



Co-located with



## Call for Papers

Self-adaptation and self-management are key objectives in many modern and emerging software systems, including the industrial internet of things, cyber-physical systems, cloud computing, and mobile computing. These systems must be able to adapt themselves at run time to preserve and optimize their operation in the presence of uncertain changes in their operating environment, resource variability, new user needs, attacks, intrusions, and faults.

Approaches to complement software-based systems with self-managing and self-adaptive capabilities are an important area of research and development, offering solutions that leverage advances in fields such as software architecture, fault-tolerant computing, programming languages, robotics, and run-time program analysis and verification. Additionally, research in this field is informed by related areas like biologically-inspired computing, artificial intelligence, machine learning, control systems, and agent-based systems. The SEAMS symposium focuses on applying software engineering to these approaches, including methods, techniques, and tools that can be used to support self-\* properties like self-adaptation, self-management, self-healing, self-optimization, and self-configuration.

The objective of SEAMS is to bring together researchers and practitioners from diverse areas to investigate, discuss, and examine the fundamental principles, state of the art, and critical challenges of engineering self-adaptive and self-managing systems.

**Topics of Interest:** All topics related to engineering self-adaptive and self-managing systems, including:

### Foundational Concepts

- self-\* properties
- control theory
- algorithms
- decision-making and planning
- managing uncertainty
- mixed-initiative and human-in-the-loop systems

### Languages

- formal notations for modeling and analyzing self-\* properties
- programming language support for self-adaptation

### Constructive methods

- requirements elicitation techniques
- reuse support (e.g., patterns, designs, code)
- architectural techniques
- legacy systems

### Analytical Methods for Self-Adaptation and -Management

- evaluation and assurance
- verification and validation
- analysis and testing frameworks

### Application Areas

- Industrial internet of things
- Cyber-physical systems
- Cloud computing
- Mobile computing
- Robotics
- Smart user interfaces
- Security and privacy
- Wearables and ubiquitous/pervasive systems

### Artifacts\* and Evaluations

- model problems and exemplars
- resources, metrics, or software that can be used to compare self-adaptive approaches
- experiences in applying tools to real problems

## Paper Submission Details

SEAMS solicits three types of papers: **long papers** (10 pages for the main text, inclusive of figures, tables, appendices, etc.; references may be included in up to two additional pages), short papers for **new ideas and early results** (6 pages + 1 for references) and **artifact papers** (6 pages + 1 reference). Long papers should clearly describe innovative and original research or explain how existing techniques have been applied to real-world examples. Short papers should describe novel and promising ideas and/or techniques that are in an early stage of development. Artifact papers must describe why and how the accompanying artifact may be useful for the broader community. Papers must not have been previously published or concurrently submitted elsewhere. Papers must conform to IEEE formatting guidelines (see ICSE 2017 style guidelines), and submitted via EasyChair. Accepted papers will appear in the symposium proceedings that will be published in the ACM and IEEE digital libraries. Accepted artifact papers will also be archived on the Dagstuhl Artifacts Series (DARTS).

## Further Information

Symposia-related email should be addressed to:  
[seams17-org@lists.andrew.cmu.edu](mailto:seams17-org@lists.andrew.cmu.edu)

## Important Dates:

Abstract Submission: 6 Jan, 2017 (AoE,firm)  
Paper Submission: 13 Jan, 2017 (AoE,firm)  
Notification: 21 February, 2017  
Camera ready: 6 Mar, 2017

**\*There will be a specific session to be dedicated to artifacts that may be useful for the community as a whole. Please see <http://wp.doc.ic.ac.uk/seams2017/call-for-artifacts/> for more details.**

Selected papers will be invited to submit to the ACM Transactions on Autonomous and Adaptive Systems (TAAS).

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