

VISUAL 2019

The Fourth International Conference on Applications and Systems of Visual Paradigms

June 30 – July 4, 2019

Rome, Italy

VISUAL 2019 Editors

William Hurst, Senior Lecturer, Liverpool John Moores University, UK

Vittoria Bruni, Researcher, Sapienza - Rome University, Italy

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (423;) by International Academy, Research, and Industry Association (IARIA) Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (423;)

International Academy, Research, and Industry Association (IARIA) 412 Derby Way Wilmington, DE 19810

Phone: (408) 893-6407 Fax: (408) 527-6351

petre@iaria.org

Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400 Fax: 845-758-2633 Email: curran@proceedings.com Web: www.proceedings.com

Table of Contents

Simulating Household Electricity Consumption Mutinta Mwansa, William Hurst, Carl Chalmers, Yuanyuan Shen, and Casimiro A. Curbelo Montanez	1
Augmented Reality for Enhancing Life Science Education John Barrow, Conor Forker, Andrew Sands, Darryl O'Hare, and William Hurst	7
Industrial Augmented Reality (IAR) as an Approach for Device Identification within a Manufacturing Plant for Property Alteration Purpose Tshepo Godfrey Kukuni and Ben Kotze	13
Profiling with Smart Meter Data in a Virtual Reality Setting William Hurst and Casimiro A. Curbelo Montanez	19
Visualising Network Anomalies in an Unsupervised Manner Using Deep Network Autoencoders Matthew Banton, Nathan Shone, William Hurst, and Qi Shi	25
A Review on the Development of a Virtual Reality Learning Environment for Medical Simulation and Training Kieran Latham, Patryk Kot, Dhiya Al-Jumeily, Atif Waraich, Mani Puthuran, and Arun Chandran	31
The Rational Dilation Wavelet Transform: A Flexible Tool for Perception-inspired Signal and Image Processing Vittoria Bruni and Domenico Vitulano	36
Model-Based 3D Visual Tracking of Rigid Bodies using Distance Transform Marios Loizou and Paris Kaimakis	39
The Role of Complexity in Visual Perception: Some Results and Perspectives Vittoria Bruni and Domenico Vitulano	47
VMPepper: How to Use a Social Humanoid Robot for Interactive Voice Messaging Paola Barra, Carmen Bisogni, Riccardo Distasi, and Antonio Rapuano	50