

CALL FOR PAPERS

19th Workshop on Adaptive and Reflective Middleware (ARM 2020)

co-located with Middleware 2020, December 7-11, 2020, Delft, The Netherlands

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

Important Dates

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

Paper submission: September 14, 2020 (firm deadline)

Acceptance notification: October 5, 2020

Camera-ready: October 16, 2020 (firm deadline)

Workshop: December 7-11, 2020

Workshop Overview

The 19th Workshop on Adaptive and Reflective Middleware (ARM 2020) will celebrate 20 years since its first edition, held in conjunction with the ACM/IFIP/USENIX Middleware 2000 Conference in Palisades, NY, USA. This year, we intend to follow on the success of over two decades of this event, providing researchers with a leading-edge view on the state of the art in adaptive middleware and the engineering of adaptive and autonomous distributed systems, as well as fostering an exciting environment for cooperation among researchers.

Originally, adaptive and reflective middleware was motivated mainly by resource-constrained devices and mobile computing. Nowadays, the evolution of adaptive middleware technologies is driven by new classes of large-scale distributed, pervasive and resilient applications for multi and hybrid cloud, Internet of Things, smart cities, intelligent transportation, smart grids, Blockchain networks, resilient supply chains, remote healthcare, among others.

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 mainly related to scalability, heterogeneity and decentralized management, as well as resilient and autonomous real-time operations.

Following the trend in recent editions, this year the ARM workshop will bring together experts involved in designing and reusing adaptive systems at different layers, including application architecture, OS, virtualization technology and network. We are also interested in work exploring abstractions and techniques for adaptation that are complementary to reflection.

Topics of interest include but are not limited to:

- Design and performance of adaptive and 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, cyber-physical systems, Internet of Things, cloud 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;
- 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;
- 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 AI and machine learning in the design of lifelong adaptive middleware;
- Metrics on properties such as cost-of-adaptation, quality-of-adaptation, consistency-of-adaptation, yields.

Submission Guidelines

All submissions should be made electronically through <https://arm2020.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: <https://www.acm.org/publications/proceedings-template>

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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Program Committee

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