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 the first edition of the workshop, 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 previous editions 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. New classes of applications such as smart and connected city applications, industrial networked and cloud applications, the Internet of Things, intelligent transport, smart grids, Blockchain networks 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 and autonomous real-time operations, that require further investigation to address new use cases in large and diverse deployment contexts, such as smart city infrastructures (transportation networks, smart grids, and water systems), communication networks, healthcare platforms, etc.

This edition follows the path initiated in recent editions, by bringing 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 techniques that are complementary to reflection. The workshop series also seek to provide an exciting environment to foster cooperation among researchers.

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 HotCRP (submission link will be provided at https://armworkshop.github.io/).

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
TBD