

# DEPEND 2012

## Foreword

The Fifth International Conference on Dependability [DEPEND 2012], held between August 19-24, 2012 in Rome, Italy, provided a forum for detailed exchange of ideas, techniques, and experiences with the goal of understanding the academia and the industry trends related to the new challenges in dependability on critical and complex information systems.

Most of critical activities in the areas of communications (telephone, Internet), energy & fluids (electricity, gas, water), transportation (railways, airlines, road), life related (health, emergency response, and security), manufacturing (chips, computers, cars) or financial (credit cards, on-line transactions), or refinery& chemical systems rely on networked communication and information systems. Moreover, there are other dedicated systems for data mining, recommenders, sensing, conflict detection, intrusion detection, or maintenance that are complementary to and interact with the former ones.

With large scale and complex systems, their parts expose different static and dynamic features that interact with each others; some systems are more stable than others, some are more scalable, while others exhibit accurate feedback loops, or are more reliable or fault-tolerant.

Inter-system dependability and intra-system feature dependability require more attention from both theoretical and practical aspects, such as a more formal specification of operational and non-operational requirements, specification of synchronization mechanisms, or dependency exception handling. Considering system and feature dependability becomes crucial for data protection and recoverability when implementing mission critical applications and services.

Static and dynamic dependability, time-oriented, or timeless dependability, dependability perimeter, dependability models, stability and convergence on dependable features and systems, and dependability control and self-management are some of the key topics requiring special treatment. Platforms and tools supporting the dependability requirements are needed.

As a particular case, design, development, and validation of tools for incident detection and decision support became crucial for security and dependability in complex systems. It is challenging how these tools could span different time scales and provide solutions for survivability that range from immediate reaction to global and smooth reconfiguration through policy based management for an improved resilience. Enhancement of the self-healing properties of critical infrastructures by planning, designing and simulating of optimized architectures tested against several realistic scenarios is also aimed.

To deal with dependability, sound methodologies, platforms, and tools are needed to allow system adaptability. The balance dependability/adaptability may determine the life scale of a complex system and settle the right monitoring and control mechanisms. Particular challenging issues pertaining to context-aware, security, mobility, and ubiquity require appropriate mechanisms, methodologies, formalisms, platforms, and tools to support adaptability.

We take here the opportunity to warmly thank all the members of the DEPEND 2012 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 who dedicated much of their time and efforts to contribute to DEPEND 2012. 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 are grateful to the members of the DEPEND 2012 organizing committee for their help in handling the logistics and for their work to make this professional meeting a success.

We hope that DEPEND 2012 was a successful international forum for the exchange of ideas and results between academia and industry and for the promotion of progress in the field of dependability.

We are convinced that the participants found the event useful and communications very open. We also hope the attendees enjoyed the historic charm Rome, Italy.

**DEPEND 2012 Chairs:**

Marcello Cinque, University of Naples Federico II, Italy

Petre Dini, Concordia University, Canada / China Space Agency Center - Beijing, China

Sergio Pozo Hidalgo, University of Seville, Spain

Syed Naqvi, CETIC, Belgium

Manuel Gil Perez, University of Murcia, Spain

Reijo Savola, VTT Technical Research Centre of Finland, Finland

Michiaki Tsubori, IBM Research Tokyo, Japan

Peter Tröger, Hasso Plattner Institute / University of Potsdam, Germany

Timothy Tsai, Hitachi Global Storage Technologies, USA

Szu-Chi Wang, National Ilan University, Taiwan

Piyi Yang, Wonders Information Co., Ltd., China