



Track on

Software-intensive Systems-of-Systems (SiSoS)

33rd ACM Symposium On Applied Computing (SAC 2018)

April 9-13, 2018, Pau, France

<http://sisos.systems-of-systems-engineering.org/>

Scope

The increasing 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). Progressively SoS has been designed as Software-intensive SoS (SiSoS) and has been applied to different domains, e.g. environmental monitoring, emergency coordination, global traffic control, smart grids and smart cities. In particular, ubiquitous platforms such as the Internet of Things and nascent classes such as Cyber-Physical SoSs are accelerating the deployment of SiSoS.

Oppositely to single systems, SiSoSs exhibit emergent behavior, i.e. global behaviors that stem from the local interactions among systems, but cannot be deduced solely from the behaviors of the constituent systems themselves. Hence, it behaves in ways that cannot feasibly be predicted from analyzing exclusively its individual constituents. A SiSoS is conceived to create desired emergent behaviors for fulfilling specific missions and may, by side effect, create undesirable behaviors possibly violating safety or security.

Thereby, SiSoS raises substantial challenges to researchers and practitioners. This track fosters original submissions ranging from SiSoS foundations to applications, from theory to practice.

Track Chairs

Flavio Oquendo

IRISA – Univ. Bretagne Sud, France

Khalil Drira

LAAS-CNRS, France

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UFRN, Brazil

Important Dates

XXXXXXXX XX, 201X Paper submission

XXXXXXXX XX, 201X Notification

XXXXXXXX XX, 201X Camera-ready copy

XXXXXXXX XX, 201X Author registration

Paper Submission and Publication

Papers submitted to the track will be subjected to a blind review process. The name(s) and address(es) of the author(s) must **not** appear in the body of the paper, and self-reference should be in the third person. Only the title should be shown on the first page without the authors' information. This is to facilitate blind reviews.

Paper registration is required, allowing the inclusion of the paper in the conference proceedings. An author or a proxy attending SAC **must** present the paper: this is a requirement for the paper to be included in the ACM digital library. No-show of scheduled papers will result in excluding them from the ACM digital library.

Papers must be submitted online at:

<http://acm.org/conferences/sac/sac2018>

Key Topics (but not limited to):

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
- Others

Future perspective, challenges, and directions.