



Ugento (Lecce), Italy · June 12-15, 2017

Scientific Program

Monday 12th June	
9.00 – 11.00	Registration
11.00 – 12.30	Tutorial
14.00 – 14.30	Opening Ceremony
14.30 – 15.30	Session 1
15.30 – 16.00	Coffee Break
16.00 – 17.30	Session 2

Tuesday 13 th June	
9.00 – 10.00	Keynote Speaker 1
10.00 – 11.00	Session 3
11.00 – 11.30	Coffee Break
11.30 – 13.00	Session 4
14.30 – 15.30	Keynote Speaker 2
15.30 – 16.00	Coffee Break
16.00 – 17.30	Session 5
17.30 – 18.00	Company Space

Wednesday 14 th June	
9.00 – 10.00	Keynote Speaker 3
10.00 – 11.00	Session 6
11.00 – 11.30	Coffee Break
11.30 – 13.00	Session 7
14.30 – 15.30	Session 8
15.30 – 16.00	Coffee Break
16.00 – 17.30	Poster Exhibition

Thursday 15 th June	
9.00 – 10.00	Keynote Speaker 4
10.00 – 11.00	Session 9
11.00 – 11.30	Coffee Break
11.30 – 13.00	Session 10
14.30 – 15.30	Keynote Speaker 5
15.30 – 16.00	Coffee Break
16.00 – 17.00	Session 11
17.00 – 17.30	Closing Ceremony

Monday 12th June

Tutorial

An introduction to Unity3D, a game engine with AR and VR capabilities

PAOLO SERNANI, *Università Politecnica delle Marche, Italy*

Session 1 - Virtual Reality

Chair: Krzysztof WALCZAK

Towards Modeling of Finger Motions in Virtual Reality Environment	Sven Nömm, Aaro Toomela, Jaroslav Kulikov
Multiple NUI Device Approach to Full Body Tracking for Collaborative Virtual Environments	Paolo Leoncini, Bogdan Sikorski, Vincenzo Baraniello, Francesco Martone, Carlo Luongo, Mariano Guida
Virtual Reality System for Training in Automotive Mechanics	Washington X. Quevedo, Jorge S. Sánchez, Oscar Arteaga, Marcelo Álvarez V., Víctor D. Zambrano, Carlos R. Sánchez, Víctor H. Andaluz
A Study of Transitional Virtual Environments	Maria Sisto, Nicolas Wenk, Nabil Ouerhani, Stéphane Gobron

Session 2 - Virtual Reality

Chair: Patrick BOURDOT

Exploiting Factory Telemetry to Support Virtual Reality Simulation in Robotics Cell	Vladimir Kuts, Gianfranco E. Modoni, Walter Terkaj, Toivo Tähemaa, Marco Sacco, Tauno Otto
Virtual Environments for Motor Fine Skills Rehabilitation with Force Feedback	Víctor H. Andaluz, Cartagena Patricio, Naranjo José, Agreda José, López Shirley
Defining an Indicator for Navigation Performance Measurement in VR Based on ISO/IEC 15939	Ahlem Assila, Jeremy Plouzeau, Frédéric Merienne, Aida Erfanian, Yaoping Hu
Virtual Reality Toolset for Material Science: NOMAD VR tools	Rubén Jesús García-Hernández, Dieter Kranzlmüller
Virtual Reality Applied To Industrial Process	Víctor H. Andaluz, Daniel Castillo-Carrión, Roberto J. Miranda, Juan C. Alulema
Operating Virtual Panels with Hand Gestures in Immersive VR Games	Yin Zhang, Oscar Meruvia-Pastor

Tuesday 13th June

Keynote Speaker 1

FABRIZIO LAMBERTI, *Politecnico di Torino, Italy*

Phygital play: where gaming intersects mixed reality, robotics and human-machine interaction

Keynote Speaker 2

MARIANO ALCAÑIZ, *Universitat Politècnica de València, Spain*

The Future Fabrics of Reality: socio-psychological aspects of human interaction in advanced mixed reality environments

Session 3 - Virtual Reality

Chair: Paolo SERNANI

Robots Coordinated Control for Service Tasks in Virtual Reality Environments	Esteban X. Castellanos, Carlos Gracia- Sánchez, Wilson Bl. Llangante, Víctor H. Andaluz, Washington X. Quevedo
RRT* GL Based Path Planning for Virtual Aerial Navigation	Wilbert G. Aguilar, Stephanie Morales, Hugo Ruiz, Vanessa Abad
Math Model of UAV Multi Rotor Prototype with Fixed Wing Aerodynamic Structure for a Flight Simulator	David Orbea, Jessica Moposita, Wilbert G. Aguilar, Manolo Paredes, Gustavo León, Aníbal Jara-Olmedo
Walk-able and Stereo Virtual Tour Based on Spherical Panorama Matrix	Yanxiang Zhang, Ziqiang Zhu
Industrial Heritage Seen Through the Lens of a Virtual Reality Experience	David Checa, Mario Alaguero, Andres Bustillo
Training of Tannery Processes Through Virtual Reality	Víctor H. Andaluz, Andrea M. Pazmiño, José A. Pérez, Christian P. Carvajal, Francisco Lozada, Jeferson Lascano, Jessica Carvajal

Session 4 - Virtual Reality

Chair: Vincenzo FERRARI

Safety Training Using Virtual Reality: a Comparative Approach	Giovanni Avveduto, Camilla Tanca, Cristian Lorenzini, Franco Tecchia, Marcello Carrozzino, Massimo Bergamasco
A VR-CAD Data Model for Immersive Design: the cRea-VR Proof of Concept	Pierre Martin, Stéphane Masfrand, Yujiro Okuya, Patrick Bourdot
Cognitive Control Influences the Sense of Presence in Virtual Environments with Different Immersion Levels	Boris B. Velichkovsky, Alexey N. Gusev, Alexander E. Kremlev, Sergey S. Grigorovich
Measuring the Impact of Low-Cost Short-Term Virtual Reality on the User Experience	Mario Alaguero, David Checa, Andres Bustillo

Session 5 - Augmented and Mixed Reality

Chair: Roberto SCOPIGNO

The use of Augmented Reality Glasses for the Application in Industry 4.0	Roberto Pierdicca, Emanuele Frontoni, Rama Pollini, Matteo Trani, Lorenzo Verdini
ARSSET: Augmented Reality Support on SET	Andrea Sanna, Fabrizio Lamberti, Francesco De Pace, Roberto Iacoviello, Paola Sunna
Semantic Exploration of Distributed AR Services	Krzysztof Walczak, Rafał Wojciechowski, Adam Wójtowicz
Overcoming Location Inaccuracies in Augmented Reality Navigation	Christian A. Wiesner, Gudrun Klinker
Making the Invisible Visible: Real-Time Feedback for Embedded Computing Learning Activity using Pedagogical Virtual Machine with Augmented Reality	Malek Alrashidi, Khalid Almohammadi, Michael Gardner, Victor Callaghan
Augmented Reality Applications for Education: Five Directions for Future Research	Juan Garzón, Juan Pavón, Silvia Baldiris
The Smartkuber Case Study: Lessons Learned from the Development of an Augmented Reality Serious Game for Cognitive Screening	Costas Boletsis, Simon McCallum

Wednesday 14th June

Keynote Speaker 3

VINCENZO FERRARI, *Università di Pisa, Italy*
Potentialities of AR in medicine and surgery

Session 6 – Applications of VR/AR in Medicine

Chair: Vincenzo FERRARI

Natural User Interface to Assess Social Skills in Autistic Population	Claudia Faita, Raffaello Brondi, Camilla Tanca, Marcello Carrozzino, Massimo Bergamasco
Augmented Reality to Enhance the Clinician's Observation During Assessment of Daily Living Activities	Mariolino De Cecco, Alberto Fornaser, Paolo Tomasin, M. Zanetti, G. Guandalini, P. G. Ianes, F. Pilla, G. Nollo, M. Valente, T. Pisoni
An Augmented Reality System for Maxillo-Facial Surgery	Lucio Tommaso De Paolis, Chiara Copelli, Francesco Ricciardi
Virtual Environments for Cognitive and Physical Training in Elderly with Mild Cognitive Impairment: a Pilot Study	Sara Arlati, Andrea Zangiacomi, Luca Greci, Simona Gabriella di Santo, Flaminia Franchini, Marco Sacco

Session 7– Applications of VR/AR in Medicine

Chair: Lucio Tommaso DE PAOLIS

Robust Laparoscopic Instrument Tracking Using Colored Strips	Virginia Mamone, Rosanna Maria Viglialoro, Fabrizio Cutolo, Filippo Cavallo, Simone Guadagni, Vincenzo Ferrari
Architecture of a Virtual Reality and Semantics-Based Framework for the Return to Work of Wheelchair Users	Sara Arlati, Stefano Mottura, Daniele Spoladore, Andrea Zangiacomi, Giancarlo Ferrigno, Rinaldo Sacchetti, Marco Sacco
Augmented Robotics for Electronic Wheelchair to Enhance Mobility in Domestic Environment	Luca Maule, Alberto Fornaser, Paolo Tomasin, Mattia Tavernini, Gabriele Minotto, Mauro Da Lio, Mariolino De Cecco
RRT-Based Path Planning for Virtual Bronchoscopy Simulator	Wilbert G. Aguilar, Vanessa Abad, Hugo Ruiz, Jenner Aguilar, Fabián Aguilar-Castillo
Robotic Applications in Virtual Environments for Children with Autism	Christian P Carvajal, Luis Proaño, José A. Pérez, Santiago Pérez, Jessica S. Ortiz, Víctor H. Andaluz

Session 8 - Applications of VR/AR in Medicine

Chair: Mariano ALCANIZ

Virtual System for Upper Limbs Rehabilitation in Children	Edwin Pruna, Andrés Acurio, Jenny Tigse, Ivón Escobar, Marco Pilatásig, Pablo Pilatásig
3D Virtual System through 3 Space Mocap Sensors for Lower Limb Rehabilitation	Edwin Pruna, Marco Pilatásig, Hamilton Angueta, Christian Hernández, Ivón Escobar, Eddie D. Galarza, Nancy Jacho
Assistance System for Rehabilitation and Valuation of Motor Skills	Washington X. Quevedo, Jessica S. Ortiz, Paola M. Velasco, Jorge S. Sánchez, Marcelo Álvarez V., David Rivas, Víctor H. Andaluz

Realism in AudioVisual Stimuli for Phobias Treatments through Virtual Environments	Jessica Sofia Ortiz, Paola M. Velasco, Washington X. Quevedo, Marcelo Álvarez V., Jorge S. Sánchez, Christian P Carvajal, Luis F. Cepeda, Víctor H. Andaluz
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Poster Session

Motion Style Transfer in Correlated Motion Spaces	Alex Kiliyas, Christos Mousas
Automated Marker Augmentation and Path Discovery in Indoor Navigation for Visually Impaired	Raees Khan ShahSani, Sehat Ullah, Sami Ur Rahman
Pixel Reprojection of 360 Degree Renderings for Small Parallax Effects	Joakim Bruslund Haurum, Christian Nygaard Daugbjerg, Péter Rohoska, Andrea Coifman, Anne Juhler Hansen, Martin Kraus
Immersiveness of News: How Croatian Students Experienced 360-Video News	Mato Brautović, Romana John, Marko Potrebica
Semi-Automatic Initial Registration for iRay System: a User Study	Tian Xie, Mohammad M. Islam, Alan B. Lumsden, Ioannis A. Kakadiaris
Virtual Product Try-on Solution for E-Commerce Using Mobile Augmented Reality	Anuradha Welivita, Nanduni Nimalsiri, Ruchiranga Wickramasignhe, Upekka Pathirana, Chandana Gamage
Augmented Reality and MYO for a Touchless Interaction with Virtual Organs	Chiara Indraccolo, Lucio Tommaso De Paolis
Interactive 3D Symphony in VR Space	Yanxiang Zhang, Clayton Elieisar, Abassin Sourou Fangbemi
Teaching Materials Using AR and VR for Learning the Usage of Oscilloscope	Takashi Miyazaki, Yusuke Ohira, Hiroaki Yamamoto, Masaaki Nishi
DyMAR: Introduction to Dynamic Marker based Augmented Reality Using Smartwatch	Dr. Satyaki Roy, Pratiti Sarkar, Surojit Dey
Virtual Out-of-Body Experience as a Potential Therapeutic Tool After Kidney Transplantation	Péter Csibri, Róbert Pantea, Attila Tanács, Alexandra Kiss, Gyula Sárosy
Virtual Bodystorming: Utilizing Virtual Reality for Prototyping in Service Design	Costas Boletsis, Amela Karahasanovic, Annita Fjuk
Capturing Reality for a Billiards Simulation	Fuche Wu, Andrew Dellinger
Augmented Reality and UAVs in Archaeology: Development of a Location-Based AR Application	Maria Concetta Botrugno, Giovanni D'Errico, Lucio Tommaso De Paolis
Using of 3D Virtual Reality Electromagnetic Navigation for Challenging Cannulation in FEVAR Procedure	Roberta Piazza, Sara Condino, Aldo Alberti, Davide Giannetti, Vincenzo Ferrari, Marco Gesi, Mauro Ferrari
Patient Specific Virtual and Physical Simulation Platform for Surgical Robot Movability Evaluation in Single-Access Robot-Assisted Minimally-Invasive Cardiothoracic Surgery	Giuseppe Turini, Sara Condino, Sara Sinceri, Izadyar Tamadon, Simona Celi, Claudio Quaglia, Michele Murzi, Giorgio Soldani, Arianna Menciassi, Vincenzo Ferrari, Mauro Ferrari
A Tailored Serious Game for Preventing Falls of the Elderly	Estelle Courtial, Giuseppe Palestra, Mohamed Rebiai
A Virtual Travel in Leonardo's Codex of Flight	Marcello Carrozzino, Chiara Evangelista, Claudia Faita, Mihai Duguleana, Massimo Bergamasco
Feature Fusion of HOG and GSP for Smile Recognition	Hemant Kumar Meena, Kamlesh Kumar Sharma, S. D. Joshi
Real-Time 3D Modeling with a RGB-D Camera and On-Board Processing	Wilbert G. Aguilar, Guillermo A. Rodríguez, Leandro Álvarez, Sebastián Sandoval, Fernando Quisaguano, Alex Limaico

Real-time Detection and Simulation of Abnormal Crowd Behavior	Wilbert G. Aguilar, Marco A. Luna, Julio F. Moya, Marco P. Luna, Vanessa Abad, Hugo Ruiz, Humberto Parra
Visualising a Software System as a City through Virtual Reality	Nicola Capece, Ugo Erra, Simone Romano, Giuseppe Scanniello
Finger Recognition as Interaction Media in Augmented Reality for Historical Buildings in Matsum and Kesawan Region of Medan City	Mohammad Fadly Syahputra, Ridho K. Siregar, Romi F. Rahmat
Implementation of Player Position Monitoring for Tanjung Pura Palace Virtual Environment	Mohammad Fadly Syahputra, Muhammad Iqbal Rizki, Siti Fatimah, Romi Fadillah Rahmat

Thursday 15th June

Keynote Speaker 4

ROBERTO SCOPIGNO, *ISTI-CNR, Italy*

VR/AR: success stories and opportunities in Cultural Heritage and Digital Humanities

Keynote Speaker 5

FABRIZIO NUNNARI, *German Research Center for Artificial Intelligence (DFKI), Germany*

Populating virtual worlds: practical solutions for the generation of interactive virtual characters

Session 9 – Applications of VR/AR in Cultural Heritage

Chair: Roberto SCOPIGNO

Photogrammetric Approaches for the Virtual Reconstruction of Damaged Historical Remains	D. Costantino, M. G. Angelini, V. Baiocchi
Web Tool as a Virtual Museum of Ancient Archaeological Ruins in Peru	Eva Savina Malinverni, Roberto Pierdicca, Francesca Colosi, Roberto Orazi
Virtual Reality Meets Intelligence in Large Scale Architecture	Ahmet Kose, Eduard Petlenkov, Aleksei Tepljakov, Kristina Vassiljeva
An Innovative Real-time Mobile Augmented Reality Application in Arts	Chutisant Kerdvibulvech

Session 10 - Human-Computer Interaction

Chair: Fabrizio LAMBERTI

Steering VRrsus Teleport Locomotion for Head Mounted Displays	Chris G. Christou, Poppy Aristidou
Mixed Reality-Based User Interaction Feedback for a Hand-Controlled Interface Targeted to Robot Teleoperation	Laura Cancedda, Alberto Cannavò, Giuseppe Garofalo, Fabrizio Lamberti, Paolo Montuschi, Gianluca Paravati
Development and Heuristic Evaluation of Semi-Immersive Hand-Gestural Virtual Reality Interface for Luxury Brands Online Stores	Samar Altarteer, Vassilis Charissis, David Harrison, Warren Chan
Remote Touch Interaction with High Quality Models using an Autostereoscopic 3D Display	Adriano Mancini, Paolo Cline, Carlo Alberto Bozzi, Eva Savina Malinverni, Roberto Pierdicca, Romina Nespeca
Versatile Augmented Reality Scenes for Tangible Interaction in Real-World Environments	Rafal Wojciechowski
Cascade Classifiers and Saliency Maps Based People Detection	W. G. Aguilar, Marco A. Luna, Julio F. Moya, Vanessa Abad, Hugo Ruiz, Humberto Parra, William Lopez

Session 11 - Computer Graphics

Chair: Sven NOMM

Differential G-Buffer Rendering for Mediated Reality Applications	Tobias Schwandt, Wolfgang Broll
Solid Angle Based Ambient Obscurance in Image Space	Dario Scarpa, Ugo Erra
Shape-Curvature-Graph: Towards a New Model of Representation for the Description of 3D Meshes	Arnaud Polette, Jean Meunier, Jean-Luc Mari
Semantics-supported Collaborative Creation of Interactive 3D Content	Krzysztof Walczak