ICAS 2019

Forward

The Fifteenth International Conference on Autonomic and Autonomous Systems (ICAS 2019), held between June 02, 2019 to June 06, 2019 - Athens, Greece, 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.

We welcomed academic, research and industry contributions. The conference had the following tracks:

- UNMANNED: Driver-less cars and unmanned vehicles
- Technologies for Real Robotic Autonomy
- Application of Neural Networks in Intelligent Autonomous Systems
- Autonomic computing and self-adaptability

We take here the opportunity to warmly thank all the members of the ICAS 2019 technical program committee, as well as all the 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 effort to contribute to ICAS 2019. We truly believe that, thanks to all these efforts, the final conference program consisted of top quality contributions.

We also thank the members of the ICAS 2019 organizing committee for their help in handling the logistics and for their work that made this professional meeting a success.

We hope that ICAS 2019 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 Athens, Greece provided a pleasant environment during the conference and everyone saved some time to enjoy the historic charm of the city.

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