

Workshop on Adaptive and Reconfigurable Embedded Systems

Gr noble, France – October 11, 2009, <http://www.artist-embedded.org/artist/APRES-09.html>

Adaptive and reconfigurable systems can respond to environmental changes including hardware/software defects, resource changes, and non-continual feature usage, as well as provide support to live maintenance, extensibility and evolving requirements. As such, these systems have the potential to exhibit an extended operations space and lifetime and improve efficiency in the use of system resources.

However, such flexibility also incurs overhead in terms of system complexity and resource requirements. For example, an adaptive system requires means for reconfiguration that allows it to adapt to changes. These means and their mechanisms introduce additional complexity to the design and the architecture, and they also require additional resources such as computation, power, and, for distributed reconfiguration, communication bandwidth.

Moreover, to take advantage of adaptability, new specification methods are needed, to define acceptable adaptation ranges which will be explored by the system at run-time to improve a given performance metric. However, current operating systems and network protocols are not designed to support such flexible requirements, and generally do not support complementary reflexive mechanisms that are needed to allow the application to adjust itself to the current configuration.

Finally, programming such systems also needs adequate middleware layers that provide adequate abstractions and interfaces for the development of adaptive applications. Building such middleware so that it preserves adaptability while providing performance guarantees together with satisfying other usual goals, such as modularity, reusability and scalability, is a challenge still to be conquered.

Objectives

This is the 2nd edition of APRES, after the inaugural edition in St Louis, USA, within the 1st Cyber-Physical Week. It aims at discussing new and on-going research in the development and use of adaptive and reconfigurable embedded systems and gathering feedback from the embedded systems community at large. Of particular interest are new concepts and ideas for modeling and analyzing tradeoffs of embedded and real-time systems, novel algorithms and mechanisms to realize adaptation and reconfigurability, and experience reports with practical or industrial case studies.

Topics

Any topics of interest to embedded and real-time systems research in the areas of systems, languages, software, theory, networking, control and analysis with specific focus on reconfigurability and adaptivity.

Target audience

The workshop is open to all researchers, system developers and users who are involved with or have an interest in the referred topics. We encourage all the prospective participants to submit an extended abstract, work-in-progress report or position paper.

Program Committee

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Thomas Nolte, Malaraldalen University, Sweden
Xue Liu, McGill University, Canada

Important Dates

Deadline: 28th June

Notification: 6th September

Final versions: 13th September

Workshop: 11th October 2009

Submission Guidelines

Prospective participants should submit a **4 page paper in PDF** format through the submission website

<https://www.softconf.com/starts/apres2009/submit.html>.

The submissions should conform to the proceedings publication format (IEEE Conference style). The submissions will be reviewed by at least three members of the Program Committee. The papers will be published in a Proceedings volume that will be available for download and print on the Internet, after the event. A draft printout will be distributed at the workshop to all participants.

Organizers

Karl-Erik Arzen, University of Lund, Sweden
Luis Almeida, University of Porto, Portugal
Sebastian Fischmeister, University of Waterloo, Canada
Insup Lee, University of Pennsylvania, USA
Julian Proenza, University of the Balearic Islands, Spain

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APRES'09

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