophical, and social dimensions of presence. The expert authors leave the reader eager to walk a little further and explore more deeply the making, meaning, and mobility of presence technologies and experience.

*Dr. Frank Biocca*

*AT&T Professor of Telecommunications, Information, and Media.*



Information Science  
Institute



[www.peachbit.org](http://www.peachbit.org) ISBN 978-0-9562169-0-8