

EUROPEAN
CURRICULUM VITAE
FORMAT



PERSONAL INFORMATION

Name **TECCHIA, Franco**

Office Address

Telephone

Fax

E-mail

Nationality

Date of Birth

Gender

Short Bio

Franco Tecchia holds a **National Scientific Qualification (Abilitazione Scientifica Nazionale Seconda Fascia 09/H1 Dal 04/04/2017 al 04/04/2023)**- He received his Master degree from the University of Pisa and a Ph.D. in Computer Science from University College London, UK, where he has also been Research Fellow in the VE and Computer Graphics group headed by Prof. Mel Slater where he has been developing a vast experience on fully-immersive Virtual Reality technology and associated research topics.

From 2003 to May 2022 Franco returned at Scuola Sant'Anna as the head of the Computer Graphics and Virtual Environment Area at the TeCIP and IM Institute, working in the context of national and international research. His activities included both European-funded research and International Collaboration involving Virtual Reality such as the the European Projects VIRTUAL, PURE FORM, CREATE, PRESENCCIA, SKILLS, BEAMING, VERE and the NoE ENACTIVE and INTUITION and a number of Italian projects focused on the use of VR and AR in several aspects of the society (Industry, Medicine, Cultural Heritage and more).

His research interests span the full spectrum of technology-oriented research for Virtual and Augmented Reality: Computer Graphics, Computer Vision, Tracking, Cluster-Based rendering, Real-time physics, Haptics, Motion simulation, Network Communication and Artificial Intelligence with a particular interest for the immersive visualization and augmented reality and for the engineering aspects of complex software architectures. He has authored or co-authored more than 90 peer-reviewed publications including several high impact journal papers (i.e. IEEE COMPUTER GRAPHICS AND APPLICATIONS, IEEE JOURNAL OF SELECTED TOPICS IN SIGNAL PROCESSING, COMPUTER ANIMATION AND VIRTUAL WORLD).

He has been twice awarded of Australia National Research Flagships, an international collaboration scheme funded by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) for high-profile strategic research collaborations with non-Australian research collaborations. Franco is member of the editorial board and Associate Editor of the journal Presence: Teleoperators and Virtual Environments (MIT PRESS) and he was Expert Evaluator for the Seventh Framework Program (FP7) of the European Commission, in the theme European Institute of Innovation and Technology (EIT). He is also the coordinator of the XVR Project (wiki.vrmedia.it), a large development effort for the creation of a "super flexible" VR framework, and the founder of VRMedia S.R.L. (www.vrmedia.eu), an Italy-based company developing Virtual Reality systems and software for industrial applications.

EDUCATION AND TRAINING

- Year
- Name and type of organisation providing education and training
- Principal subjects/occupational skills covered

2006 - Ph.D. in Computer Science

University College London, UK

Dissertation title: *"An image-based approach to the rendering of crowds in real-time"*

Main Topic: Real-Time computer graphics for Virtual Environments, under the supervision of Prof. Mel Slater

1998 – Master Degree in Computer Science Engineering

Facoltà di Ingegneria dell'Università di Pisa, Italy

Dissertation title: *"Real Time rendering of complex polygonal models in Virtual Reality applications"*, under the supervision of Prof. Massimo Bergamasco

Main Topic: Real-Time computer graphics for Virtual Environments

WORK EXPERIENCE

- Dates (from - to)
- Name and address of the employer
- Type of business or sector
- Occupation or position held
- Main activities and responsibilities

2003 - TODAY

Scuola Superiore Sant'Anna, Piazza Martiri della Libertà 33, Pisa, Italy

Website: www.sssup.it

University

Assistant Professor

Head of the "Computer Graphics and Virtual Environments" group at PERCRO lab
(Website: www.percro.org)

- Dates (from - to)
- Name and address of the employer
- Type of business or sector
- Occupation or position held
- Main activities and responsibilities

1999 - 2006

University College London, Computer Science Department, Gower Street, London, UK

Website: www.cs.ucl.ac.uk

University

Research Fellow (+ Part-time Ph.D. program enrolment)

Member of the "Computer Graphics and Virtual Environment Group", founded by Prof. Mel Slater

ADDITIONAL WORK EXPERIENCE

2010 - AUSTRALIA NATIONAL RESEARCH FLAGSHIP

Spent 3 months as a visiting researcher at CSIRO (Brisbane & Sydney) working on the topic of Augmented Reality and tele-collaboration for mining applications.

2012 - AUSTRALIA NATIONAL RESEARCH FLAGSHIP

Spent 5 months as a visiting researcher at CSIRO (Sydney) working on the topic of Immersive 3D for remote collaboration.

RESEARCH INTERESTS

My research interests span the full spectrum of technology-oriented research for Virtual and Augmented Reality: Computer Graphics, Computer Vision, Tracking, Cluster-Based rendering, Real-time physics, Haptics, Motion simulation, Network Communication. I've a particular interest for the immersive visualization and augmented reality, and for the engineering aspects of complex software architectures to be employed in time-critical task, a field where I've accumulated a broad experience on the creation of complex VR systems. More recently, I got interested in the topic of 3D data real-time compression and streaming applied to the context of immersive tele-conferencing. I'm currently the Principal Investigator at Scuola Superiore San' Anna of the EU Integrated project BEAMING, whose aim is the exploration of the concept of remote presence. More info on the project can be found at: <http://beaming-eu.org/>.

PUBLICATIONS

Stats (updated on 30/5/2022)

Scopus: h-index 18, publications 72, citations 1317

Google Scholar: h-index 27, publications 109, citations 2778

Journals:

Huang, W., Alem, L., Tecchia, F., Duh, H.B.-L. "Augmented 3D hands: a gesture-based mixed reality system for distributed collaboration", *Journal on Multimodal User Interfaces*, 2018, 12(2), pp. 77–89

2017 D Lavery, M Ruffini, L Valcarengi, N Yoshimot et al., "Networks for future services in a smart city: Lessons learned from the connected OFCity challenge" - *IEEE Communications Magazine*, 2018

W Huang, L Alem, F Tecchia, HBL Duh, "Augmented 3D hands: a gesture-based mixed reality system for distributed collaboration", *Journal on Multimodal User Interfaces*, Springer International Publishing, 2017

E. Tidoni, F. Tecchia et al., "Local and Remote Cooperation With Virtual and Robotic Agents: A P300 BCI Study in Healthy and People Living With Spinal Cord Injury," in *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 25, no. 9, pp. 1622-1632, Sept. 2017.
doi: 10.1109/TNSRE.2016.2626391

Roberts, David J., Allen J. Fairchild, Simon P. Champion, John O'Hare, Carl M. Moore, Rob Aspin, Tobias Duckworth, Paolo Gasparello, and Franco Tecchia. "withyou—An Experimental End-to-End Telepresence System Using Video-Based Reconstruction." *Selected Topics in Signal Processing*, *IEEE Journal of* 9, no. 3 (2015): 562-574.

Gavish, Nirit, Teresa Gutiérrez, Sabine Webel, Jorge Rodríguez, Matteo Peveri, Uli Bockholt, and Franco Tecchia. "Evaluating virtual reality and augmented reality training for industrial maintenance and assembly tasks." *Interactive Learning Environments* 23, no. 6 (2015): 778-798.

Carrozzino, Marcello, Chiara Evangelista, Caterina Bay, Franco Tecchia, Dario Matteoni, and Massimo Bergamasco. "An immersive information system for the communication of the restoration of Simone Martini's Polyptich." *Journal of Cultural Heritage* 16, no. 5 (2015): 741-746.

Tripicchio, Paolo, Claudio Loconsole, Andrea Piarulli, Emanuele Ruffaldi, Franco Tecchia, and Massimo Bergamasco. "On multiuser perspectives in passive stereographic virtual environments." *Computer Animation and Virtual Worlds* 25, no. 1 (2014): 69-81.

Lorenzini, C., Carrozzino, M., Evangelista, C., Tecchia, F., Bergamasco, M., & Angeletaki, A. (2013). Serious games for disseminating the knowledge of ancient manuscripts: a case study. *SCIRES-IT-SCientific REsearch and Information Technology*, 3(2), 135-142.

Carrozzino, M., Angeletaki, A., Evangelista, C., Lorenzini, C., Tecchia, F., & Bergamasco, M. (2013). Virtual technologies to enable novel methods of access to library archives. *SCIRES-IT*, 3(1), 25-34.

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

M. Carrozzino, V. Piacentini, F. Tecchia, M. Bergamasco (2012). Interactive Visualization of Crowds for the Rescue of Cultural Heritage in Emergency Situations. *SCIRES-IT*, vol. 2, p. 133-148, ISSN: 2239-4303, doi: 10.2423/i22394303v2n1p133

Steptoe, W., Normand, J.M., Oyekoya, O., Pece, F., Giannopoulos, E., Tecchia, F., Steed, A. & Slater, M. (2012). Acting rehearsal in collaborative multimodal mixed reality environments. *Presence (Camb.)*,

Perez-Marcos, D., Solazzi, M., Steptoe, W., Oyekoya, O., Frisoli, A., Weyrich, T., Steed, A., Tecchia, F., Slater, M. & Sanchez-Vives, M.V. (2012). A fully immersive set-up for remote interaction and neurorehabilitation based on virtual body ownership. *Frontiers in Neurology*

Anthony Steed, William Steptoe, Wole Oyekoya, Fabrizio Pece, Tim Weyrich, Jan Kautz, Doron Friedman, Angelika Peer, Massimiliano Solazzi, Franco Tecchia, Massimo Bergamasco, Mel Slater, "Beaming: An Asymmetric Telepresence System", *IEEE Computer Graphics and Applications*, Volume 32, Issue 6

TECCHIA F, CARROZZINO M., BACINELLI S, ROSSI F, VERCELLI D, MARINO G, GASPARELLO P, BERGAMASCO M (2010). A Flexible Framework for Wide-Spectrum VR Development. *PRESENCE-TELEOPERATORS AND VIRTUAL ENVIRONMENTS*, vol. 19; p. 302-312, ISSN: 1054-7460, doi: 10.1162/PRES_a_00002

CARROZZINO M., TECCHIA F., BERGAMASCO M. (2009). Urban Procedural Modeling for Real-Time Rendering. *THE INTERNATIONAL ARCHIVES OF THE PHOTOGRAMMETRY, REMOTE SENSING AND SPATIAL INFORMATION SCIENCES*, vol. XXXVIII-5/W1, ISSN: 1682-1777

Jesper Mortensen, Insu Yu, Pankaj Khanna, Franco Tecchia, Bernhard Spanlang, Giuseppe Marino, Mel Slater: Real-Time Global Illumination for VR Applications. *IEEE Computer Graphics and Applications* 28(6): 56-64 (2008)

Mel Slater, Antonio Frisoli, Franco Tecchia, Christoph Guger, Beau Lotto, Anthony Steed, Gert Pfurtscheller, Robert Leeb, Miriam Reiner, Maria V. Sanchez-Vives, Paul F. M. J. Verschure, Ulysses Bernardet: Understanding and Realizing Presence in the Presencia Project. *IEEE Computer Graphics and Applications* 27(4): 90-93 (2007)

Franco Tecchia, Celine Loscos, Yiorgos Chrysanthou. "Visualizing Crowds in Real-Time" *Computer Graphics forum*, Volume 21, Number 4, December 2002, pages 753-765.

Franco Tecchia, Céline Loscos, Yiorgos Chrysanthou – "Image Based Crowd rendering – *IEEE Computer Graphics & Application*, volume 22, number 2, March-April 2002.

Proceedings:

Longobardi, A., Tecchia, F., Carrozzino, M., Bergamasco, M., "Efficient Augmented Reality on Low-Power Embedded Systems", *Lecture Notes in Computer Science* (including subseries *Lecture Notes in Artificial Intelligence* and *Lecture Notes in Bioinformatics*) this link is disabled, 2021, 12980 LNCS, pp. 227–244

Longobardi, A., Tecchia, F., Carrozzino, M., Bergamasco, M., "A real-time video stream stabilization system using inertial sensor", *Lecture Notes in Computer Science* (including subseries *Lecture Notes in Artificial Intelligence* and *Lecture Notes in Bioinformatics*), 2019, 11613 LNCS, pp. 274–291

Scarlato, F., Palmitesta, G., Tecchia, F., Carrozzino, M., "Design and implementation of a reactive framework for the development of 3D real-time applications", *Lecture Notes in Computer Science* (including subseries *Lecture Notes in Artificial Intelligence* and *Lecture Notes in Bioinformatics*), 2019, 11613 LNCS, pp. 254–273

Carrozzino, M., Colombo, M., Tecchia, F., Evangelista, C. and Bergamasco, M., 2018, June. "Comparing Different Storytelling Approaches for Virtual Guides in Digital Immersive Museums." In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 292-302). Springer, Cham.

G. Avveduto, F. Tecchia, H.Fuchs, "Real-world occlusion in optical see-through AR displays", Proceedings of the 23rd ACM Symposium on Virtual Reality Software and Technology, ACM, 2017

G. Avveduto, C. Tanca, C. Lorenzini, F. Tecchia, M. Carrozzino, M. Bergamasco, "Safety Training Using Virtual Reality: A Comparative Approach", International Conference on Augmented Reality, Virtual Reality and Computer Graphics, Springer, 2017

G., F. Tecchia, M. Carrozzino, M. Bergamasco, "A Scalable Cluster-Rendering Architecture for Immersive Virtual Environments", International Conference on Augmented Reality, Virtual Reality and Computer Graphics, Springer 2017

C. Loconsole, G. Tattoli, I.Bortone, F. Tecchia, D. Leonardis, A. Frisoli, "A fully immersive VR-based haptic feedback system for size measurement in inspection tasks using 3D point clouds Authors", 26th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), 2017

M.Carrozzino, C.Lorenzini, M. Duguleana, C. Evangelista, R. Brondi, F. Tecchia, M. Bergamasco, "An immersive vr experience to learn the craft of printmaking", International Conference on Augmented Reality, Virtual Reality and Computer Graphics, Springer 2017

C, Faita, C. Tanca, A. Piarulli, M. Carrozzino, F.Tecchia, M. Bergamasco, "The Effect of Emotional Narrative Virtual Environments on User Experience", International Conference on Augmented Reality, Virtual Reality and Computer Graphics, Springer 2016

E.Ruffaldi, F. Brizzi, F.Tecchia, S. Bacinelli, "Third point of view augmented reality for robot intentions visualization", International Conference on Augmented Reality, Virtual Reality and Computer Graphics, Springer 2016

Carrozzino, M., Lorenzini, C., Evangelista, C., Tecchia, F. and Bergamasco, M., 2015. "AMICA-Virtual Reality as a Tool for Learning and Communicating the Craftsmanship of Engraving", Proceedings of the International Congress on Digital Heritage 2015, IEEE

Brondi, R., Avveduto, G., Alem, L., Faita, C., Carrozzino, M., Tecchia, F., Pisan, Y. and Bergamasco, M., 2015, November. "Evaluating the effects of competition vs collaboration on user engagement in an immersive game using natural interaction." In Proceedings of the 21st ACM Symposium on Virtual Reality Software and Technology (pp. 191-191). ACM.

Brondi, Raffaello, Leila Alem, Giovanni Avveduto, Claudia Faita, Marcello Carrozzino, Franco Tecchia, and Massimo Bergamasco. "Evaluating the impact of highly immersive technologies and natural interaction on player engagement and flow experience in games." Entertainment Computing-ICEC 2015 (2015): 169-181.

Lorenzini, Cristian, Claudia Faita, Michele Barsotti, Marcello Carrozzino, Franco Tecchia, and Massimo Bergamasco. "ADITHO—A Serious Game for Training and Evaluating Medical Ethics Skills." Entertainment Computing-ICEC 2015 (2015): 59-71.

Sportillo, Daniele, Giovanni Avveduto, Franco Tecchia, and Marcello Carrozzino. "Training in VR: A Preliminary Study on Learning Assembly/Disassembly Sequences." Augmented and Virtual Reality (2015): 332-343.

Lorenzini, C., Faita, C., Carrozzino, M., Tecchia, F., & Bergamasco, M. (2015). "VR-Based Serious Game Designed for Medical Ethics Training". In Augmented and Virtual Reality (pp. 220-232). Springer International Publishing.

Lorenzini, C., Brondi, R., Nisticò, M.M., Carrozzino, C.E. and Tecchia, F., Lawville: "A Collaborative Serious Game for Citizenship Education.", 6th International Conference on serious games (VS-GAMES) 2014 (2014)

Tecchia, Franco, Giovanni Avveduto, Raffaello Brondi, Marcello Carrozzino, Massimo Bergamasco, and Leila Alem. "I'm in VR!: using your own hands in a fully immersive MR

system." In Proceedings of the 20th ACM Symposium on Virtual Reality Software and Technology, pp. 73-76. ACM, 2014.

Carrozzino, Marcello, Giovanni Avveduto, Franco Tecchia, Pavel Gurevich, and Benjamin Cohen. "Navigating immersive virtual environments through a foot controller." In Proceedings of the 20th ACM Symposium on Virtual Reality Software and Technology, pp. 23-26. ACM, 2014.

Tecchia, Franco, Giovanni Avveduto, Marcello Carrozzino, Raffaello Brondi, Marco Bergamasco, and Leila Alem. "Interacting with your own hands in a fully immersive MR system." In Mixed and Augmented Reality (ISMAR), 2014 IEEE International Symposium on, pp. 313-314. IEEE, 2014.

Marcello Carrozzino, Chiara Evangelista, Raffaello Brondi, Franco Tecchia, Massimo Bergamasco, "Virtual reconstruction of paintings as a tool for research and learning", Journal of Cultural Heritage, Volume 15, N3 ,pp 308-312,Elsevier 2014

Huang, Weidong, Leila Alem, and Franco Tecchia. "HandsIn3D: supporting remote guidance with immersive virtual environments." In Human-Computer Interaction–INTERACT 2013, pp. 70-77. Springer Berlin Heidelberg, 2013.

Oyekoya, Oyewole, Ran Stone, William Steptoe, Laith Alkurdi, Stefan Klare, Angelika Peer, Tim Weyrich, Benjamin Cohen, Franco Tecchia, and Anthony Steed. "Supporting interoperability and presence awareness in collaborative mixed reality environments." In Proceedings of the 19th ACM Symposium on Virtual Reality Software and Technology, pp. 165-174. ACM, 2013.

Lorenzini, Cristian, Marcello Carrozzino, Franco Tecchia, and Marco Bergamasco. "Automatic creation of bas-reliefs from single images." In Digital Heritage International Congress (DigitalHeritage), 2013, vol. 1, pp. 417-420. IEEE, 2013.

Huang, W., Alem, L., & Tecchia, F. (2013). HandsIn3D: supporting remote guidance with immersive virtual environments. In Human-Computer Interaction–INTERACT 2013 (pp. 70-77). Springer Berlin Heidelberg.

Møller, A. K., Hoffmann, P. F., Carrozzino, M., Fata, C., Avveduto, G., Tecchia, F., ... & Anna, T. S. S. (2013). Joint evaluation of communication quality and user experience in an audio-visual virtual reality meeting. In Proceedings of 4th International Workshop on Perceptual Quality of Systems-Pqs 2013.

Franco Tecchia, Leila Alem ,Weidong Huang ,3D Helping Hands: a gesture based MR system for remote collaboration: Proceedings of the VRCAI 2012 Conference, Singapore

Filippo Bannò, Paolo Simone Gasparello, Franco Tecchia and Massimo Bergamasco, Real-Time Compression of Depth Streams Through Meshification and Valence-Based Encoding, Proceedings of the VRCAI 2012 Conference, Singapore

Gasparello, P.S., Marino, G. , Bannò, F. Tecchia, F. Bergamasco, M.}, Real-Time Network Streaming of Dynamic 3D Content with In-frame and Inter-frame Compression}, in Distributed Simulation and Real Time Applications (DS-RT), 2011 IEEE/ACM 15th International Symposium on}, pages={81–87}

Alem, L., Tecchia, F. and Huang, W. (2011) ReMoTe: A Tele-Assistance System for Maintenance Operators in Mines. In Proceedings of 11th Underground Coal Operators' Conference, University of Wollongong & the Australasian Institute of Mining and Metallurgy, 2011, 171-177

ENGELKE, T.; WEBEL, S.; BOCKHOLT, U;GAVISH, N; TECCHIA, F.; PREUSCHE,," Towards Automatic Generation of Multimodal AR-Training Applications and Workflow Descriptions, 19th IEEE International Symposium on Robot and Human Interactive Communication. Proceedings [online]. New York: The Institute of Electrical and Electronics Engineers (IEEE), 2010, pp. 434-439, IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)

G. MARINO, P.S. GASPARELLO, D. VERCELLI, F. TECCHIA, and M.BERGAMASCO, Network streaming of dynamic 3d content with on-line compression of frame data. In Virtual Reality Conference (VR), 2010, IEEE, pages 285 –286, mar. 2010

Giuseppe Marino, Paolo Simone Gasparello, Davide Vercelli, Franco Tecchia, Massimo Bergamasco: A Compression Scheme for Efficient Remote Streaming of Dynamic 3D Content. GRAPP 2010: 267-270

Paolo Simone Gasparello, Giuseppe Marino, Filippo Bannò, Franco Tecchia, Massimo Bergamasco, " Real-Time Network Streaming of Dynamic 3D Content with In-frame and Inter-frame Compression", Proceedings of the 2011 IEEE/ACM 15th International Symposium on Distributed Simulation and Real Time Applications

Paolo Tripicchio, Alessandro Filippeschi, Emanuele Ruffaldi, Franco Tecchia, Carlo Avizzano, Massimo Bergamasco, "A measuring tool for accurate haptic modeling in industrial maintenance training", Proceedings of the international Conference, EuroHaptics 2010, Amsterdam, July 8-10, 2010

CARROZZINO M., TECCHIA F., LAVIN M.A., ALEXANDER K.D., Piero Della Francesca On-line: Story of the True Cross, San Francesco, Arezzo (Italy) In: J. Trant and D. Bearman (eds). Museums and the Web 2009: Proceedings. Toronto: Archives & Museum Informatics. Published March 31, 2009. Consulted May 6, 2009. Indianapolis (USA), 15-18/04/2009

MARINO GIUSEPPE, TECCHIA FRANCO, VERCELLI DAVIDE, BERGAMASCO MASSIMO, Hybrid Rendering in a Multi-framework VR System. IEEEVR 2009: pag 263-264

Giuseppe Marino, Davide Vercelli, Franco Tecchia, Paolo Simone Gasparello, " Description and performance analysis of a distributed rendering architecture for virtual environments, IEEE17th International Conference on Artificial Reality and Telexistence, 2007,pages 234-241

Bergamasco, M. Bizdideanu, Andreea Carrozzino, Marcello Gasparello, Paolo Simone Rossi, Fabio Tecchia, Franco "Using real-time stereoscopic 3D for remote training on complex assembling/disassembling sequences" Workshop on Hyper-media 3D Internet, 14th October 2008 Geneva, Switzerland

D. Vercelli, F. Tecchia, M. Carrozzino, S. Bacinelli, F. Rossi, M. Bergamasco, "A Cost Effective Pipeline For The Development Of Professional VR Applications", 4th International INTUITION Conference on Virtual Reality and Virtual Environments, 2007

G. Marino, F. Tecchia, M. Bergamasco, "Cluster-based rendering of complex Virtual Environments". In Proceedings of The 4th International INTUITION Conference on Virtual Reality and Virtual Environments, 2007

F.Tecchia, E.Ruffaldi, M.Carrozzino, A. Frisoli, M. Bergamasco, "Multimodal Interaction for the World Wide Web", proceedings of Museums on the Web 2007, San Francisco (CA), April 2007

M.Carrozzino, F.Tecchia, F.Rossi, F.Canaccini, A.Bazzoni, M.Bergamasco "The City Modeling Procedural Engine" Proceedings of 3CTV Conference, October 24th 2006, Bilbao, Spain

E. Ruffaldi, A. Frisoli, C. Gottlieb, F. Tecchia and M. Bergamasco "Haptic toolkit for the development of immersive and Web enabled games", Short paper in "Haptics for VR" of ACM Symposium on Virtual Reality Software and Technology (VRST) 2006, Cyprus

F.Tecchia, M.Carrozzino, M.Bergamasco, "Using stereoscopic real-time graphics to shorten training", in proceedings of SPIE Vol.6055, Stereoscopic Display and Applications XVII, 2006

Y. Chrsanthou, F.Tecchia, "Adding Pedestrians to a Virtual City", Proceedings of V-Crowds 2005, EPFL, Lausanne - Switzerland, November 2005

M. Carrozzino, A.Baroni, F. Tecchia et al."Interacting with complex virtual models: a suitable metaphor for Virtual Prototyping", Proceedings of Enactive 2005, Genova, Italy

M. Carrozzino, A. Brogi, F. Tecchia, M.Bergamasco "The 3D Interactive Visit to Piazza dei Miracoli, Italy", Ace2005, Valencia, Spain

M. Carrozzino, F. Tecchia, S. Bacinelli, M.Bergamasco "Lowering the Development Time of Multimodal Interactive Application: The Real-life Experience of the XVR Project", Ace2005, Valencia, Spain

M. Carrozzino, A. Brogi, F. Tecchia, M. Bergamasco , " A virtual tour of Piazza dei Miracoli" , MIDECH 2005 – Milan, Italy

M. Carrozzino, A. Frisoli, F. Rossi, F. Tecchia et al,"The Museum of Pure Form" , MIDECH 2005 – Milan, Italy

G. Drettakis, M. Roussou, M. Asselot, A. Reche, A. Olivier-Mangon, N. Tsingos, F. Tecchia "Participatory Design and Evaluation of a Real-World Virtual Environment for Architecture and Urban Planning", INRIA Research Report number 5479, January 2005, Sophia-Antipolis

C. Loscos, F. Tecchia, A. Frisoli, M. Carrozzino, et al.) "The Museum of Pure Form: touching real statues in an immersive virtual museum", in proceedings of VAST 2004 – Bruxelles, Belgium

M.Carrozzino, M.Raspolli, F.Tecchia et al, "Virtual Prototyping for 2-Wheels Vehicles", VIA 2004 Workshop - Compiègne, France

M. Carrozzino, F. Tecchia et al , "The 3D Website of Piazza dei Miracoli in Pisa – Italy", in proceedings of VAST 2004 – Bruxelles, Belgium

M. Marcacci, C.Limone, M.Carrozzino, F.Tecchia et al, "La prototipazione virtuale per veicoli a 2 ruote" Convegno Nazionale XIV ADM –XXXIII AIAS Innovazione nella progettazione industriale – June 2004, Bari, Italia

C. Loscos, H.R. Widenfeld, M. Roussou, A. Meyer, F. Tecchia, et al. "The CREATE Project: Mixed Reality for Design, Education, and Cultural Heritage with a Constructivist Approach", ISMAR 03, The National Center of Sciences, Tokyo, Japan, Oct. 2003.

Clara Baracchini, Paolo Lanari, Roberto Scopigno, Franco Tecchia "SICAR: geographic information system for the documentation of restoration analyses and intervention" - Proceedings of SPIE -- Volume 5146 Optical Metrology for Arts and Multimedia, October 2003, pp. 149-160

M. Bergamasco, D. Checcacci, C.A. Avizzano, A. Frisoli, F. Salsedo, F. Tecchia, "Interfacce Aptiche per simulatori", Virtuality 2002, Turin, November 2002

Franco Tecchia, Celine Loscos, Yiorgos Chrysanthou, "Real-Time rendering of virtual crowds" – Imagina 2002, Monte Carlo, February 2002

Franco Tecchia, Celine Loscos, Yiorgos Chrysanthou, "Real-Time Rendering of Populated Urban Environment", Siggraph Sketches & Applications, Los Angeles, August 2001

Céline Loscos, Franco Tecchia, Yiorgos Chrysanthou – "Real Time Shadows for Animated Crowds in Virtual Cities" – ACM Symposium on Virtual Reality Software & Technology 2001, Banff, Alberta, Canada, November 2001.

M. Carrozzino, F. Tecchia, C. Falcioni, M. Bergamasco "Image Caching Algorithms and Strategies for Real Time Rendering of Complex Virtual Environments", AG2001, Cape Town, South Africa, November 2001

Franco Tecchia, Celine Loscos, Ruth Conroy, Yiorgos Chrysanthou "Agent Behaviour Simulation (ABS): A Platform for Urban Behaviour Development" GTEC'2001, Hong Kong, January 2001

F. Tecchia, Y. Chrysanthou "Real-Time Rendering of Densely Populated Urban Environments", Eurographics Workshop on Rendering 2000, Brno, Czech Republic, July 2000

F. Tecchia, Y. Chrysanthou "Real time visualisation of densely populated urban environments: a simple and fast algorithm for collision detection." Eurographics UK, Swansea, UK, April 2000

C. Evangelista, M. Bergamasco, C.A. Avizzano, G. Di Pietro, A. Brogni, F. Tecchia, S. Catte, "Picture Transposition in an Immersive Virtual Representation for Work of Art Fruition in a Traditional Museum", Proc. of 8th International Workshop on Robot and Human Interaction (RO-MAN '99)

C. Evangelista, S. Catte, G. Di Pietro, A. Brogni, F. Tecchia, M. Bergamasco, "Interactive Virtual Journey in G. Fattori's Paintings", Proc. of 8th International Workshop on Robot and Human Interaction (RO-MAN '99)

C.A. Avizzano, S. Catte, F. Tecchia, M. Bergamasco "Interactive Collision Detection for Deformable objects in Virtual Environments", International Workshop IEEE Robot and Human Interaction RO-MAN'99, 27-29 September 1999, Pisa

D. Ferrazzin, G. Di Domizio, F. Salsedo, C.A. Avizzano, F. Tecchia, M. Bergamasco, "Hall Effect Sensor-Based Linear Transducer" International Workshop IEEE Robot and Human Interaction RO-MAN'99, 27-29 September 1999, Pisa

F. Tecchia, C.A. Avizzano, C. Evangelista, A. Brogni, G. Di Pietro, M. Bergamasco "Technical Consideration on the Visualization of Virtual Environments" International Workshop IEEE Robot and Human Interaction RO-MAN'99, 27-29 September 1999, Pisa

EU PROJECTS EXPERIENCE

Over the years I've participated to a number of European Research projects, developing a considerable experience and expertise in various fields. Here is a list of the most interesting projects I've been contributing, both for the proposal and for the tasks activities:

1999 – 2002 VIRTUAL (STREP) “*Virtual reality systems for perceived ergonomic quality testing of driving task and design*” (Project coordination by Centro Ricerche Fiat, Italy). Personal role: Responsible of overall system software architecture

2001 – 2003 PURE-FORM (STREP) “*Virtual representations of cultural and scientific objects*” (Project coordination by Scuola Superiore Sant'Anna, Italy), Personal Role: Coordinator of the projects computer graphics rendering software

2003– 2006 CREATE (STREP) “*Mixed Reality for Design, Education, and Cultural Heritage*” (Project coordination by University College London, UK), Personal role: crowd rendering and real-time physics

2006 – 2010 PRESENCIA (FET) “*Presence: Research Encompassing Sensory Enhancement, Neuroscience, Cerebral-Computer Interfaces and Applications*”, (Project coordination by Universitat Politècnica de Catalunya, Spain), Personal role: coordinator of PERCRO system software architecture.

2006 – 2011 SKILLS (IP) “*Multimodal Interfaces for Capturing and Transfer Skills*”, (Project coordination by Scuola Superiore Sant'Anna, Italy), Role: Responsible of the project demonstrator in the field of Industry Maintenance and Assembly

2010 – 2013 BEAMING (IP) “*Being in Augmented Multi-Modal Naturally-Networked Gatherings*”, (Project coordination by STARTLAB, Spain) Role: Principal Investigator for Scuola Superiore Sant'Anna, Responsible of overall system software architecture, responsible for network infrastructure.

2010 – 2015 VERE (FET-IP) “*Virtual Embodiment and Robotic Embodiment*” (Project coordination by University of Barcelona). Role: Responsible of overall system software architecture, responsible for network infrastructure.

2015 -2017 eHERITAGE (H2020 –TWINN) “*Expanding the Research and Innovation Capacity in Cultural Heritage Virtual Reality Applications*” (Project coordination by University Transilvania of Brasov)

NON-EU Projects

MUBIL: developing new ideas on the dissemination of cultural Heritage able to stimulate engagement and entertainment in learning
Budget SSSA: C.a. 45k
Role: Coordinating committee
Type: Collaborazione Internazionale (NTNU – Trondheim Norvegia)

SONNA : social networking e dei serious games for learning
Budget SSSA: C.a. 180K
Role: Participated to WP2
Type: Regional project

AMICA : Augmented reality for cultural heritage
Budget SSSA: c.a. 150k Euro
Role: WP1 participant
Type: Istitutional Project (financed by Fondazione Telecom Italia)

BRIC INAIL (38) *Realizzazione di dispositivi di protezione individuale per le vie aeree (DPI - maschera pieno facciale) integrati con sistemi di comunicazione e visione in realtà aumentata per l'utilizzo in aree contaminate da amianto* “
Objective: design and development of Augmented Reality wearable systems to

be used in hazardous areas involving removal of asbestos.
Budget SSSA: c.a. 300k
Role: Project Leader
Type: Istitutional Project (financed by INAIL)

Industrial Projects

I've always been proactively looking for projects and collaboration with industrial firms. In this case research funds are coming directly from the companies to address specific topics of common interests. Here I report a list of projects that I've been proposing & coordinating.

2012/2013

ENEL SAFE HELMET; Augmented Reality for power generation
Budget SSSA: 120k Euro
Role: Project Leader

ENEL Immersive 3D; Virtual Reality for powerplants design
Budget SSSA: 120k Euro
Role: Project Leader

2014/2015

ENEL Wireless AR Helmet; An ergonomic wireless helmet for Industrial Augmented Reality
Budget SSSA: 120k Euro
Role: Project Leader

2015

Trenitalia S.p.A.: Fully - immersive visualisation of rolling stocks (one activity out of a larger project)
Budget SSSA: 220k/1400k
Role: Activity leader

ENEL Safety VR; Using VR for Industrial Training on safety procedures
Budget SSSA: 95k Euro
Ruolo: Project Leader

PH.D. SUPERVISION

@ Scuola Superiore Sant'Anna I've been supervising the following students:

Davide Vercelli - "Realistic lighting for interactive Virtual environments" (Supervisor)

Giuseppe Marino - "Software architectures for Cluster Rendering" (Supervisor)

Paolo Simone Gasparello - "Geometric compression of complex 3D meshes" (Supervisor)

Filippo Banno - "Interaction in collaborative virtual environments" (Supervisor)

Giovanni Avveduto - "Immersive Virtual Reality for Simulation and Training" (Supervisor)

Camilla Tanca - "Virtual Humans and Immersive Virtual Environments" (Supervisor)

Alessandro Longobardi - "Real-time SLAM with distributed logic for low-power devices" (3rd year) (Supervisor)

Riccardo Galdieri - "Investigating the role of physical devices in the player-environment relationship" (3rd year) (Tutor)

TEACHING

Course "Virtual Reality and Augmented Reality" Dottorato in Emerging Digital Technologies, Italy – 60 Hours
2020-2021

Course "Virtual Reality and Augmented Reality" - Graduate Program in Computer Science and Engineering, LM in Embedded Computing Systems, Dottorato in Emerging Digital Technologies, Italy – 60 Hours
2019-2020

Course "Virtual Reality and Augmented Reality" - Graduate Program in Computer Science and Engineering, LM in Embedded Computing Systems, Dottorato in Emerging Digital Technologies, Italy – 60 Hours
2018-2019

Course "Virtual Reality and Augmented Reality" - Graduate Program in Computer Science and Engineering, LM in Embedded Computing Systems, Dottorato in Emerging Digital Technologies, Italy – 60 Hours
2016-2017

Course "Virtual Reality and Augmented Reality" - Graduate Program in Computer Science and Engineering, LM in Embedded Computing Systems, LM Computer Science and Networking, Dottorato in Emerging Digital Technologies, Italy – 60 Hours
2015-2016

Course "Networked Virtual Environments" - Second Level Master in "Smart Solutions - Smart Communities" (SSSC), Scuola Superiore Sant'Anna, Italy – 4 Hours
2015-2016

Course "Virtual Reality and Augmented Reality" - Graduate Program in Computer Science and Engineering, LM in Embedded Computing Systems, LM Computer Science and Networking, Dottorato in Emerging Digital Technologies, Italy – 60 Hours
2014-2015

Course “*Networked Virtual Environments*” - Second Level Master in "Smart Solutions - Smart Communities"(SSSC), Scuola Superiore Sant'Anna, Italy – 4 Hours
2014-2015

Course “*Networked Virtual Environments*” – International Masters program in Communication Networks Engineering (IMCNE), Scuola Superiore Sant'Anna, Italy -60 hours
2013-2014

Course “*Networked Virtual Environments*” - Second Level Master in "Smart Solutions - Smart Communities"(SSSC), Scuola Superiore Sant'Anna, Italy – 4 Hours
2013-2014

Course “*Networked Virtual Environments*” – International Masters program in Communication Networks Engineering (IMCNE), Scuola Superiore Sant'Anna, Italy -60 hours
2012-2013

Course “*Networked Virtual Environments*” – International Masters program in Communication Networks Engineering (IMCNE), Scuola Superiore Sant'Anna, Italy -60 hours
2011 - 2012

Course “*Networked Virtual Environments*” – International Masters programs in Communication Networks Engineering (IMCNE), Scuola Superiore Sant'Anna, Italy -60 hours
2010 - 2011

Course “*VE software architectures*” – International Master on Virtual Environment Technologies for Industrial Applications(IMVET), Scuola Superiore Sant'Anna, Italy -60 hours
2010 – 2011

PEER REVIEWING

Siggraph, Eurographics Workshop on Rendering, Eurographics, IEEE Transactions on Visualization & Computer Graphics, IEEE Transactions on Robotics, IEEE Virtual Reality, VRST- Virtual reality software and technologies, Pacific Graphics, Int. Conf. On Computer Graphics Visualization and Computer (WSCG), International Journal of Computers and Applications, Presence

I'm member of the editorial board and Associate Editor of the journal Presence: Teleoperators and Virtual Environments(MIT PRESS)

PATENTS

Franco TECCHIA, Sandro BACCINELLI, Marcello CARROZZINO, Massimo BERGAMASCO - "INFORMATION PROCESSING APPARATUS AND METHOD FOR REMOTE TECHNICAL ASSISTANCE"- WO/2009/112063

Franco TECCHIA, Massimo BERGAMASCO – “Image-based rendering system for dynamic objects in a virtual environment” – WO/2003/017204A3

Franco TECCHIA, Sandro BACCINELLI, Marcello CARROZZINO, " *SISTEMA PER LA REALTA' AUMENTATA CON DISPOSITIVO DI POSIZIONAMENTO UNITA' VIDEO*" - IT/102020000012901

Franco TECCHIA, Marcello CARROZZINO, Sandro BACCINELLI, Antonello CHERUBINI
“*SISTEMA PER LA REALTA' AUMENTATA CON GRUPPO DI ANCORAGGIO AD UN ELMETTO*”, IT/02020000012904

Franco TECCHIA, Marcello CARROZZINO, Sandro BACCINELLI, “*SISTEMA PER ASSISTERE UN OPERATORE DI CAMPO DA PARTE DI UN ASSISTENTE REMOTO*”, IT/102020000013000

OTHER

I'M THE FOUNDER AND CTO OF **VRMEDIA S.R.L.**, A SPIN-OFF COMPANY OF SCUOLA SUPERIORE SANT'ANNA WORKING IN THE FIELD OF VIRTUAL REALITY AND AUGMENTED REALITY INDUSTRIAL APPLICATIONS (WEBSITE WWW.VRMEDIA.EU). THE COMPANY IS DEVELOPING FOR A LEADING INDUSTRY A WEARABLE AUGMENTED REALITY APPARATUS TO BE USED FOR REMOTE MAINTENANCE OPERATIONS. (SEE [HTTP://WWW.SIDEL.COM/](http://WWW.SIDEL.COM/) AND [HTTP://WWW.JOBWERX.COM/NEWS/SIDEL-BIZ-949394-784.HTML](http://WWW.JOBWERX.COM/NEWS/SIDEL-BIZ-949394-784.HTML)) VRMEDIA HAS BEEN THE WINNER OF THE 2010 EDITION OF MINDTHEBRIDGE FOUNDATION ([HTTP://MINDTHEBRIDGE.COM/](http://MINDTHEBRIDGE.COM/)) BUSINESS PLAN COMPETITION. IN JUNE 2018 VRMEDIA HAS RAISED ROUND-A FUNDS FROM THE ITALIAN VENTURE CAPITAL VERTIS S.G.R.AND IN 2021 FROM THE ITALIAN VENTURE EQUITER S.P.S.

Il sottoscritto Franco Tecchia autorizza l'uso dei dati personali nel rispetto delle norme e diritti stabiliti dall'art. 13 della Legge 196/2003.

Il sottoscritto Franco Tecchia dichiara che tutto quanto contenuto in questo CV corrisponde a verità ai sensi delle norme in materia di dichiarazioni sostitutive di cui agli artt.46 e seguenti del D.P.R.445/2000.