ACM Transactions on Autonomous and Adaptive Systems

Special Issue on

Formal Methods for Pervasive, Self-Adaptive, and Context-Aware Systems

Important Dates

Submission deadline: 1st May 2010
First notification: 1st Oct. 2010
Revised papers: 15th Nov. 2010
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Aims and Scope

Pervasive, self-adaptive and context-aware systems are increasingly realized for safety-critical domains that include healthcare, emergency scenarios, and disaster recovery. These domains present new challenges that include expressing, verifying and validating requirements and ensuring functional correctness. Formal methods are one approach to address these challenges. Pervasive, self-adaptive and context-aware systems add additional concerns to classical safety-critical applications and require rethinking how to apply well-established formal methods. Examples of these approaches include state-action models (e.g., labeled transition system, timed automata, and Petri nets) or process models (e.g., pi-calculus). Alternatively, semi-formal methods like ontologies or UML, a common specification language for the describing software models, model knowledge for context-aware applications. Both formal and semi-formal methods have their advantages and disadvantages. This special issue will address the state of the art: the research challenges, and the available methods, methodologies and tools to specify, validate, and verify pervasive, self-adaptive and context-aware systems.

Topics

The special issue intends to focus on the above issues and solicits papers that address theoretical and experimental work related to formal and semi-formal methods for pervasive computing. Papers are solicited from, but are not limited to, the following topics:

- Formal specification of pervasive, self-adaptive, self-organizing, and context-aware systems
- Ontology based approaches
- Specific UML profiles
- Formal verification of specifications and implementations
- Model-Checking techniques and tools
- Run-time and automated verification
- Methodologies, languages, and tools
- Applications and experiences in critical scenarios (e.g. healthcare, disaster recovery, etc.)

Submission Guidelines

Papers should be up to 20 pages (appendixes are not included into the overall count of pages), formatted according to the guidelines provided at the ACM TAAS Web site (http://taas.acm.org/) and submitted via the TAAS manuscript central systems at http://mc.manuscriptcentral.com/taas

Please make explicit in the cover page that your paper is intended as a submission to the special issue on *Formal Methods for Pervasive, Self-Adaptive, and Context-Aware Systems*.