

Curriculum Vitae

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1. Educational Qualifications

BSc (First Class) Statistics, LSE - University of London
MA (Distinction) Sociology, University of Essex
MSc (Distinction) Statistics, LSE - University of London
D.Sc. Computer Science, University of London

2. Professional History

2.1 Senior Posts

Dates	Detail of position held	Institution
1992-95	Reader in Computer Science	Queen Mary College, University of London
1993-95	Head of Department of Computer Science	Queen Mary College, University of London
1995-97	Reader in Computer Graphics	University College London
1997-2006	Professor of Virtual Environments	University College London
1999-2004	EPSRC Senior Research Fellow	University College London
2006-2008	ICREA Research Professor	Institució Catalana de Recerca i Estudis Avançats, position currently held at Universitat Politècnica de Catalunya (UPC).
2008-	ICREA Research Professor	Facultat de Psicologia, Universitat de Barcelona

2.3 Other Appointments and Affiliations

University of Central Florida, consultant on ONR project N00014-12-1-0052 “3D Display and Capture of Humans for Live-Virtual Training”

Brown University Providence Rhode Island, USA, Principal Consultant on the project ‘Application-Driven Research, Development, and Evaluation of Interactive Scientific Visualization Techniques in Multiple Working Environments’, 2003-2008, led by Prof. A. Van Dam.

Visiting Scientist, Research Laboratory of Electronics, Sensory Communications Group, MIT, Cambridge, MA, USA, February-April 1998.

Visiting Professor, Computer Science Division, Electrical Engineering and Computer Sciences, University of California Berkeley, Spring/Summer semesters, 1991 and 1992.

3. Prizes, Awards and Other Honours

Dates	Detail of prize, award or honour	Awarding/electing body
2013	“Best promising paper for Industry” at Joint Virtual Reality Conference of EuroVR, Dec 11-13, 2013, Campus Paris Saclay, France.	EuroVR-EGVE, AFRV
2008	ERC Advanced Grant TRAVERSE	ERC
2005	The 2005 Virtual Reality Career Award: ‘In Recognition of Pioneering Achievements in Theory and Applications of Virtual Reality’	IEEE Virtual Reality
1999	EPSRC Senior Research Fellowship, ‘The Virtual Light Field’, 1999-2004 (approximately 3 of these awards are given per year).	EPSRC

4. Grants

A System for Embodied Relational Experiences (SERE), European Research Council (ERC) - Proof of Concept, 1/1/2014-31/12/2014, 149,947€.

The Human Brain Project, FET Flagship, ramp up period 2013-2016, 60,000€, <https://www.humanbrainproject.eu>

Virtual Embodiment and Robotic Re-Embodiment (VERE) - Enlarged, EU FET, MS Coordinator, 2014-2015, 171,040€ (UB, requested) (total grant 998,520€ requested). www.vereproject.org

Modeling Immortality in Virtual Reality, John Templeton Foundation, 2013-2015, \$249,752 (US) <http://immortality.eventlab-ub.org>

Transcending Reality – Activating Virtual Environment Responses through Sensory Enrichment (TRAVERSE) European Research Council (ERC) Senior Advanced Grant, 2009-2014, 2,409,768€. www.traverserc.org

The Responses of People in Immersive Virtual Environments: Measurement and Manipulation, Spanish Ministry of Science and Innovation, research grant, 2012-2015, 130.680€.

VR-HYPERSPACE: The innovative use of virtual and mixed reality to increase human comfort by changing the perception of self and space (#AAT-285681) is a three year EU FP7-Transport collaborative project that started in October 2011 (498,576,00€). (MS Principal Investigator). <http://www.vr-hyperspace.eu>

BEAMING, Augmented Multi-Modal Naturally-Networked Gatherings, is a four year FP7 EU collaborative project (#248620) which started on 2010-2014 (MS Project Scientific Leader) (1,349,989€). www.beaming-eu.org

VERE, Virtual Embodiment and Robotic Re-Embodiment, is a four year FP7 EU collaborative project (#257695) 2010-2015 (MS Coordinator) (1,232,734€). www.vereproject.org

Multimodal Immersive Motion Rehabilitation with Interactive Cognitive Systems (MIMICS) FP7-ICT-2007-1, Objective 1.2.1: Cognitive Systems, Interaction, Robotics, no. 215756, (332,577€ at UPC /UB), 2008-2010.

Development and application of technologically advanced methods based on virtual reality for attention-diversion, visualization and body image modification, as adjunct analgesic techniques against chronic pain – TV3 Marató Catalunya, with co-investigator Dr M. V. Sanchez-Vives (131,248 €, UPC) (2008-2010).

Presence: Research Encompassing Sensory Enhancement, Neuroscience, Cerebral-Computer Interfaces and Applications (PRESENCIA) – a 4 year EU Integrated Project, total project budget 6.5M€, 903677€ at UPC. MS Coordinator of 14 partners, 2006-2010. www.presencia.org

Immersive Multi-Modal Interactive Presence (IMMERSENCE) – a 4 year Integrated project, funding at UPC 240,562 euro, PI, 2006-2010. <http://www.immersence.info>

Empathic avatars: input, processing and output of emotional state (EPSRC) £295,110, starting 2005-2009 years (Principal Investigator), UCL.

Performing Presence: from the Live to the Simulated (AHRB) with Exeter University Performing Arts, <http://www.ex.ac.uk/performing-presence/index.php> £70,315 (2006-2009) (Principal Investigator), UCL.

Presence in Virtual Light Fields (EPSRC) £513,609, November 1st 2004-2007. This continued the Virtual Light Field research, and also carried out experimentation that examines people's responses to being in virtual environments with global illumination effects (Principal Investigator), UCL.

Presence: Research Encompassing Sensory Enhancement, Neuroscience & Cognition, with Interactive Applications (PRESENCIA), coordinator of 6 partners. (Principal Investigator and Project Coordinator). (Approx 900,000€ at UCL, 2M€ for the project as a whole). <http://www.cs.ucl.ac.uk/presencia>.

Virtual Light Field: EPSRC, 2001-2004, Investigates a new paradigm for realistic, real-time computer graphics, employs 2 Research Fellows and 1 PhD student. (Principal Investigator) (£350,000). www.cs.ucl.ac.uk/vlf

CAVE: JREI 2003. Equipment grant for £350,000 to upgrade existing virtual reality equipment (Principal Investigator).

CAVE: JREI, 2000. Equipment grant of £900,000 to install the first academically based projection based virtual reality surround system in the UK (Principal Investigator). <http://www.cs.ucl.ac.uk/research/vr/Projects/Cave>

Equator Mixed Reality: EPSRC IRC, 2001-2006. Approx £1,000,000 over 5 years, collaboration with 8 universities. (Co-Investigator). <http://www.cs.ucl.ac.uk/research/equator/> (I led UCL's participation in this IRC application, and some time after it was funded I withdrew and handed it over to Dr Anthony Steed).

Fear of Public Speaking in Virtual Reality, 2000-2001, £50,000 funded by the Wellcome Foundation. A project to investigate the use of Virtual Reality in Social Phobia, with Prof. D. Clark, Department of Psychology, University of Oxford, and Dr C. Barker, Department of Psychology, UCL. (Principal Investigator). <http://www.cs.ucl.ac.uk/research/vr/Projects/SocialPhobias/>

Collaboration in Tele-Immersive Environments, 2000-2001, £50,000 funded by UKERNA. A project to investigate the use of Internet 2 using virtual reality to create shared spaces for collaboration. In conjunction with University of North Carolina, and MIT. (Principal Investigator). It resulted in the 'hands across the Atlantic' event which occurred in 2002. <http://www.cs.ucl.ac.uk/research/vr/Projects/Internet2/>

PROMETHEUS: DTI/BBC, EPSRC: 1999-2002. Approx £200,000 funded by EPSRC and BBC. (Principal Investigator). <http://www.cs.ucl.ac.uk/research/vr/Projects/Prometheus/index.html>

Virtual Rehearsals for Actors, EPSRC/DTI/ Virtual Centre of Excellence in Digital Broadcasting (£250K approx), 1998-2000. (Principal Investigator). <http://www.cs.ucl.ac.uk/research/vr/Projects/Acting/>

Designing and Developing the Viewer Centred Paradigm in Virtual Environments, European Union Collaboration award, with CWI Netherlands, and University of Cape Town South Africa, 1998-2001. (Money for travel and collaboration). (Principal Investigator).

Natural Visualisation of Multidimensional Data, £30,000 from NCR, financing PhD student A. Loizides, 1997-2000. (Principal Investigator). <http://www.cs.ucl.ac.uk/staff/a.loizides/research.html>

A Virtual Reality Centre for the Built Environment, funded under the Technology Foresight Challenge scheme, led by the Bartlett School of Architecture. I was one of 6 co-investigators of this project led by Mr A. Penn and Prof. M. Batty. (Approx £200,000 for my research). (Co-Investigator).

Studies in Networked Vision, Multimedia and Virtual Reality, (EPSRC), Prof. P. Kirstein, Prof. B. Buxton, M. Slater, 1/4/96-31/3/95, Special Equipment Grant, £205,625.

Collaborative Virtual Environments (COVEN) European ACTS project, 1995-1999, 246KECU. This is a consortium of eleven partners across Europe. The purpose is to produce a wide-area multi-participant virtual environment system, with a high end (immersive) application, and a low-end (WWW/ VRML) application. UCL's role was concerned with the scenario modelling and visualisation, and also with usability trials. (Principal Investigator at UCL). <http://coven.lancs.ac.uk/>

EPSRC Visiting Fellowship, 1999, Dr David Mizell, Boeing Corporation, £20,000. (Principal Investigator). <http://www.cs.ucl.ac.uk/research/vr/Projects/Immersion/>

EPSRC Visiting Fellowship, 1998, Prof. B. Barsky, University of California Berkeley, £20,000. (Principal Investigator). <http://www.cs.ucl.ac.uk/research/vr/Projects/GR-M46082/>

The Distributed Extensible Virtual Reality Laboratory (DEVRL), 1995-97, EPSRC/ROPA, £90,000 (UCL). A collaborative project with Lancaster University, University of Nottingham. This project allows people in different parts of the UK to be able to work together in the same virtual space to accomplish joint tasks supported with standard network facilities, such as SuperJANET. At UCL constructed an application for shared geometrical modeling. (Principal Investigator).

Inhabiting the Web, 1996-97, JISC/BT £7000. This project studied the performance of a networked virtual reality system in collaboration with several UK University sites and BT, led by the University of Nottingham.

Physics and Dynamics Simulation - PhD Research Project, Canon, 1993-95, approx £20000 for purchase of Silicon Graphics computer, and corresponding funding of a Japanese Canon employee (S. Uno). (Principal Investigator).

Modeling in Immersive Virtual Environments (MIVE/MIVE2) 1994-1995, EPSRC/DTI (LPAC), £100K approx. This was a joint project with DIVISION Ltd. The purpose of the project was to construct and evaluate techniques for interactive modeling in virtual environments, with specific reference to computer aided geometric design (CAGD). (Principal Investigator).

Visualisation of Financial Data in Virtual Reality, £5000, LPAC funding, October-December, 1994, a pilot study. (Principal Investigator).

Framework for Immersive Virtual Environments: FIVE ESPRIT Working Group 9122 Synopsis, 1994-1997, ESPRIT III (80K ECU). I formed and led this Working Group until leaving QMW where the contract is held. Its purpose is to establish a sound framework for Immersive Virtual Environments (Virtual Reality). There are 8 partners from across Europe. (Principal Investigator).

Virtual Reality for Architectural Walkthrough - 1992-94 (with Prof Y. Paker, E. Miranda) London Parallel Applications Centre - SERC/DTI £200K. A collaborative project with Thorn EMI and Division. (Principal Investigator).

Graphics Object Management With a Distributed Frame Buffer - 1989-91 (with A.J. Davison) SERC £50000. This project was a continuation of the tiling algorithm research. Its aim was to exploit the algorithm in a special purpose hardware architecture based on transputers. (Principal Investigator).

The SPIRIT Workstation - 1989-93 (with others) European Economic Community ESPRIT II, The European High-Performance Technical Workstation (SPIRIT). This was a consortium including companies from Germany, France and Holland, and Universities from Germany and the UK for the design and construction of a high-performance technical workstation. QMW's research funding in the first phase of this project was approximately £500,000. I was the principal investigator responsible for research and development of the graphics software system, including integrating ray tracing and radiosity. (Co-Investigator).

Graphics Object Management for the X11 Window System - 1988-9 (with A. Davison and M. Smith) (SERC contract). This project designed a library for X11 Windows to support graphics object management. (Principal Investigator).

London HCI Centre - 1987-1990 (G.F. Coulouris, P. Johnson, S.J. Cook, M.Slater). Alvey (SERC) (£202000) The Centre was UK Government funded through the Department of Trade and Industry to offer consultancy services and courses to industry. It was one of three HCI Centres of Excellence established by the Alvey Committee. (Co-Investigator).

Dynamic Modification of Graphical Display Structures on Raster Devices - 1986-1988 (M. Slater, A. Davison) SERC (£45000). This Tiling algorithm provides a solution to the damage repair problem caused by applying transformations to geometrically defined objects in the context of raster display hardware. (Principal Investigator).

Computer Graphics for Pattern Grading and Design - 1985-1986 Cybrid Ltd (£20000). This project involved designing a user interface and software for pattern grading in the garment design industry. (Principal Investigator).

Pascal Binding to GKS - 1983-1985, Science and Engineering Research Council (SERC) Contract to produce the Pascal Binding for the Graphical Kernel System (GKS). (£4200). This work formed the basis of an ISO standard. (Principal Investigator).

5. A Selection of Keynote and Invited Talks

Date	Details
23 rd January, 2014	Barcelona Supercomputing Center Retreat, “Gaining New Experience by Self-Transformation in Immersive Virtual Reality” Invited talk
20 th January, 2014	2014: Knowing, doing, being: cognition beyond problem solving - invited talk for FET Info Day (Invited talk), Brussels.
29 th November, 2013	iED Europe Summit - London 2013, “Gaining New Experience by Self- Transformation in Immersive Virtual Reality”, Keynote
22 nd November, 2013	Symposium on Pain and Pleasure: The Art and Science of Body Representation, “The body and virtual reality”, Venice, Italy (Invited talk).
22 nd November, 2013	Symposium on Pain and Pleasure: The Art and Science of Body Representation, “The body and virtual reality”, Venice, Italy (Invited talk).
29 th November, 2013	iED Europe Summit - London 2013, “Gaining New Experience by Self- Transformation in Immersive Virtual Reality”, Keynote
15 th November, 2013	USC Institute for Creative Technologies, “University of Southern California Immersive Virtual Reality: Changing the Self Not Just the Place”, invited talk.
8 th October, 2013	ACM Virtual Reality Software and Technology: Immersive Virtual Reality - Changing the Self Not Just the Place, Singapore, October 2013 - http://conference.ntu.edu.sg/vrst2013/Pages/KeynoteSpeaker.aspx (Keynote)
31 st July, 2013	9th International Symposium on Visual Computing (ISVC'13) “Body Semantics and Self-Transformation in Immersive Virtual Reality”, Keynote talk, http://isvc.net
27 th June 2013	The Human Brain Project and Body Representation, Semana de Proyectos Europeos Flagship: Grafeno y Cerebro Humano, Santander
6 th April, 2013	BNA Festival of Neuroscience, Virtual Reality - Changing the Self Not Just the Place, London
11 th March, 2013	Brain Awareness Week: Neuroscienza in Societa, Rome 11/03/2013 (MS Keynote) “The Real Power of Virtual Reality” http://www.uniroma1.it/sites/default/files/allegati_news/programma.pdf.pdf
31 st July, 2012	Co-chair “New Methods in the Study of Aggression: From Genetics to Immersive Virtual Environments” and speaker “Bystander Responses to a Violent Incident in an Immersive Virtual Environment” http://www.apadivisions.org/division-6/publications/newsletters/neuroscientist/2011/10/convention-programming.aspx
26 th September, 2013	The Virtual Body, Los Retos de la Neurociencia en el siglo XXI: Creando diálogos entre cerebro y máquinas, Valencia, Spain.
17 th October, 2011	Transcending the Self – The Illusion of Body Ownership in Immersive Virtual Reality and its Impact on Behaviour, 12th International Multisensory Research Forum, Fukuoka, Japan
12 th October, 2011	Transforming the Self in Immersive Virtual Environments, AFIG 2011, Biarritz, France
20 th June, 2013	ERC Conference - Budapest, 20 June 2011: Promoting Excellence in Research in Europe, The TRAVERSE Project, Budapest, Hungary.
5 th September, 2011	Body Representation in Immersive Virtual Reality, University of Cyprus.
19 th February, 2011	Body Representation in Immersive Virtual Reality, American Association for the Advancement of Science Annual Meeting, Session “From Artificial Limbs to Virtual Reality”.
17 th February, 2011	Body Representation in Immersive Virtual Reality, University of North Carolina at Chapel Hill, US.
30 th September, 2010	Body Representation in Physical and Virtual Reality with Applications to Rehabilitation Monte Verita, Switzerland
6 th May, 2010	Place Illusion and Plausibility and the Virtual Body, Tsinghua University, Beijing, China
15 th April, 2010	Realidad virtual: la ilusión del cuerpo, Madrid, CosmoCaixa
14 th April, 2010	Realitat virtual: la il·lusió del cos, CosmoCaixa Barcelona
31 st January, 2010	Place Illusion and Plausibility in Immersive Virtual Environments: Applications to Body Ownership Illusions and the Responses of People to Violent Incidents, The Technion, Haifa, Israel.
5 th October, 2009	Immersive Virtual Environments in the Study of Body Ownership Illusions, CRG

	Barcelona, Spain.
4 th June, 2009	Place Illusion and Plausibility in Immersive Virtual Environments, ATR Kansai Science City, Japan.
7 th May, 2009	People Respond Realistically to Events and Situations in Immersive Virtual Environments, EPFL Lausanne, Switzerland
15 th December, 2009	Estudi de la fòbia social mitjançant la realitat virtual, JORNADA TIC y SALUD MENTAL La salud mental en el siglo XXI, Sant Boi de Llobregat, Barcelona, Spain.
18 th September, 2009	Virtual Reality as a Tool in Understanding Body Perception, XIII Congreso Sociedad Española de Neurociencia, Tarragona, Spain
14 th July, 2009	Experiencing Extraordinary Events with Virtual Reality, Art and Science: Approaching the Limits of Human Perception, Benasque, Spain
23 rd April, 2009	Presence: Real Actions in Virtual Environments, Science Beyond Fiction: The European Future Technologies Conference, Prague, Czech Republic
21 st April, 2009	Place Illusion and Plausibility in Immersive Virtual Environments, Computation of Emotions in Man and Machines. The Royal Society, UK.
7 th December, 2009	The generation of emotions in immersive virtual environments, Emotions in the Age of Communication, Cambridge Philosophical Society, UK
17 th October, 2009	Virtual Reality as a Tool to Study Obedience, Society of Experimental Social Psychology Annual Conference, Portland, Maine, USA
10 th July, 2008	Presence: Technologies and Applications, PEACH Project Summer School, FP6 Coordination Action, University of Zagreb, Faculty of Electrical Engineering and Computing: 'Real Interaction with Virtual Characters'.
27 th June, 2008	Wilhelm Schickard Institut für Informatik- GRaphisch-Interaktive Systeme (GRIS) University of Tuebingen, Germany: 'The Response to Global Illumination in Immersive Virtual Environments'.
7 th May, 2008	Brain-Mind Institute, EPFL Lausanne Switzerland, 'People Respond Realistically to Events and Situations in Immersive Virtual Environments'.
27 th March, 2008	Schnurmacher Institute for Vision Research Colloquia, SUNY State College of Optometry, New York: 'The importance of Visual Realism for Perception in Virtual Environments'.
4 th February, 2008	Invited Keynote Talk at the conference: When Media Environments Become Real, University of Berne, Switzerland: 'Real Actions in Virtual Environments'.
6 th November, 2007	Invited Talk: SACS '07 - Significant Advances in Computer Science, Graz Austria: 'Virtual Events Can Evoke Realistic Responses'.
4 th October, 2007	Invited Keynote Talk - INTUITION 2007, Athens, Greece: 'Interaction with Self and Others in Immersive Virtual Environments'
5 th July, 2007	Invited Lecture: PEACH Summer School, FP6 Coordination Action – 'The Concept and Assessment of Presence in Virtual Environments'
2 nd July, 2007	Invited Lecture: Universidad de Málaga, Ronda , El Cerebro:Evolución y Cognición at Universidad de Málaga, Spain, cursos de verano, M. V. Sanchez Vives & M. Slater 'La realidad virtual en el estudio del cerebro y la consciencia'.
7 th April, 2007	Invited Keynote Talk: Edinburgh International Science Festival: 'Social Interaction within Virtual Environments', Edinburgh, Scotland, UK.
28 th March, 2007	Invited Seminar: ETH Zentrum, SMS Laboratory, Zurich, Switzerland: 'Is action based on perception rather than knowledge? The evidence from presence in virtual environments'.
22 nd March, 2007	Invited Seminar: UCL Science Society: 'The Use of Virtual Reality in Research into Human Behaviour Under Conditions of Stress: A Virtual Reality Milgram Obedience Experiment'.
9 th March, 2007	Invited Keynote Talk: Second International Conference on Computer Graphics Theory and Applications, 8 - 11 March, 2007, Barcelona, Spain: 'The Influence of Rendering Styles on Participant Responses in Immersive Virtual Environments'.
31 st January, 2007	Invited Whitehead Lecture on Cognition, Computation and Creativity, Goldsmiths College, University of London: 'Is action based on perception rather than knowledge? The evidence from presence in virtual environments'.
4 th December 2006	Invited Talk: The Polytrauma Conference 2006, Dartmouth College, United States, 'Speculations on the Use of Virtual Reality in the Treatment of Polytrauma'.

25-27 th October, 2006	Invited Talk: University of Southern California, Institute of Creative Technologies, Online, Offline & The Concept of Presence, When Games and VR Collide, 'Interactive With Virtual Characters in Immersive Virtual Environments'.
18 th September, 2006	Invited Symposium on Virtual Reality and Consciousness (Organiser) at the Society of Applied Neuroscience, Conference, Swansea, UK, 'Presence in Virtual Reality'.
5 th July, 2006	Invited Keynote Talk: Ibero American Symposium in Computer Graphics SIACG 2006, Santiago de Compostello, Spain, 'Interacting with Virtual Characters in Immersive Virtual Environments'
8 th April, 2006	Invited Plenary Talk: Toward a Science of Consciousness 2006, Tuscon, Arizona, USA, M. V. Sanchez-Vives and Mel Slater 'The use of virtual reality in the study of consciousness'.
31 st March, 2006	Invited Seminar: Neurological Institute, Phoenix, Arizona, USA, 'From Presence to Consciousness through Virtual Reality'.
26 th September, 2005	Invited keynote talk at Zweiter Workshop Virtuelle und Erweiterte Realität der GI-Fachgruppe VR/AR, RWTH Aachen, Virtual Reality Center, 26. - 27. September 2005: 'Interactions with Virtual People and Presence in Virtual Environments'.
22 nd July, 2005	Invited talk: Fundacion duques de Soria, Seminario de Neurociencias: Brain Mechanisms of Attention: Biological and Computacional Approaches, 18-22nd July, 2005, Soria, Spain. M.V. Sanchez Vives and M. Slater 'Attention, Presence and Consciousness'
4th July, 2005	Invited talk: Actividades Culturales , Seu Universitària De Cocentaina (Cocentaina 2004-2005) Conferencia Inaugural Cursos D'estiu 2005: 'Interacciones sociales en realidad virtual'
8 th June, 2005	Invited Keynote Talk: Central European Multimedia and Virtual Reality Conference 2005 8-10 June 2005, Prague, Czech Republic: 'Presence in Virtual Environments and Interactions with Virtual People'
8 th March, 2005	Invited talk: 3 rd VR Symposium: Virtual Reality, Associated Technologies, and Rehabilitation, March 7-9, 2005, Technion, Haifa, Israel: 'From Presence to Consciousness in Virtual Environments'
1 st July, 2004	Invited keynote talk: presented at 3rd International Congress ARQUITECTURA 3000, Barcelona, Spain: 'Interactions with Virtual People'
2 nd July, 2004	Invited Seminar : Institut Universitari De L'audiovisual (Iua) Universitat Pompeu Fabra, Àrea De França. Campus De La Ciutadella, Barcelona: 'Presence in Virtual Environments'
25 th June, 2004	8 th Annual Conference for the Scientific Study of Consciousness, Antwerp, Belgium presented at the workshop 'From Presence Towards Consciousness' organised by Mel Slater and Maria V. Sanchez-Vives: 'Presence in Practice'
1 st June, 2004	FET S&T Seminars, European Commission, Brussels, Belgium: 'Presence Technologies and their future prospects & challenges'
5 th May, 2004	Department of Computer Science, Brown University, Providence Rhode Island, USA: 'Presence in Virtual Environments'.
28 th May, 2004	Computer Science Department, Trinity College Dublin: 'Presence in Virtual Environments'
24 th February, 2004	Meeting organised by 6 th Framework FET Presence Research, Darmstadt, Germany: 'The future direction of presence research'
17 th September, 2003	Intelligent Motion and Interaction within Virtual Environments, conference co-chairs S. Ellis & M. Slater, organised by NASA Ames/NATO / UCL, London: 'The Illusion of Sentience in Virtual Environments'
6 th December, 2002	Invited talk: 12 th International Conference on Artificial Reality and Tele-Existence, ICAT 2002, The University of Tokyo, Tokyo, Japan: 'Real People Interacting with Virtually Real People: Some Experiments'
8 th November, 2002	Invited seminar: Department of Computer Science, University of Pennsylvania, USA: 'Responses of Humans to Avatars'
5 th November, 2002	Invited seminar: Department of Computer Science, University of North Carolina at Chapel Hill, USA: 'Experiments on Avatar/Human Communication'
7 th June, 2002	Invited seminar: Robotics Institute, University of Valencia, Spain: 'Do Avatars Dream of Digital Sheep? Virtual People and the Sense of Presence'
26 th March, 2002	Keynote Talk: IEEE Virtual Reality Conference 2002, March 24 - 28, 2002, Orlando, Florida: 'Do Avatars Dream of Digital Sheep? Virtual People and the Sense of Presence'

November, 2001	'Do Avatars Dream of Digital Sheep? Virtual People and the Sense of Presence' presented at MIT Sensory Communications Lab, and also at Department of Computer Science, University of North Carolina at Chapel Hill, November, 2001.
15 th March, 2001	Invited seminar: Department of Psychology, University of California, Santa Barbara: 'Do Avatars Dream of Digital Sheep'
October, 2000	Invited tutorial: 'The Virtual Lightfield' Tutorial: ACM Virtual Reality Software & Technology conference, Seoul, Korea, 2000.
12 th December, 2000	Invited lecture: David Clark and Mel Slater, Visualization and Virtual Environments Community Club (VVECC) Virtual Environments in Medicine and Psychiatry: 'Virtual Environments in Social Phobia Treatment: A Case Study for Fear of Public Speaking'
May 1999	Invited lecture: Visualization and Virtual Environments Community Club (VVECC) Collaborative working in visualization and virtual environments: 'Co-Presence Amplifies Emotional Response: a case study on the fear of public speaking'
September, 1998	Invited lecture series: Swiss Federal Institute of Science and Technology (EPFL), 6 Lectures: 'Towards a Science of Virtual Reality'
March 1998	Invited seminar: Computer Science Division, University of California, Berkeley, USA: 'Presence and Interaction in Virtual Environments'
15th May 1996	Invited talk: <i>EPSRC Visualisation Community Club</i> : 'An Immersive Virtual Environment for Visualisation of a Complex Task'
August, 1996	Invited seminar: NASA Ames Research Centre, California, USA: 'Immersion, Presence and Performance in Virtual Environments'
September, 1994	Invited seminar: Apple Computers, Cupertino, California, USA, September 1994: 'Navigation in Virtual Environments: The Virtual Treadmill'
September 1994	Invited seminar: University of Washington, Seattle, USA: 'Body Centred Interaction in Virtual Environments'
December, 1994	Invited talk: Workshop on Common Methodologies for Image Synthesis and Analysis, December 5-7th, 1994, Institute per le Applicazioni del Calcolo (IAC), Rome: 'Presence in Virtual Reality: Placing People in the Image'
April, 1994	Invited seminar: University of Geneva, Faculte de Psychologie et des Sciences de L'Education, 3eme cycle, April 1994: 'The Concept of Presence in Immersive Virtual Environments'
October, 1994	Invited seminar: University College London, Department of Medical Anthropology: Medical Anthropology Seminar: 'Embodiment and Presence in Immersive Virtual Environments'
November, 1993	Invited talk: University of Geneva, Virtual Reality and Artificial Life Conference: Troisieme Cycle Romano D'Informatique, 25-26 November 1993, Vie Artificielle et Realite Virtuelle: 'Body Centred Interaction in Virtual Reality'.
September, 1993	Invited talk: Virtual Reality, Science and Society in Europe, First European Symposium Organised in Collaboration with the Commission of the European Communities, Universite d'Et de la Communication, Bordeaux, France 2-3rd September, 1993: 'Virtual Reality and the Sense of Presence'.
March, 1993	EU: Telematics Division, Brussels: 'Virtual Reality Research and Applications'

In addition I have given many talks at Departments of Computer Science in the UK:

University of Birmingham: Seminar on "Framework for Virtual Environments"

University of Nottingham: Seminar on "Body Centred Interaction in Virtual Reality"

University of Hull: Seminar on "The Influence of Dynamic Shadows on Presence"

City University: "Presence in Virtual Environments"

University of Leeds: "Presence in Virtual Environments"

Universities of Cambridge, Bristol, Manchester, Imperial College London, on various occasions.

6. Academic Supervision

6.1 PhD Students

My first PhD student (Tony Tsung-Yueh Lin) registered in October 1986, and he obtained his PhD in July 1989. Since 1989 30 of my students have passed their PhD. I was first supervisor of each student below, except for Mette Thomsen where I was joint-supervisor. Those until Dr Anthony Steed were at Queen Mary, and since then at UCL.

(a) PhDs Awarded

Tony Tsung-Yueh Lin 1989, Parallel Ray Tracing Using Space Subdivision (Queen Mary).

Raj Malhi 1989, Parallel Algorithms for Constructive Solid Geometry (Queen Mary).

Pericles Papageorgiou 1991, A New Paradigm for Object Oriented Design and Specification of Interactive Software (Queen Mary).

Siamak Masnavi 1992, Program Visualisation (Queen Mary).

Nikitas Tsopelas 1993, Modeling Thin-Walled Objects in Computer Graphics and Animation (Queen Mary).

Rabin Ezra 1994, An Adaptive Method for Rendering of Curved Surfaces (Queen Mary).

Adelene Whye-Leng Ng 1994, Techniques for Rapid Computation of Form Factors in Radiosity (Queen Mary).

Shancy Kou 1995, Interactive Deformable Models, November 1995 (Queen Mary).

Yiorgos Chrysanthou 1996, Algorithms for Rapid Computation of Shadows in Dynamically Changing Scenes, February 1996 (Queen Mary).

Mark Brown 1996, Displays for real-time 3D command/control applications, concentrating on Air Traffic Control, March 1996 (Queen Mary).

Anthony Steed 1996, A User-Defined Virtual Environment Dialogue Architecture, November, 1996 (Queen Mary).

Bob Rosenberg, Novel input devices: computing without keyboards and mice, March 1998 (UCL).

Amela Sadagic 1999, Efficient image display for head-slaved viewing of virtual environments, March 1999 (UCL).

Cristina Alberto 2000, Study of Acclimatisation using Virtual Reality, April, 2000 (UCL).

Maia Garau, 2003, The Impact of Avatar Fidelity on Social Interaction in Virtual Environments, October 2003 (UCL).

Andreas Loizides, 2003, Intuitive Visualisations of Multivariate Data Sets, October 2003 (UCL).

Mette Thomsen, 2004, Discovering Mixed Reality: inventing design criteria for an action based Mixed Reality (jointly supervised with Prof. Peter Cook, Bartlett School of Architecture, University College London) (UCL)

Vinoba Vinayagamoorthy, 2006, User Responses to Virtual Agents in Immersive Virtual Environments (UCL).

Maria Roussou, 2006, Interactivity and Learning: Examining Primary School Children's Activity within Virtual Environments (UCL)

L. Bull, 2007, An Efficient and Scalable 3D Rendering Paradigm for Complex Environments using Point Based Rendering (UCL)

Franco Tecchia, 2007, Rendering Large Crowds in Virtual Environments (UCL)

Howard Towner, 2007, Analysis of Feature Points and Physiological Data for Facial Expression Inference (UCL)

Xueni (Sylvia) Pan, 2010, The Representation of Shyness in Virtual Characters (3rd year), UCL.

Jesper Mortensen, 2010, Virtual Light Fields for Global Illumination in Computer Graphics (UCL).

Joel Jordan (2010) Gaze Direction Analysis for the Investigation of Presence in Immersive Virtual Environments, (UCL)

Christoph Groenegrass, 2010, Whole-Body Interaction for the Enhancement of Presence in Virtual Environments (UB) (cum laude).

Andrea Brogni, 2011, Haptic Illusion in Virtual Environments (Universitat Politècnica de Catalunya) (cum laude).

Insu Yu, 2012, A Graphics Processing Unit Based Method for Dynamic Real-Time Global Illumination (UCL).

Joan Llobera - PhD Defence 21st December, 2012 “Stories within Immersive Virtual Environments” (UB cum laude)

Angus Antley, 2014, Human Balance Behaviour in Immersive Virtual Environment (subject to minor corrections) (UCL)

(b) Current Students

Writing up at UCL

- Aitor Rovira, Reinforcement Learning Algorithms in Virtual Reality (UCL)

PhD Submitted – Examination Expected April 2014

- Konstantina Kilteni, The Role of Semantic Congruence on Body Ownership Illusions Within Immersive Virtual Environments (UB)

In Progress at UB:-

- Sameer Kishor
- Domna Banakou
- Elena Kokkinara
- Elias Giannopoulos
- Mar González Franco
- Anna Bellido
- Solène Neyret (half time)

6.2 Research Fellows

(a) Current Post-Doctoral Research Fellows at UB

- Dr Bernhard Spanlang
- Dr Antonella Maselli
- Dr Elias Bergstrom
- Dr Jorge Arroyo Palacios
- Dr Itxaso Barberia

(b) Current Research Assistants at UB

- Ausias Pomes
- Jordi Santiago
- Carlota Crusafon
- Rodrigo Pizarro Lozano
- Xavi Navarro
- Pierre Bourdin
- Ramon Oliva

(d) Managers

- Dr Vartkes Goetcherian (half time), Project Manager
- Raphael Carbonell, Project Manager
- Irene Sanjuan Navais, Administration
- Solène Neyret (half time)

See www.event-lab.org (People) for the latest list.

7. Publications

Journal Articles

Elena Kokkinara and Mel Slater (2014) Measuring the effects through time of the influence of visuomotor and visuotactile synchronous stimulation on a virtual body ownership illusion. *Perception* (in press).

Daniel Freeman, Nicole Evans, Rachel Lister, Angus Antley, Graham Dunn, Mel Slater (2014) Height, social comparison, and paranoia: An immersive virtual reality experimental study. *Psychiatry Research* (2014). [dx.doi.org/10.1016/j.psychres.2013.12.014](https://doi.org/10.1016/j.psychres.2013.12.014).

Claire Thompson, Natasha Vorontsova, Philippa Garety, Elizabeth Kuipers, Ed Glucksman, Mel Slater (2014) The Use of Immersive Virtual Reality (VR) to Predict the Occurrence Six Months later of Paranoid Thinking and Post-traumatic Stress Symptoms Assessed by Self-Report and Interviewer Methods: A Study of Individuals Who Have Been Physically Assaulted. *Psychological Assessment* (in press)

Banakou, D., Groten, R. and Slater, (2013) Illusory ownership of a virtual child body causes overestimation of object sizes and implicit attitude changes, [doi:10.1073/pnas.1306779110](https://doi.org/10.1073/pnas.1306779110), *Proceedings of the National Academy of Sciences (PNAS)* July 15, 2013

Mar González-Franco, Tabitha C. Peck, Antoni Rodríguez-Fornells, Mel Slater (2013) A Threat to a Virtual Hand Elicits Motor Cortex Activation. *Experimental Brain Research*, [doi: 10.1007/s00221-013-3800-1](https://doi.org/10.1007/s00221-013-3800-1)

T Peck, S Seinfeld, M Aglioti, M Slater (2013) Putting Yourself in the Skin of a Black Avatar Reduces Implicit Racial Bias *Consciousness and Cognition* Volume 22, Issue 3, September 2013, Pages 779–787 22: 779–787.

J Llobera, K J Blom, M Slater (2013) Telling Stories within Immersive Virtual Environments *Leonardo*, October 2013, Vol. 46, No. 5, 471-476 Posted Online September 12, 2013, [doi:10.1162/LEON_a_00643](https://doi.org/10.1162/LEON_a_00643).

William Steptoe, Anthony Steed, Mel Slater (2013) Human tails: ownership and control of extended humanoid avatars. *IEEE Trans Vis Comput Graph* 19: 4. 583-590

Konstantina Kilteni, Ilias Bergstrom, Mel Slater (2013) Drumming in immersive virtual reality: the body shapes the way we play. *IEEE Trans Vis Comput Graph* 19: 4. 597-605 Apr

Mel Slater, Aitor Rovira, Richard Southern, David Swapp, Jian J Zhang, Claire Campbell, Mark Levine (2013) Bystander responses to a violent incident in an immersive virtual environment. *PLoS One* 8: 1. 01

Joan Llobera, Mar González-Franco, Daniel Perez-Marcos, Josep Valls-Solé, Mel Slater, Maria V Sanchez-Vives (2013) Virtual reality for assessment of patients suffering chronic pain: a case study. *Exp Brain Res* 225: 1. 105-117 Mar

Fornells-Ambrojo M, Freeman D, Slater M, Swapp D, Antley A, Barker C. (2013) How do people with persecutory delusions evaluate threat in a controlled social environment? A qualitative study using virtual reality. *Behavioural and Cognitive Psychotherapy*. 1-19, doi: 10.1017/S1352465813000830.

Antonella Maselli, Mel Slater (2013) The building blocks of the full body ownership illusion. *Front Hum Neurosci* 7: 03

David Borland, Tabitha Peck, Mel Slater (2013) An evaluation of self-avatar eye movement for virtual embodiment. *IEEE Trans Vis Comput Graph* 19: 4. 591-596

D Freeman, C Thompson, N Vorontsova, G Dunn, L - A Carter, P Garety, E Kuipers, M Slater, A Antley, E Glucksman, A Ehlers (2013) Paranoia and post-traumatic stress disorder in the months after a physical assault: a longitudinal study examining shared and differential predictors. *Psychol Med* 1-12 Mar

Ilias Bergstrom, Sofia Seinfeld, Jorge Arroyo-Palacios, Mel Slater, Maria V Sanchez-Vives (2013) Using Music as a Signal for Biofeedback (2013) *Int J Psychophysiol*, <http://dx.doi.org/10.1016/j.ijpsycho.2013.04.013>.

Kastanis, I. and M. Slater (2012). "Reinforcement Learning Utilizes Proxemics: An Avatar Learns to Manipulate the Position of People in Immersive Virtual Reality." *Transactions on Applied Perception* 9(1): 3:1-3:15.

Kilteni, K., R. Groten and M. Slater (2012). "The Sense of Embodiment in Virtual Reality." *Presence: Teleoperators and Virtual Environments* 21(4): 373-387.

Kilteni, K., J.-M. Normand, M. V. Sanchez Vives and M. Slater (2012). "Extending the Body Space in Immersive Virtual Reality: A Very Long Arm Illusion: ." *PLoS ONE* 7(7): e40867.

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Normand, J.-M., B. Spanlang, F. Tecchia, M. Carrozzino, D. Swapp and M. Slater (2012). "Full Body Acting Rehearsal in a Networked Virtual Environment - A Case Study." *PRESENCE - Teleoperators and Virtual Environments* 21(2): 229-243.

Pan, X., M. Gillies, C. Barker, D. M. Clark and M. Slater (2012). "Socially Anxious and Confident Men Interact with a Forward Virtual Woman: An Experimental Study." *PLoS ONE* 7(4): e32931.

Perez-Marcos, D., M. V. Sanchez-Vives and M. Slater (2012). "Is my hand connected to my body? The impact of body continuity and arm alignment on the virtual hand illusion." *Cognitive Neurodynamics* 6(4): 295-305.

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8. Knowledge Transfer

8.1 Events

Each year my lab hosts a number of pre-University students from the Youth and Science Programme ('Joves i Ciència') of La Caixa. These students are embedded in projects within the lab, they receive a number of lectures from myself and lab members, and then carry out a project. This has occurred for the past 3 years.

Organised a symposium at the American Psychological Association, July 2012, entitled "New Methods in the Study of Aggression: From Genetics to Immersive Virtual Environments".

American Association for the Advancement of Science: "From Artificial Limbs to Virtual Reality: How the Brain Represents the Body", February 2011.

Body Representation in Physical and Virtual Reality with Application to Rehabilitation, Ascona Switzerland (see www.bodyrep.org) - one of 3 co-organisers, 2010.

Royal Society 2009 'Computation of Emotions in Man and Machines' – as part of the Society's scientific programme for April 2009 — I was a member of the consortium led by Prof. P. Robinson, Cambridge University that was successful in the bid for this event. Articles based on talks given at the meeting were published in a dedicated issue of the Philosophical Transactions of the Royal Society.

EPFL-LATSIS Symposium 2009 - Understanding Violence - Recent advances in biology, sociology, and modelling (Lausanne, Switzerland). This is organised by Carmen Sandi (EPFL, Switzerland), Pierre Magistretti (EPFL, Switzerland), Andreas Meyer-Lindenberg (Central Inst of Mental Health, Mannheim, Germany) and myself. The programme includes many of the world's experts in this field. <http://latsis2009.epfl.ch>

Virtual Environments and Brain Computer Interfaces, Organised by Franco Tecchia, Christoph Guger, M. V. Sanchez-Vives and Mel Slater (sponsored by PRESENCCIA project) 14 - 15 May 2008, Scuola Superiore S. Anna – Aula Magna, Pisa, Italy.

Real Actions in Virtual Environments (RAVE'08) Programme Chair and organiser of this conference, sponsored by EU FET Presence Research, February 2008.

Panel Session: 'Body Ownership and Representation – Towards a Theory of Presence?', Mel Slater, Henrik Ehrsson and Olaf Blanke, PRESENCE 2007, The 10th Annual International Workshop on Presence, October 25 - 27, Barcelona, Spain., October 25th, 2007 (Refereed Proposal).

M. V. Sanchez-Vives & Mel Slater, Fundación Duques de Soria, Soria, Spain, 9-13th July, 2007, 'Body consciousness: brain mechanisms of representation of the self and others'. This was an international seminar co-organised by myself, with many of the world's most important neuroscientists who study body perception and consciousness presenting. The course was open to a limited number of specialist postgraduate students in Europe.

Organizer of European IST 2006 Workshop: Presence Research in Action - a Peach and PRESENCCIA workshop 22/11/2006, Helsinki, Finland (Refereed Proposal).

Co-Conference Chair: ACM Symposium on Virtual Reality Software and Technology, 01/11/2006, Limassol, Cyprus (Invited).

Invited Symposium Organiser: Virtual Reality and Consciousness Symposium - Applied Neuroscience Inaugural Conference (Swansea, UK) with three presentations, 18th September, 2006

D. Friedman, Using Brain-Computer-Interface in a Highly-Immersive Virtual Reality.

Mel Slater, Presence in Virtual Reality.

M. V. Sanchez Vives, Understanding Perception and Consciousness Through Virtual Reality.

Pre-Conference Workshop, Presence and Consciousness in Virtual Environments, at Towards a Science of Consciousness, with M.V.Sanchez-Vives, 03/04/2006, Tuscon, Arizona, USA (Refereed Proposal).

Mel Slater, Programme Chair, 8th Annual International Workshop on Presence PRESENCE September 2005, London (Invited).

Marie-Paule Cani and Mel Slater: International Programme Co-Chair, Eurographics 2004. This has resulted in the special issue of a journal: Cani, M-P. and Slater, M. (Eds) Computer Graphics Forum, 23(3), 2004 (Invited).

Mel Slater & Maria V. Sanchez-Vives, 'From Presence Towards Consciousness' workshop at the 8th Annual Conference for the Scientific Study of Consciousness. <http://143.129.203.3/assc8/wor.html>, Antwerp, Belgium, June 25th, 2004 (Refereed Proposal).

Steve Ellis and Mel Slater: Intelligent Motion and Interaction within Virtual Environments, conference co-chairs, sponsored by NASA/NATO, London, September 2003 (Invited by Steve Ellis of NASA Ames, and with the support of NASA and NATO).

Mel Slater: ACM Computer Graphics (SIGGRAPH) Course organiser, 2002: Course 49: Understanding Virtual Environments: Immersion, Presence, and Performance, San Antonio, USA (Refereed Proposal).

Yiorgos Chrysanthou and Mel Slater: Co-Chairs of the 12th Eurographics Rendering Workshop, 2001, held at University College London, UK (Invited).

Nigel John and Mel Slater: Visualization and Virtual Environments Community Club (VVECC) Virtual Environments in Medicine and Psychiatry, December 2000 (Invited).

Mel Slater: International Programme Chair VRST 99, resulting in proceedings:

M. Slater (1999) ed. VRST'99 Proceedings of the ACM Symposium on Virtual Reality Software and Technology, Dec. 20-22nd 1999, ACM ISBN1-58113-141-0, 194 pages (Invited by IEEE VRST Committee)-

Mel Slater: Panel Organiser for SIGGRAPH 1998:

"Are you there? Presence in virtual reality (panel): what is it about and why care?"

International Conference on Computer Graphics and Interactive Techniques archive

ACM SIGGRAPH 98 Conference abstracts and applications table of contents

Orlando, Florida, United States: 203 – 205, 1998, ISBN:1-58113-046-5

Panel Speakers:

Mel Slater Univ. College London, UK

Nat Durlach Massachusetts Institute of Technology

Lawrence J. Hettinger Logicon Technical Services, Inc.

Randy Pausch Carnegie Mellon Univ., Pittsburgh, PA

Dennis R. Proffitt Univ. of Virginia

(Refereed Proposal)

Mel Slater: Panel Organiser at IEEE Virtual Reality Annual International Symposium (VRAIS'98) on the EU Framework 4, Collaborative Virtual Environments project. (Refereed Proposal)

Mel Slater: Panel Organiser at IEEE Virtual Reality Annual International Symposium (VRAIS'97) describing the work of the Framework for Immersive Virtual Environments (FIVE) ESPRIT Working Group (Refereed Proposal).

Mel Slater: Organiser of the international conference (FIVE '95) on Immersive Virtual Environments for the FIVE (Framework for Immersive Virtual Environments) ESPRIT Working Group in December 1995. This was the first international conference in the UK on virtual environments with fully refereed papers. The conference

was attended by about 80 people from 8 countries. It was in collaboration with the journal Presence: Virtual Environments and Teleoperators (MIT Press) (Deliverable to European Commission of the Working Group)

8.2 Editorial

I have been recently appointed as Chief Speciality Editor for Frontiers in Virtual Environments, which is part of Frontiers in Robotics and AI. As a result of this I will be resigning the positions below in due course.

http://www.frontiersin.org/Virtual_Environments/about

I have been since 2002 Co-Editor-in-Chief of the MIT Press journal: Presence: Teleoperators and Virtual Environments.

<http://www.mitpressjournals.org/loi/pres>

with Janet Weisenberger, Professor of Speech and Hearing Science and Associate Dean for Research in the College of Social and Behavioral Sciences at Ohio State University.

Associate Editor: ACM Transactions on Applied Perception.

Academic Editor: PLoS ONE

8.3 Recent Refereeing

8.3.1 Journals include

Neuroimage
PLoS ONE
European Journal of Social Psychology
ACM Transactions on Graphics
Computer Graphics Forum
Presence: Teleoperators and Virtual Environments
The Visual Computer
ACM Transactions on Computer-Human Interaction
Neuroscience Letters
Psychological Science
International Journal of Human-Computer Studies

8.3.2 Conferences include

ACM SIGGRAPH Asia 2008, 2010 - technical papers committee
ACM *SIGGRAPH Papers Panel* 1999, 2000, 2002, 2005 - technical papers committee
Intelligent Virtual Agents
Co-Chair of *Eurographics* International Programme Committee 2004.
ACM *SIGGRAPH* (Computer Graphics) *Technical Sketches* Committee Member, 2004.
ACM *SIGGRAPH* (Computer Graphics) *Technical Sketches* Committee Chair, 2003.
IEEE Virtual Reality – Programme Committee 2004-2005 (and various previous occasions)
Programme Chair, ACM *Virtual Reality Software and Technology*, December 1999 (Co-Chair, 1998 and 2000).
Eurographics refereeing over several years.
Virtual Reality Annual International Symposium (VRAIS) (IEEE) since 1993, and European organiser for this conference in 1995.
Virtual Reality Software and Technology (ACM), over several years.
Eurographics Workshop on Virtual Environments, several years.

8.4 Commercial

8.4.1 Patents

A Method for automated decision making
With Joan Llobera
11075169.0 - 1238
Spain

The following are earlier patents that have been allowed to lapse:

Virtual Reality Systems
Inventor: Mel Slater
GB2298501
<http://l2.espacenet.com/espacenet/viewer?PN=GB2298501&CY=gb&LG=en&DB=EPD>

Network Performance Indicators
Inventors: Manuel Oliveira, Melvyn Slater, Jon Crowcroft
GB2386501
<http://www.wipo.int/pctdb/en/wo.jsp?wo=2003097194>

Energy Propagation Modelling
Inventor: Mel Slater
EP1116188

8.4.2 Companies

Based on my invention of the ‘Virtual Light Field’ paradigm, UCL Business and myself created a spin-off ‘The Virtual Light Field Company Ltd’ in 1999. This did obtain some DTI ‘Smart Funding’ to develop a prototype in 2005, and this work was successfully completed. However, additional funding was not available, and the company was dissolved in 2007.

Similarly UCL Business with other outside parties set up a company called ConVive Ltd, in order to exploit my work on the use of virtual reality for public speaking rehearsal. Funding was not obtained for this company.

9. Teaching

From 1999-2004 I was not engaged in teaching activities due to my EPSRC Senior Research Fellowship, and since September 2005 I am no longer involved in teaching. Although I always took teaching very seriously, and was passionate about it, I found that after engaging in the EPSRC Senior Research Fellowship, I simply did not have the time to have both a full time research career and carry out extensive teaching.

As an ICREA Researcher I have chosen not to do any teaching (which I have done for more than 35 years since 1970).

9.1 Previous Teaching at UCL

When I arrived at UCL I was the only member of staff with research in computer graphics, and I therefore taught on the new MRes course, and designed the syllabi and details of the graphics components, and introduced a new course on Virtual Environments. Similarly I reshaped the undergraduate computer graphics course. I also introduced in 2005 a new Research Methods module for the Masters students, which included the teaching of statistics, research methods, experimental design and ethical issues. Until 1999 I also taught a computer architecture course. I consistently had one of the highest teaching loads in the Department up to 1999.

9.2 Teaching at Queen Mary

(a) Undergraduate

Interactive Computer Graphics, final year full-unit option on the BSc Computer Science programs. I initiated and developed this course from humble beginnings, into a popular final year option.

(b) Postgraduate

I was very much involved in establishing the Human Computer Interaction stream of the MSc Advanced Methods in Computer Science. Course development and teaching within that stream:

- Computer Aided Geometric Design and Advanced Graphics
- Virtual Environments and Multimedia.
- Part of Imperative Programming on the MSc Information Technology.

(c) Statistics Teaching

For several years I also taught statistics (Linear Models, and Advanced Statistical Computation).

9.3 External Teaching and Examining

(a) Undergraduate and Masters Teaching

Computer Science Division of Electrical Engineering and Computer Sciences, University of California at Berkeley.

1991 Spring Semester:

- Foundations of Computer Graphics (Upper Division Course)

1992 Spring Semester:

- Foundations of Computer Graphics, and Computer Aided Geometric Design and Modeling (Graduate Course)

(b) External Examining

External examiner, MSc Virtual Environments, University of Hull, 1994-1997.

9.4 PhD Examining

PhD examiner for Universities of Cambridge, York, Bristol, Hull, Leeds, Sussex, Manchester, Imperial College London, University College London, Trinity College Dublin, Geneva Switzerland, Chalmers University of Gothenberg Sweden, Sheffield, Gatsby Computational Neuroscience Unit, Graz University of Technology, EPFL Lausanne, Universitat Politècnica de Catalunya, University of Geneva.

9.5 Books

The most externally visible part of my teaching has been through the textbooks that were published in 1987 and 2001. The second book still appears on many current computer graphics reading lists – a few minutes search with google found the following courses across the world of which the following are extant:

Computer Graphics and Image Processing (University of Cambridge, UK)

<http://www.cl.cam.ac.uk/teaching/0708/CST/node108.html>

Echtzeit 3D Computergrafik und Virtuelle Realität (Universität Bielefeld, Germany)

http://www.techfak.uni-bielefeld.de/ags/wbski/lehre/digiSA/WS0405/3DVRCG/3DVRCG_WS0405.html

Tópicos Especiais em Computação Gráfica (Universidade Federal do Maranhão – UFMA, Brasil)

<http://www.dee.ufma.br/~ari/tecgbibliografia.htm>

Tietokonegrafiikka (Department of Computer Science, University of Helsinki, Finland)

<http://www.cs.helsinki.fi/opinnot/opas.html>

There are probably many others besides these, and the book has also been translated into Chinese.

10. Enabling

10.1 UCL

I was Chair of the Board of Examiners, 1995-1998

Department PhD Tutor, 1996-1999

Member of the Research, Services, Teaching, and Department Management Committees.

I founded the Virtual Environments and Computer Graphics group at UCL (as detailed earlier), and led this until 2006. I made this into one of the most successful such groups in the world, with its unique blend of both technical advancement (algorithms and systems) and scientific inquiry (for example, the concept of presence in virtual environments). Through my infrastructure funding efforts I made the VECG group almost certainly the best endowed with equipment within the UK and certainly one of the best on a world scale in this regard.

I was Chair of the Selection Committee of the Rabin Ezra Scholarship Trust (www.rabinezra.info). This awards bursaries of approximately £10,000 per year to graduate candidates from within London University who specialise in computer graphics or related subjects.

10.2 Funding Agency Peer Review and Research Policy

I am a long standing member of the UK EPSRC College, and have a substantial project review load. In addition I have recently carried out reviews for:

- UK AHRB
- Commission of the European Union
- Leverhulme Trust

I was a member of the European Commission Future and Emerging Technologies (FET) Working groups that defined the

- first call for Presence Projects in 2001.
- second call for Presence Integrated Projects in 2005.
- call for Human-Computer Confluence projects in 2009.

I was involved in drafting of the US National Academy of Engineering, Engineering Grand Challenges, ‘Enhance virtual reality’, 2008. <http://www.engineeringchallenges.org/cms/8996/9140.aspx>

10.3 Publicity

Please see www.event-lab.org (news) for a complete list.

My work has received substantial publicity in the media.

Realidad virtual ‘versus’ racismo, El Mundo, December 2013
<http://www.elmundo.es/ciencia/2013/12/28/52bd5b7622601d95408b457b.html>

Can a Virtual World Reduce Racism, BBC, <http://www.bbc.co.uk/news/science-environment-25189720>

Can virtual reality be used to tackle racism, BBC: <http://www.youtube.com/watch?v=NrRRKZRGZbE>
(December 2013)

Scientific American Blog ‘Through the Eyes of a Child’ http://blogs.scientificamerican.com/illusion-chasers/2013/07/22/child_vr/

Adults become more like children in a virtual world BBC, NEWS Science & Environment,
16 July 2013 <http://www.bbc.co.uk/news/science-environment-23285154>

Bored of being a grown-up? Welcome to the virtual world where adults in a child-like body start to see the world like a Mail Online, 16 July 2013 <http://www.dailymail.co.uk/sciencetech/article-2366036/Bored-grown-Welcome-virtual-world-adults-child-like-body-start-world-like-kid-again.html>

New Scientist: Virtual avatar lets you experience being a 4-year-old, 15 July 2013 by Sandrine Ceurstemont,
<http://www.newscientist.com/article/dn23872-virtual-avatar-lets-you-experience-being-a-4-year-old.html#.UkQp7xaPHJB>

Science Magazine: Virtual Reality Allows Adults to See World Through a Child's Eyes 15 July 2013,
<http://news.sciencemag.org/2013/07/virtual-reality-allows-adults-see-world-through-childs-eyes?ref=hp>

The Atlantic: The Quest for Seamless, High-Quality Virtual Reality,
<http://m.theatlantic.com/technology/archive/2013/06/the-quest-for-seamless-high-quality-virtual-reality/277200>

Racist? Virtual Reality Could Fix That, Pacific Standard, Digital edition, 06 June 2013
<http://www.psmag.com/blogs/news-blog/experiencing-yourself-as-a-black-avatar-decreases-bias-59399/>

Are you racist? You might want to change your avatar, The Conversation, 04 June 2013

<http://theconversation.com/are-you-racist-you-might-want-to-change-your-avatar-14851>

On the Internet, Nobody Knows You're a Rat, New virtual reality experiment lets people and rodents control interacting avatars. DISCOVER Magazine, June 2013, The Magazine of Science, Technology and the Future, 01 June 2013 <http://discovermagazine.com/2013/june/03-on-the-internet-nobody-knows-youre-a-rat#.UYtSfMq0NTI>

Article: Jedi Mind Trick? Brain Thinks It Inhabits Virtual Body, LiveScience.com 28 May 2013 <http://www.livescience.com/34776-virtual-body-merges-with-real-body.html>

Euronews: <http://www.euronews.com/2012/11/13/a-world-without-limits/>

The paper on beaming into the rat world (PLoS ONE 2012) has received more than 140,000 page views on PLoS ONE, and enormous coverage in the media.

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0048331>

BBC 1 TV News at 6, Friday 11th May and <http://www.bbc.com/news/technology-18017745> "Robot Avatar Beaming Put to the Test". This was a BBC interview using embodiment into a remote robot.

Are You Good or Evil Mel Slater featured in the BBC2 Horizon Programme "Are You Good or Evil?" together with Xueni (Sylvia) Pan at UCL, describing an experiment in virtual reality to examine people's responses to moral dilemmas. 07 September 2011 <http://www.bbc.co.uk/programmes/b014kj65>

'The Kindness of Crowds' The Economist, March 2009

http://www.economist.com/science/displaystory.cfm?story_id=13176759

'The latest trend in medicine – virtual reality' The Times, Kate Wighton, 17th May, 2008.

"Das Monster in uns" (the monster in us) on ZDF-Dokumentationskanal (ZDF-Documentary-Channel) is a documentary on German TV about Stanley Milgram including an interview with his wife, where I am interviewed and clips from our 'Virtual Reprise of the Stanley Milgram Obedience Experiments' appear, April 2008.

http://www.zdf.de/ZDFde/inhalt/22/0,1872,4341526_idDispatch:7601587,00.html

'Las nuevas técnicas permiten viajar al centro del cerebro' El Pais, Monica Salomone, 23rd April, 2008.

El Pais, Spain, 'La próxima evolución' 19 February 2008

http://www.elpais.com/articulo/portada/proxima/evolucion/elpepusocephs/20080217elpepspor_8/Tes/

New Scientist magazine, 'Anti-social bot invades Second Lifers' personal space' 2 November 2007

http://technology.newscientist.com/channel/tech/dn12870-antisocial-bot-invades-second-lifers-personal-space.html?feedId=online-news_rss20

BBC News, 'Overcoming your virtual fears' 22 October 2007 <http://news.bbc.co.uk/2/hi/technology/7056199.stm>

Science magazine, article refers to Milgram experiment 'The Promise of Parallel Universes' 7 September 2007

<http://www.sciencemag.org/cgi/content/full/317/5842/1341>

Video interview with Science magazine, 'Virtual Worlds: The Promise of Parallel Universes'. Podcast host Robert Frederick narrates a special video accompaniment to 'The Promise of Parallel Universes' article on doing research in online virtual worlds, from Science's 7 September 2007 special issue on social cognition.

<http://www.sciencemag.org/multimedia/video/>

Medical Mavericks – October Films for the Discovery Channel – this contained a sequence showing a person who is paraplegic using our Brain-Computer Interface system in the UCL Cave, in order to move through a virtual street by thought (December, 2006).

<http://www.octoberfilms.co.uk/productions.php?category=science>

The work on the virtual reality replication of the classic Stanley Milgram experiment on obedience to authority has received significant world-wide publicity. Some examples include BBC Radio 4 Today Programme, 21st

December, 2006, Nature News, 22nd December, 2006, La Vanguardia, 8th January 2007, Barcelona TV3 10th February, 2007, and more than 1000 web based articles and links.

Mind power allows disabled to take a virtual stroll, The Observer, 2nd July 2006 – discusses our Brain-Computer Interface for Virtual Reality research.

<http://www.cs.ucl.ac.uk/research/vr/Projects/PRESENCCIA/Public/The%20Observer.html>

On 1st January 2004 I was interviewed on BBC radio World Service generally about the work on the responses of people to interactions with virtual characters in immersive virtual environments, on the programme ‘East Asia Today’

The work on applications of virtual reality to psychotherapy has appeared several times on the BBC, including November 14th, 2002, BBC Tomorrow's World on Virtual Vertigo. The BBC has also focussed on the research on paranoia (<http://news.bbc.co.uk/1/hi/health/3251365.stm>) and further background is available on <http://www.ucl.ac.uk/news/archive/2003/december-2003/latest/newsitem.shtml?03120904>.

The UCL Cave system featured in IEE 2001 Faraday Lecture Beyond the Square Window, broadcast on UK TV Channel Four, November 2001, and also in July 2001 on BBC Radio 4's science programme ‘Leading Edge’.

In November 2002 I carried out an experiment with researchers at MIT that gained very wide international publicity. This was reported as the first cross-Atlantic ‘touch’ experiment, where people in UCL London, MIT Cambridge MA, and Los Angeles were able to feel the each other's hand movements during a virtual reality experiment. See for example (there are many others):

<http://news.bbc.co.uk/1/hi/technology/2371103.stm> (BBC)

http://www.abc.net.au/news/scitech/2002/10/item20021029112735_1.htm (ABC)

<http://www.sciencedaily.com/releases/2002/10/021029070503.htm> (Science Daily)

<http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&contentId=A54752-2002Nov1¬Found=true> (Washington Post).

This was also featured on BBC Radio 4's science programme Leading Edge 13th February, 2003.

http://www.bbc.co.uk/radio4/science/leadingedge_20030213.shtml

and in many overseas publications, for example:

<http://www.innovations-report.de/html/berichte/informationstechnologie/bericht-14019.html>

(Spanish): <http://www.sindiases.org/noticias/noticia24.html>

The Times of India: <http://timesofindia.indiatimes.com/articleshow.cms?msid=26770627>

The Independent (UK national newspaper) January 23, 2002, Wednesday, Health: ‘How I Put The Fear Behind Me’ Pg. 8, 1183 words – report on the work regarding the use of virtual reality for phobias.

The Sunday Herald (UK National newspaper) September 16, 2001, Pg. 14, 513 words ‘Paranoias and phobias virtually cured at the push of a button; A computerised setting and a therapist, says Mark Hughes-Morgan, can fix your social ills’.

The Evening Standard (London) July 12, 2000, Pg. 24, 462 words ‘How to be the greatest public speaker... virtually: You might think that talking to a roomful of computer images is totally absurd, but it is extraordinary to watch people's reactions’.

The original research on how to ‘walk’ through a virtual environment by walking in place featured on BBC Radio 4's leading science program ‘Science Now’ in the mid 1990s. The fear of public speaking research was featured in a 10 minute section of BBC's ‘Tomorrow's World Plus’.

The Guardian (UK National Newspaper) March 29, 1990, 1152 words ‘Computer Guardian: Reaching through a screen - 3D scenes can be rapidly created but one of the toughest tasks is to find an easy language of interaction’ description of our work on methods for 3D interaction.