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Editorial Message

Track on Software-intensive Systems-of-Systems (SiSoS) of the 33rd ACM/SIGAPP Symposium On Applied Computing (SAC 2018)

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Scope

Pervasiveness of networks has made possible to interconnect systems that were independently developed, operated, managed, and evolved, yielding a new kind of complex system, i.e. a system that is itself composed of systems, the so-called System-of-Systems (SoS). Software-intensive SoS (SiSoS) has become a hotspot in the last years, from both the research and industry viewpoints. Indeed, various aspects of our lives and livelihoods have progressively become dependent on some sort of Software-intensive SoS. This is the case of SiSoS found in different areas as diverse as energy, healthcare, manufacturing, and transportation; and applications that address societal needs, e.g. environmental monitoring, distributed energy grids, emergency coordination, global traffic control, and smart cities. Moreover, ubiquitous platforms such as the Internet of Things and nascent kinds of SoS such as Cyber-Physical SoSs are accelerating the deployment of Software-intensive SoS in the near future. Definitely, the unique characteristics of Software-intensive SoS raise a grand research challenge for the future of software-reliant systems in our industry and society due to its intrinsic features, among which evolutionary development and emergent behavior.

Statistics

The SiSoS Track received 22 regular paper submissions and 3 SRC submissions. Each submission was reviewed by three members of the Track Program Committee. The Track Program Committee selected 5 full papers out of the 22, giving an acceptance rate of 23%. These papers were selected based on originality, quality, soundness, and relevance to this conference track. Moreover, 2 poster papers have been accepted for publications in the proceedings of the conference.

Key Topics

This track fosters (but is not limited to) submissions in the following topics:

- **SiSoS Mission**
 - Specification and analysis
 - Formal contracts, contract-based approaches
 - Goal-orientation, task orientation
 - Ontologies, reasoning
 - Relationships with emergent behaviors
- **SiSoS Modeling**
 - Model-driven engineering
 - Models-at-runtime

- Model-based approaches
- Formal modeling foundations
- **SiSoS Design**
 - Architectural and detailed design
 - Design evaluation
 - Correction by design
 - Design for evolution, scalability or
 - Design for emergent behavior
- **SiSoS Verification and Validation**
 - Testing
 - Compositional/statistical model checking
 - Simulation, co-simulation
 - Simulation of emergent behaviors
- **SiSoS Construction and Evolution**
 - Evolutionary development
 - Correction by construction
 - Techniques & technologies for SoS engineering
 - Service-orientation
 - Component and middleware frameworks
- **SiSoS Security and Privacy**
 - SoS cybersecurity
 - SoS privacy and trust
 - Security against emergent behaviors in SoS
- **SiSoS Experience**
 - Reports from real projects
 - Case studies in real-scale projects
 - Controlled experiments
 - Experience from SoS stakeholders
- **SiSoS General issues**
 - Taxonomies, ontologies
 - Software processes
 - Project management
 - Acquisition in the development of SoS
- **SiSoS Applications**
 - Energy
 - Transportation
 - Global traffic control
 - Emergency coordination
 - Environmental monitoring
 - Smart grids
 - Healthcare
 - Manufacturing
 - Smart cities
 - Any other application domain
- **Future perspectives, challenges, and directions**

Acknowledgment

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Track Program Committee

- Nicola Accettura, LAAS-CNRS, France
- Jesper Andersson, Linnaeus University, Sweden
- Paris Avgeriou, University of Groningen, The Netherlands
- Jakob Axelsson, SICS Swedish ICT, Sweden
- Muhammad Ali Babar, University of Adelaide, Australia
- Fabrizio Biondi, INRIA, France
- Ismael Bouassida Rodriguez, REDCAD, Univ. Sfax, Tunisia
- Jan F. Broenink, University of Twente, The Netherlands
- Henry Broodney, IBM Watson IoT, USA
- Everton Cavalcante, Federal University of Rio Grande do Norte, Brazil
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- Remco de Boer, ArchiXL, The Netherlands
- Flavia C. Delicato, Federal University of Rio de Janeiro, Brazil
- Remo Ferrari, Siemens Industry, USA
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- Bernhard Josko, OFFIS, Germany
- John Klein, Software Engineering Institute, USA
- Charles Kremer, IRT SystemX, France
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- Uwe Zdun, University of Vienna, Austria
- Huibiao Zhu, East China Normal University, China
- Andrea Zisman, The Open University, UK