



## Soft Computing Journal Special Issue on:

### *Autonomic Computing and Big Data Platforms (AutoCompBD)*

#### Call for Papers

##### Scope and Objective

The amount of data collected or generated by ICT systems is growing exponentially (today we reached a Petabyte Era, and will soon enter the ExaScale one). Processing and storing ever-larger volumes of data introduces new challenges, and consequently we need to constantly develop new technological means to face them. Massive parallel processing platforms are the answer, and are already being developed over distributed systems (i.e., over Cloud or Fog Computing). However, the problem is that such platforms need to support a wide variety of applications, coming with different processing requirements. Thus, self-\* behavior is a must in this context, referring to self-managing characteristics of distributed computing resources, their capability to adapt to unpredictable changes while hiding intrinsic complexity to operators and users.

This special issue is dedicated to dissemination and evaluation of advances in Autonomic Computing and Big Data Platforms, supported by large scale distributed systems (LSDS). Autonomic Computing is facilitated by self-management capabilities that modern LSDS introduce, such as self-configuration, self-healing, self-optimization, and self-protection properties. In LSDS, an important characteristic is dependability (defined in terms of reliability, availability, safety and security of the operating system). Increased dependability means the system has to be able to detect, recover and tolerate every possible deviation from its normal operation, and a wide area of Autonomic Computing research is today dedicated to this subject. The models used in the development of systems with dependability capabilities combine monitoring, scheduling, data management, security, and fault tolerance. The challenge is that in Big Data platforms applications and users, and even the distributed resources themselves, introduce unpredictable dynamic behavior. Autonomic Computing is considered one great challenge today faced by the IT industry, in need of finding good answers to how to conquer the growing complexity of large-scale systems and how to adequately cope with the many issues faced by truly Big Data processing.

All these topics challenge today researchers, due to the strong dynamic behavior of the user communities and of resource collections they use. The special issue is oriented on computer and information advances aims to develop and optimize advanced system software, networking, and data management components to cope with Big Data processing and the introduction of Autonomic Computing capabilities for the supporting Large Scale Platforms. We consider that our special issue will come with new and novel added value in the domain of Autonomic Computing and Big Data Platforms.

##### Topics of Interest

This special issue calls for original papers describing the latest research and innovations, solutions and developments on ***Autonomic Computing and Big Data Platforms***. The following is a non-exhaustive list of topics in focus of this special issue:

- Dependable Large Scale Distributed Systems (Cloud, Grid, P2P, Virtualization)
- Architecture of Big Data Platforms
- Autonomic Computing (Architectures and Systems, Theory and Models)
- Autonomic Large Scale Systems, Middleware, and Services
- Autonomic computing and proactive computing for autonomous systems
- Monitoring and Control in Large Scale distributed System
- Distributed resource management systems
- Adaptive Scheduling, Load balancing and Load sharing
- Fault-tolerant Systems; Dependability in autonomous systems; Survivability and recovery in autonomous systems; Monitoring and control in autonomous systems;
- Management of autonomous systems;
- Self-optimizing software systems
- Self-stabilization and dynamic stability criteria and mechanisms
- Tools, languages and platforms for designing self-driven systems
- Autonomic computing and proactive computing for autonomous systems
- Practices, criteria and methods to implement, test, and evaluate industrial autonomic systems, and experiences with autonomic computing systems
- Adaptive parallel applications
- Novel approaches to modelling and representing context adaptability, self-adaptability, and self-manageability
- Models of computation for self-management context-aware systems

### Submission guidelines

The submitted papers must be original and must not be under consideration in any other venue. Papers will be peer reviewed by independent reviewers and selected based on originality, scientific quality and relevance to this Special Issue and will be accepted or rejected in line with the usual standards of Soft Computing Journal. The journal editors will make final decisions on the acceptance of the papers.

Authors should prepare their manuscript according to the Guide for Authors available from the online submission page of the Soft Computing Journal at <https://www.editorialmanager.com/soco/>. Authors should select “**SI: AutoCompBD**” when they reach the “Article Type” step in the submission process.

### Tentative schedule

Manuscript Due	September 1, 2015
First Decision Date	October 31, 2015
Revision Due	December 1, 2015
Final Decision Date	December 31, 2015
Final Paper Due	February 28, 2016

### Guest Editors

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