

# ICAS 2015

## Forward

The Eleventh International Conference on Autonomic and Autonomous Systems (ICAS 2015), held between May 24-29, 2015 in Rome, Italy, was a multi-track event covering related topics on theory and practice on systems automation, autonomous systems and autonomic computing.

The main tracks referred to the general concepts of systems automation, and methodologies and techniques for designing, implementing and deploying autonomous systems. The next tracks developed around design and deployment of context-aware networks, services and applications, and the design and management of self-behavioral networks and services. We also considered monitoring, control, and management of autonomous self-aware and context-aware systems and topics dedicated to specific autonomous entities, namely, satellite systems, nomadic code systems, mobile networks, and robots. It has been recognized that modeling (in all forms this activity is known) is the fundamental for autonomous subsystems, as both managed and management entities must communicate and understand each other. Small-scale and large-scale virtualization and model-driven architecture, as well as management challenges in such architectures are considered. Autonomic features and autonomy requires a fundamental theory behind and solid control mechanisms. These topics gave credit to specific advanced practical and theoretical aspects that allow subsystem to expose complex behavior. We aimed to expose specific advancements on theory and tool in supporting advanced autonomous systems. Domain case studies (policy, mobility, survivability, privacy, etc.) and specific technology (wireless, wireline, optical, e-commerce, banking, etc.) case studies were targeted. A special track on mobile environments was indented to cover examples and aspects from mobile systems, networks, codes, and robotics.

Pervasive services and mobile computing are emerging as the next computing paradigm in which infrastructure and services are seamlessly available anywhere, anytime, and in any format. This move to a mobile and pervasive environment raises new opportunities and demands on the underlying systems. In particular, they need to be adaptive, self-adaptive, and context-aware.

Adaptive and self-management context-aware systems are difficult to create, they must be able to understand context information and dynamically change their behavior at runtime according to the context. Context information can include the user location, his preferences, his activities, the environmental conditions and the availability of computing and communication resources. Dynamic reconfiguration of the context-aware systems can generate inconsistencies as well as integrity problems, and combinatorial explosion of possible variants of these systems with a high degree of variability can introduce great complexity.

Traditionally, user interface design is a knowledge-intensive task complying with specific domains, yet being user friendly. Besides operational requirements, design recommendations refer to standards of the application domain or corporate guidelines.

Commonly, there is a set of general user interface guidelines; the challenge is due to a need for cross-team expertise. Required knowledge differs from one application domain to another, and the core knowledge is subject to constant changes and to individual perception and skills.

Passive approaches allow designers to initiate the search for information in a knowledge-database to make accessible the design information for designers during the design process. Active approaches, e.g., constraints and critics, have been also developed and tested. These mechanisms deliver information (critics) or restrict the design space (constraints) actively, according to the rules and guidelines. Active and passive approaches are usually combined to capture a useful user interface design.

The conference had the following tracks:

- Theory and practice of autonomous systems
- Self-adaptability and self-management of context-aware systems
- Autonomic computing
- System automation
- Cloud computing and virtualization
- Algorithms and theory for control and computation

Similar to the previous edition, this event attracted excellent contributions and active participation from all over the world. We were very pleased to receive top quality contributions.

We take here the opportunity to warmly thank all the members of the ICAS 2015 technical program committee, as well as the numerous reviewers. The creation of such a high quality conference program would not have been possible without their involvement. We also kindly thank all the authors that dedicated much of their time and effort to contribute to ICAS 2015. We truly believe that, thanks to all these efforts, the final conference program consisted of top quality contributions.

Also, this event could not have been a reality without the support of many individuals, organizations and sponsors. We also gratefully thank the members of the ICAS 2015 organizing committee for their help in handling the logistics and for their work that made this professional meeting a success.

We hope ICAS 2015 was a successful international forum for the exchange of ideas and results between academia and industry and to promote further progress in the area of autonomic and autonomous systems. We also hope that Rome, Italy provided a pleasant environment during the conference and everyone saved some time to enjoy the historic beauty of the city.

## **ICAS 2015 Chairs**

### **ICAS Advisory Chairs**

Michael Bauer, The University of Western Ontario - London, Canada

Radu Calinescu, University of York, UK  
Michael Grottke, University of Erlangen-Nuremberg, Germany  
Bruno Dillenseger, Orange Labs, France  
Mark Balas, Embry-Riddle Aeronautical University, USA  
Alex Galis, University College London, UK  
Antonio Liotta, Eindhoven University of Technology, The Netherlands  
Jacques Malenfant, Université Pierre et Marie Curie, France  
Mark Perry, University of New England in Armidale, Australia  
Wendy Powley, Queen's University - Kingston, Canada  
Nikola Serbedzija, Fraunhofer FOKUS, Germany