International Conference on Self-Adaptive and Self-Organizing Systems

Part of **FAS* - Foundations and Applications of Self* Systems** and co-located with the **IEEE International Conference on Autonomic Computing (ICAC 2019)**

Aims and Motivation

The aim SASO 2019 is to provide a forum for the presentation and discussion of research on the foundations of engineered systems that self-adapt and self-organize. The complexity of current and emerging networks, software, and services can be characterized by issues such as scale, heterogeneity, openness, and dynamics in the environment. These issues have led the software engineering, distributed systems, and management communities to look for inspiration in diverse fields (e.g., complex systems, control theory, artificial intelligence, chemistry, psychology, sociology, and biology) to find new ways of designing and managing such computing systems in a principled way. In this endeavor, *self-organization* and *self-adaptation* have emerged as two promising, interrelated approaches. They form the basis of many other so-called self-* properties, such as self-configuration, self-healing, or self-optimization. SASO 2019 aims to be an interdisciplinary meeting, where contributions from participants with different backgrounds lead to the fostering of a cross-pollination of ideas, and where innovative theories, frameworks, methodologies, tools, and applications can emerge.

Scope

We invite novel contributions related to the fundamental understanding of self-adaptive and self-organizing systems, along with principles and practices of their engineering and application. The topics of interest include, but are not limited to:

- **Self-* systems theory**: nature-inspired and socially-inspired paradigms and heuristics; theoretical frameworks and models; formal languages; control theory; requirement and goal expression techniques; uncertainty as a 1st class entity

- **Self-* system properties:** robustness; resilience; stability; anti-fragility; diversity; self-reference and reflection; emergent behavior; computational awareness and self-awareness;

- **Self-* systems engineering:** reusable mechanisms and algorithms; design patterns; programming languages; architectures; testing and validation methodologies; runtime models; techniques for assurance; platforms and toolkits; multi-agent systems;

- **Principles and practices of self-organization:** self-governance; security; change management; distributed consensus, knowledge management, and the general use of rules, norms and policies

- **Mechanisms for self-adaptation:** inter-operation of self-* mechanisms; evolution, logic, and learning; addressing large-scale and decentralized systems;

- **Socio-technical self-* systems:** human and social factors; visualization; crowdsourcing and collective awareness;

- **Data-driven approaches to self-* systems:** data mining; machine learning; data science and other statistical techniques to analyze, understand, and manage the behavior of complex systems;

- **Self-adaptive and self-organizing hardware:** self-* materials; self-construction; reconfigurable hardware;

- **Self-* systems education:** experience reports; curricula; innovative course concepts;

- **Applications and experiences with self-* systems:** smart grid, smart cities, smart homes, manufacturing and industrial plants, cyber-physical systems; autonomous vehicles and robotics; traffic management; self-adaptive cybersecurity; Internet of Things; fog/edge computing.

Important Dates

Paper submission:	March 10, 2019 (firm)
Notification:	April 10, 2019
Camera ready version:	April 20, 2019
Conference:	June 16-20, 2019

Review Criteria

Papers should present novel ideas in the cross-disciplinary research context described in this call, motivated by problems from current practice or applied research. Both theoretical and empirical contributions should be highlighted, substantiated by formal analysis, simulation, experimental evaluations, or comparative studies, etc. Appropriate references must be made to related work. Due to the cross-disciplinary nature of the SASO conference, we encourage papers to be intelligible and relevant to researchers who are not members of the same specialized sub-field. Authors are also encouraged to submit papers describing applications. Application papers should provide an indication of the real-world relevance of the problem that is solved, including a description of the domain, and an evaluation of performance, usability, or comparison to alternative approaches. Experience papers are also welcome, especially if they highlight insights into any aspect of design, implementation or management of self-* systems that would be of benefit to practitioners and the SASO community. All submissions will be rigorously peer reviewed and evaluated based on the quality of their technical contribution, originality, soundness, significance, presentation, understanding of the state of the art, and overall quality.

Conference General Chair

Danny Weyns, KU Leuven, Belgium

Program Chairs

Rose Gamble, University of Tulsa, US
Lukas Esterle, Aston University, UK