

## CALL FOR PAPERS

18th Workshop on Adaptive and Reflective Middleware (ARM 2019)  
co-located with Middleware 2019, 9th December 2019, UC Davis, CA, USA

<https://arm2019.github.io/>

### Important Dates

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All deadlines are 11:59 PM (AoE Anywhere on Earth)

Abstract submission: August 21, 2019

Paper submission: August 28, 2019

Acceptance notification: October 3, 2019

Camera-ready: October 17, 2019

Workshop: December 9, 2019

### Workshop Overview

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The Adaptive and Reflective Middleware (ARM) workshop series started together with the ACM/IFIP/USENIX International Middleware Conference, with which it has been co-located every year since this first edition. It is now an established venue to provide researchers with a leading edge view on the state of the art in adaptive middleware and the engineering of adaptive and autonomous distributed systems. New classes of applications such as smart and connected city applications, industrial networked and cloud applications, the Internet of Things, intelligent transport, smart grids, and their combination drive the need for new adaptive middleware solutions. Applying reflective techniques to open-up the implementation of middleware and related software platforms for interoperability, one-to-many deployment, and adaptability have proved particularly successful and influential in the past. However, there are still open challenges, such as scalability and decentralized management as well as resilient real-time operations that require further investigation to address new use cases in large deployment contexts.

Past editions of the workshop have brought together experts involved in designing and reusing adaptive systems at different system layers, including architectural, OS, virtualization technology, and network layers, as well as in using adaptation techniques that are complementary to reflection. The workshop series also seek to provide an exciting environment in which to leverage cooperation among researchers.

Topics of interest include, but are not limited to:

- \* Design and performance of adaptive and/or reflective middleware platforms
- \* Experiences with adaptive and reflective technologies in specific domains (e.g., sensor networks, ubiquitous/pervasive computing, mobile computing, smart and connected communities, Internet of Things, cloud/grid computing, P2P, Systems-of-Systems)
- \* Cross-layer interactions and adaptation mechanisms, including network, OS, VM & device level techniques

- \* Adaptation and reflection in the presence of heterogeneous execution and programming paradigms
- \* Application of adaptive and reflective middleware techniques to achieve: reconfigurability and/or adaptability and/or separation of concerns; reuse; and reification of adaptation techniques and strategies
- \* Incorporating non-functional properties into middleware, including real-time, fault- tolerance, immutability, persistence, security, trust, privacy and so on
- \* Fundamental developments in the theory and practice of reflection, adaptation and control, as it relates to middleware and its interaction with other layers
- \* Techniques to improve performance and/or scalability of adaptive and reflective mechanisms
- \* Evaluation methodologies for adaptive and reflective middleware; guidelines, testbeds and benchmarks
- \* Approaches to maintain the integrity of adaptive and reflective technologies; convergence of adaptation
- \* Tool support for adaptive and reflective middleware
- \* Design and programming abstractions to manage the complexity of adaptive and reflective mechanisms
- \* Software engineering methodologies for the design and development of adaptive middleware
- \* Methods for reasoning, storing and dynamically updating knowledge about the services provided by adaptive/reflective middleware
- \* The role of techniques such as learning in the design of long-lived adaptive middleware
- \* Methods for asynchronous, distributed, control, coordination/cooperation among components providing middleware services
- \* Metrics on properties such as cost-of-adaptation, quality-of-adaptation, consistency-of- adaptation, yields

#### Submission Guidelines

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All submissions should be made electronically through:  
<https://arm2019.hotcrp.com>

Submitted and accepted papers should be no longer than 6 pages in the standard ACM format for conference proceedings. Document templates for most popular document processing tools can be found at:  
<http://www.acm.org/sigs/publications/proceedings-templates>

At least one author on each accepted paper must hold a full pre-conference registration. Papers will be available in the ACM Digital Library.

We will aim to create better outreach for the papers in ARM by selecting the best papers from the workshop and inviting the authors of those papers to submit an extended and expanded manuscript (40% new material will be required for the extended manuscript) towards a publication in the SpringerNature Journal of Internet Services and Applications.

## Workshop Co-Chairs

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- \* Paul Grace, Aston University, UK
- \* Mohan Kumar, Rochester Institute of Technology, USA
- \* Marco Netto, IBM Research, Brazil

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## Programme Committee

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