Call for Papers
Special Issue on “State of the Art in Self-Adaptive Software Systems”
Journal of Systems and Software (JSS)

Modern software systems have to operate under highly dynamic and unpredictable operating conditions. User needs may change dynamically, availability of resources may vary, subsystems may come and go at runtime, etc. To deal with such dynamics, systems must be self-adaptive, i.e. they must be able to adapt themselves at runtime to optimize performance, protect from intrusions, heal from failures, etc. During the last decade, multiple approaches have been proposed to engineer self-adaptive systems. From these efforts, we learned that the construction of self-adaptive systems is significantly more challenging than traditional systems. The aim of this special issue is to provide an overview of the state of the art in the field of self-adaptive software systems and outline the challenges for future research.

We invite quality submissions focusing on all aspects of self-adaptation, with an emphasis on the engineering of self-adaptive software systems. Topics of interest include, but are not restricted to:

- models and theories for self-adaptation
- formal methods for self-adaptive systems
- architectural styles and patterns for self-adaptive systems
- control loops and reflective architectures for self-adaptation
- quality of service concerns in self-adaptive systems
- mechanisms that support monitoring, analysis, planning, and execution phases of self-adaptation
- dealing with uncertainty in self-adaptive systems
- self-adaptation versus self-organization
- verification of self-adaptive systems, including runtime verification
- methods for engineering self-adaptive systems
- evolution of self-adaptive systems
- case studies and empirical experiments involving self-adaptive systems
- validation of self-adaptation
- application of self-adaptation techniques in industrial and real world settings
- self-adaptation in component-based system
- self-adaptation in service-oriented systems
- agent-based approaches to self-adaptation
- aspect-oriented approaches to self-adaptation
- self-adaptation in pervasive and mobile systems
- application of principles from biology, sociology, and physics to engineer self-adaptive systems

All articles should consider the practical application of the idea through case studies, experiments, empirical validation, or systematic comparisons with other approaches already in practice.

Submissions
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Papers are limited to 20 pages and have to be prepared according to the author instructions available at: http://www.elsevier.com/wps/find/journaldescription.cws_home/505732/authorinstructions

All papers will be refereed by at least two reviewers knowledgeable in the domain of self-adaptive systems. Papers have to be submitted using the Elsevier manuscript system: http://ees.elsevier.com/jss/

Please select the article type “Special Issue: Self-Adaptive Systems” on the submission website.

Key Dates
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March 15, 2011 – Submission website open
March 31, 2011 – Submission deadline
July 31, 2011 – Final Decisions
Publication – Tentatively December 2011

Info
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Email: JSS-special-issue2010@cs.kuleuven.be
Web site: www.elsevier.com/wps/find/journaldescription.cws_home/505732/issue#description

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