Contents

Applications in Cultural Heritage

Integrated Technologies for Museum Communication and Interactive Apps in the PON DiCet Project ......................................................... 3
Francesco Gabellone

“Social Heritage” Augmented Reality Application to Heritage Education . . . . 17
Raynel Mendoza Garrido, Danilo Vargas Jiménez, Silvia Baldisirì, and Ramon Fabregat

Making Visible the Invisible. Augmented Reality Visualization for 3D Reconstructions of Archaeological Sites .................................................. 25
Roberto Pierdicca, Emanuele Frontoni, Primo Zingaretti, Eva Savina Malinverni, Francesca Colosi, and Roberto Orazi

Advanced Interaction with Paintings by Augmented Reality and High Resolution Visualization: A Real Case Exhibition ................................. 38
Roberto Pierdicca, Emanuele Frontoni, Primo Zingaretti, Mirco Sturari, Paolo Clini, and Ramona Quattrini

Cloud Computing and Augmented Reality for Cultural Heritage ................. 51
Pietro Vecchio, Francesca Mele, Lucio Tommaso De Paolis, Italo Epicoco, Marco Mancini, and Giovanni Aloisio

Augmented and Mixed Reality

Accurate OnSite Georeferenced Subsurface Utility Model Visualisation .......... 63
Stéphane Côté and Antoine Girard-Vallée

The Augmented Reality Story Book Project: A Collection of Balinese Miths and Legends ............................................................... 71
I. Gede Mahendra Darmawiguna, I. Made Gede Sunarya, Made Windu Antara Kesiman, Ketut Resika Arthana, and Padma Nyoman Crisnapati

ARBS: An Interactive and Collaborative System for Augmented Reality Books .................................................................................. 89
Nicolás Gazcón and Silvia Castro

Robust Model Based Tracking Using Edge Mapping and Refinement ............ 109
Anna Katharina Hebborn, Marius Erdt, and Stefan Müller
XX Contents

Augmented Reality, Embodied Cognition and Learning ......................... 125
    Sara Invitto, Italo Spada, and Lucio Tommaso De Paolis

OscARsWelt: A Collaborative Augmented Reality Game ....................... 135
    Anna Katharina Hebborn, Milan Dilberovic, Adrian Derstroff,
    Andre Franke, Nils Höhner, Patrick Krechel, Lisa Prinz, Astrid Szirmai,
    Fabian Weigend, and Stefan Müller

Device Registration for 3D Geometry-Based User-Perspective Rendering
in Hand-Held Video See-Through Augmented Reality ......................... 151
    Ali Samini and Karljohan Lundin Palmerius

Creativity Support in Projection-Based Augmented Environments ............ 168
    Bruno Simões, Federico Prandi, and Raffaele De Amicis

IMU Drift Reduction for Augmented Reality Applications .................... 188
    Lakshmi Prabha Nattamai Sekar, Alexander Santos,
    and Olga Beltramello

Applications in Medicine

Serious Games for Rehabilitation Using Head-Mounted Display
and Haptic Devices ............................................................... 199
    Stéphane Claude Gobron, Nicolas Zannini, Nicolas Wenk, Carl Schmitt,
    Yannick Charrotton, Aurélien Fauquex, Michel Lauria,
    Francis Degache, and Rolf Frischknecht

VR-Based Serious Game Designed for Medical Ethics Training ............... 220
    Cristian Lorenzini, Claudia Faita, Marcello Carrozzino,
    Franco Tecchia, and Massimo Bergamasco

Scalable Medical Viewer for Virtual Reality Environments .................. 233
    Francesco Ricciardi, Emiliano Pastorelli, Lucio Tommaso De Paolis,
    and Heiko Herrmann

A Pre-operative Planning Module for an Augmented Reality Application
in Maxillo-Facial Surgery ...................................................... 244
    Francesco Ricciardi, Chiara Copelli, and Lucio Tommaso De Paolis

Augmented Reality Assisted Brain Tumor Extraction in Mice ............... 255
    Adrian Schneider, Peter Thalmann, Simon Pezold, Simone E. Hieber,
    and Philippe C. Cattin
Applications in Industry and Robotics

A Virtual Prototyping Platform to Improve CAE Analysis Workflow 267
Francesco Argese, Andrea Martini, Lucio Colizzi, Marco Fina, Giovanni Reo, Fiorenzo Ambrosino, Pasquale Bene, and Leonardo Cosma

A Proposed Hardware-Software Architecture for Virtual Reality in Industrial Applications 287
Francesco Chionna, Piero Cirillo, Vito Palmieri, and Mauro Bellone

Using Haptic Forces Feedback for Immersive and Interactive Simulation in Industrial Context 301
Marwene Kechiche, Mohamed-Amine Abidi, Patrick Baert, and Rosario Toscano

A Flexible AR-based Training System for Industrial Maintenance 314
Andrea Sanna, Federico Manuri, Giovanni Piumatti, Gianluca Paravati, Fabrizio Lamberti, and Pietro Pezzolla

Training in VR: A Preliminary Study on Learning Assembly/Disassembly Sequences 332
Daniele Sportillo, Giovanni Avveduto, Franco Tecchia, and Marcello Carrozzino

Applying Aesthetic Rules in Virtual Environments by Means of Semantic Web Technologies 344
Konstantinos Kontakis, Malvina Steiakaki, Michael Kalochrsitianakis, Kostas Kapetanakis, and Athanasios G. Malamos

Bilateral Control of a Robotic Arm Through Brain Signals 355
Víctor H. Andaluz, Jessica S. Ortiz, and Jorge S. Sanchéz

Interfaces

Natural User Interfaces for Virtual Character Full Body and Facial Animation in Immersive Virtual Worlds 371
Konstantinos Cornelis Apostolakis and Petros Daras

ARTworks: An Augmented Reality Interface as an Aid for Restoration Professionals 384
Raffaello Brondi and Marcello Carrozzino

Giuseppe Caggianese, Luigi Gallo, and Pietro Neroni
Perception of Basic Emotions from Facial Expressions of Dynamic Virtual Avatars
Claudia Faita, Federico Vanni, Cristian Lorenzini, Marcello Carrozzino, Camilla Tanca, and Massimo Bergamasco

Bridging Offline and Online World Through Augmentable Smart Glass Interfaces
Zulqarnain Rashid, Joan Melià-Seguí, and Rafael Pous

Touchless Interaction for Command and Control in Military Operations
Alessandro Zocco, Matteo D. Zocco, Antonella Greco, Salvatore Livatino, and Lucio Tommaso De Paolis

Short Papers
Development of a Framework to Support Virtual Review Within Complex-Product Lifecycle Management
Giorgio Bernabei, Angelo Corallo, Roberto Lombardo, Simone Maci, Valerio Galli, Danilo Cannoletta, and Antonio Notaro

3D Physics Virtual Laboratory as a Teaching Platform
Yevgeniya Daineko, Madina Ipalakova, Viktor Dmitriyev, Andrey Giyenko, and Nazgul Rakhimzhanova

Experiences in the Development of an Augmented Reality Dressing Room
Ugo Erra and Valerio Colonnese

Development of a Virtual Laboratory for Investigating the Interaction of Materials with Plasma

Aspects Concerning Algorithms of VRML Surfaces’ Generation
Lucian Ilea, Catalin Boanta, Cornel Brisan, and Veturia Chiroiu

Towards a Framework for Information Presentation in Augmented Reality for the Support of Procedural Tasks
Tobias Müller
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Dynamic-Oriented Decision Support System for Group Interview</td>
<td>498</td>
</tr>
<tr>
<td>Knapsack Problem</td>
<td></td>
</tr>
<tr>
<td><em>Sihem Ben Jouida and Saoussen Krichen</em></td>
<td></td>
</tr>
<tr>
<td>Virtual Reality as a Cross-Domain Language in Collaborative</td>
<td>507</td>
</tr>
<tr>
<td>Environments</td>
<td></td>
</tr>
<tr>
<td><em>Carlo Vizzi</em></td>
<td></td>
</tr>
<tr>
<td><strong>Author Index</strong></td>
<td>515</td>
</tr>
</tbody>
</table>