



SERVE : Smart Ecosystems cReation by Visual dESign

Authoring Internet of Things and Smart Objects Applications

7 June 2016, Villa Romanazzi Carducci, Bari, Italy

A full day workshop co-located with the
International Working Conference on Advanced Visual Interfaces

[\(AVI 2016\)](#)

Organised by:

- Carmelo Ardito, Università degli Studi di Bari Aldo Moro, Italy
- Andrea Bellucci, Universidad Carlos III de Madrid, Spain
- Giuseppe Desolda, Università degli Studi di Bari Aldo Moro, Italy
- Monica Divitini, Norwegian University of Science and Technology, Norway
- Simone Mora, Norwegian University of Science and Technology, Norway

Preface

Recent technology advances support the interconnection of smart objects, enabling their communication according to the Internet of Things (IoT) paradigm. IoT is promising important changes in our lives. The opportunities offered by such technologies can be amplified, by investigating new approaches that, thanks to high-level abstractions, can enable non-expert users to compose data and functionality of things, as well as the communication among them, by means of “natural” composition paradigm. Today, in fact, this is a prerogative almost always reserved to developers who, through the use of specific programming languages, provide pre-packaged solutions to users. The workshop aims at stressing the Human-Computer Interaction perspective, i.e., it acknowledges the importance of enabling even non-technical users to manipulate data and functionality of things in a simple and natural way.

The papers in this workshop proceedings book present a wide variety of contributions aligned in different ways to the following themes:

- Metaphors for representing trigger/action rules
- Models and architectures for smart object composition
- Authoring environments for smart object composition
- Tools for prototyping connected devices
- Responsive and interactive environments
- Design and evaluation experiences.

After reviewing papers for scientific quality and relevance, 9 papers were selected. An international program committee was conformed to perform the revision process. The following researchers experienced in the IoT area are in the workshop Program Committee:

- Ahmed Sabbir Arif, Ryerson University, Canada
- Nikolaos Avouris, University of Patras, Greece
- Babak A. Farshchian, SINTEF ICT, Norway
- Panos Markopoulos, Eindhoven University of Technology, The Netherlands
- Irene Mavrommati, Hellenic Open University, School of Applied Arts, Greece

Table of contents

“A Visual Paradigm for Defining Task Automation”	1
Carmelo Ardito ¹ , Giuseppe Desolda ¹ and Maristella Matera ²	
¹ <i>Università di Bari Aldo Moro, Italy</i>	
² <i>Politecnico di Milano, Italy</i>	
“Remotino: Supporting End-User Developers in Prototyping Embedded Devices”	7
Julian Dax, Thomas Ludwig and Volkmar Pipek	
<i>University of Siegen</i>	
“IoT for Smart City Learning: Towards Requirements for an Authoring Tool”	12
Francesco Gianni, Simone Mora and Monica Divitini	
<i>Norwegian University of Science and Technology (NTNU), Norway</i>	
“Tiles Cards: a card-based design game for smart objects ecosystems”	19
Simone Mora ¹ , Jonas Asheim ² , Anders Kjøllestad ² and Monica Divitini ¹	
¹ <i>Norwegian University of Science and Technology (NTNU), Norway</i>	
² <i>Nice AS</i>	
“An Authoring Environment for Smart Objects in Museums: the meSch Approach”	25
Martin Risseeuw ¹ , Dario Cavada ² , Elena Not ³ , Massimo Zancanaro ³ , Mark T. Marshall ⁴ , Daniela Petrelli ⁴ and Thomas Kubitza ⁵	
¹ <i>WAAG, The Netherlands</i>	
² <i>eCTRL, Italy</i>	
³ <i>FBK – Fondazione Bruno Kessler, Italy</i>	
⁴ <i>University of Sheffield Hallam, UK</i>	
⁵ <i>University of Stuttgart, Germany</i>	
“Internet of T(eachi)ngs: Assessing Children’s Learning in the IoT Era”	31
Fabio Sorrentino, Lucio Davide Spano and Riccardo Scateni	
<i>University of Cagliari, Italy</i>	
“A Multi-layered Context Modelling Approach for End Users, Expert Users and Programmers”	36
Sandra Trullemans and Beat Signer	
<i>Vrije Universiteit Brussel, Belgium</i>	
“End-User Development for Lifelogging and eWellness”	42
Stefano Valtolina and Barbara Rita Barricelli	
<i>Università degli Studi di Milano, Italy</i>	
“Designing multimodal interactive systems using EyesWeb XMI”	49
Gualtiero Volpe, Paolo Alborno, Antonio Camurri, Paolo Coletta, Simone Ghisio, Maurizio Mancini, Radoslaw Niewiadomski, Stefano Piana and Roberto Sagoleo	
<i>DIBRIS – University of Genova, Italy</i>	