TC-AAS newsletter

April 2012 Issue

TC-AAS newsletter is produced as a focal point for news concerning the (related) activities of the IEEE Computer Society Autonomous and Autonomic Systems technical committee. If you have any items for the next issue please contact **r,sterritt@ulster.ac.uk**.

TC Chair's Column

Following our successful 8th Annual **EASe** conference in Las Vegas, AZ, USA in April 2011; EASe returned to Europe for 2012 and for the 2nd time in our history to Eastern Europe (the 1st edition was hosted in Bruno, Czech Rep. in 2004) to Novi Sad, Serbia.

I would like to take this opportunity on behalf of the whole community to thank Miroslav Popovic and the local organizing committee for all their hard work. I would also like to thank the EASe programme committee for their time and expertise in ensuring an excellent programme. Last but far from least many thanks to all the authors, presenters and participants for making EASe 2012 once more such an enjoyable and productive venue to share our research.

SASO 2012's deadlines are quickly approaching. The 2012 edition which will be the 6th annual IEEE International Conference on Self-Adaptive and Self-Organizing Systems will be held in Lyon France, between 10th-14th September 2012. Please see the call for papers later in this newsletter and keep up to date with the deadlines @

http://saso2012.univ-lyon1.fr/index.php

Roy Sterritt, chair TC-AAS
r.sterritt@ulster.ac.uk
18th April 2012

Previous newsletter is available at:

http://tab.computer.org/aas/newsletter/last.html

2011 Annual Report to Members

http://tab.computer.org/aas/reports/2011-TC-AAS-ANNUAL-REPORT-TO-MEMBERSHIP.pdf

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Join the Technical Committee on AAS or Renew for 2012 online

Details can be found at the web site
http://www.computer.org/tandc

where you can sign-up to TC-AAS and three others free
http://www.computer.org/portal/web/tandc/tclist

If you have already signed up, manage your membership at:
http://www.computer.org/services/teca

9th Annual EASe Conference

EASe 2012 was the 9th formal IEEE sponsored meeting dedicated to formulating and advancing methods, techniques and tools for the engineering of autonomic and autonomous systems (or self-managing systems) and once again was collocated with ECBS.

Keynote on Organic Computing by Professor Hartmut Schmeck

We had an excellent joint keynote from Prof Hartmut Schmeck on Organic Computing for Smart Energy and Electric Mobility. Organic Computing when it started as a German initiative very much reflected Autonomic Computing. It was excellent to see how they have progressed and indeed diversified from that original vision adding much to the architecture.

Keynote on Modeling for Autonomic Communications by Dr Steven Davy (TSSG,Ireland).

Steven Davy gave another excellent keynote about work on the SFI FAME (Federated Autonomic Management End-to-End Communications Services) Cluster, generalizing his experience for modelling for Autonomic Communications.

Other talks included Specifying and Validating Context-aware Adaptive Behaviour of Software Systems, Verification of Component-based Architectural Models on Autonomous Systems, Investigating Requirements for the MAPE loop, Architectural Integration Patterns for Autonomic Management Systems, Adaptive Monitoring in IP Networks, Autonomic and Apoptotic Data,

The full program can be viewed at: http://tab.computer.org/aas/ease/2012/program.html

Snapshots of EASe-2012

http://tab.computer.org/aas/ease/2012/

SEE MORE SNAPSHOTS @

Please 'like' the EASe-2012 FB page and upload your own pictures from EASe-2012 and Novi Sad:

EASe-2012 on Facebook:
http://www.facebook.com/groups/207378256038636/

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SASO 2012 Call for Papers

Introduction

The aim of the SASO conference series is to provide a forum for presenting the latest results about self-adaptive and self-organizing systems, networks and services. To this end, the meeting aims to attract participants with different backgrounds, to foster cross-pollination between research fields, to expose and discuss innovative theories, frameworks, methodologies, tools, and applications, and to identify new challenges. The complexity of current and emerging computing systems has led the software engineering, distributed systems and management communities to look for inspiration in diverse fields (e.g., complex systems, control theory, artificial intelligence, sociology, biology, etc.) to find new ways of designing and managing networks, systems and services. In this endeavor, self-organization and self-adaptation have emerged as two promising interrelated facets of a paradigm shift.

Topics of Interest

The SASO conference is interested in both theoretical and practical aspects of systems exhibiting self-* characteristics. A particular focus is the modeling of natural, man-made and social systems that exhibit self-adaptation and self-organization characteristics as well as the constructive use of the underlying basic principles in technical systems. The sixth edition of SASO particularly encourages submissions from the following, non-exclusive list of topic areas:

- Principles, Theory, and Architectures for SASO systems
- Theory and Practice of SASO Systems
- Formalisms and languages for SASO systems
- Anticipative adaptive systems
- Cognitive science roots of Self-* principles
- Theories of non-linear dynamics for engineering/understanding self-* systems.
- Building trustworthy SASO Systems
- Trust models for SASO systems
- Trust models for cooperation
- Models for learning trust and the evolution of trust
- Decentralized trust models
- Theoretical trust models
- Self-* behavior in communication networks
- Adaptive protocols for future Internet applications
- Self-organizing network structures for Peer-to-Peer systems, vehicular and sensor networks
- Self-organized shaping of communication structures (which is more general)
- Self-organizing control structures for network federation
- Self-organized routing, search, lookup and resource allocation in distributed systems
- Consensus, aggregation and synchronization protocols
- Run-time optimization and adaptation of communication structures
- Self-configuring and self-synchronizing network protocols
- Design & Engineering of SASO Systems /SASO principles in design automation
- SASO Methodologies for automating of design systems
- Methodological frameworks for the engineering of SASO systems
- Novel, non-conventional programming paradigms for the design of SASO systems
- (Self-)Control, (Self-)Observation, (Self-)Monitoring of engineered SASO systems
- Methods to quantify and control self-organization and self-adaptation phenomena in engineered systems
- Control-theoretic approaches to self-* phenomena
- Decentralized control mechanisms for massively distributed systems
- Self-monitoring, self-adaptation and distributed control techniques in cloud computing, Peer-to-Peer systems and large-scale data centers
- Techniques for decentralized (self-)evaluation of Self-* Systems
- Robustness, Resilience, fault-tolerance in/with Self-* systems
- Analysis and optimization of robustness and resilience of technical infrastructures, smart grids and public utilities
- Modeling and prevention of cascading failures and systemic risks in cyber-physical systems and large-scale public infrastructures
- Models, algorithms, theories, measures, tools for robustness, resilience and fault-tolerance in/with self-* systems
- Complex collective phenomena in social and socio-technical systems
- Models for wisdom of crowd effects and application to crowd sourcing scenarios
- Modeling and prediction of herding phenomena
- Models for group and hierarchy formation
- Models of collective problem solving
- Social models for distributed decision-making and opinion dynamics
- Modeling and control of distributed collaborative tasks like software development
- Analysis, Understanding, Prediction of collective behavior in (online) social networks and applications in future Internet scenarios
- Use of socio-economic principles and game-theoretic approaches in the design of sustainable information systems
- Humans-Systems coupling and self-* principles in social computing and socio-technical systems
- Self-organization and self-adaptation in biological/natural systems
- Simple models for collective phenomena like collective motion, swarm intelligence and synchronization phenomena
- Technical applications of simple models for morphogenesis and pattern formation
- Bio-inspired computing technologies
- Evolutionary programming
- Computational models inspired by neuroscience and neural network models
- Applications of spatial and physics-inspired self-organization
- Applications of reaction-diffusion models for the formation of spatial patterns
- Application of spatial self-organization schemes to many-core processors, sensor networks and ubiquitous computing scenarios
- Models for structure-formation in non-equilibrium particle system
- SASO principles in Cyber-security
- Use of machine learning and statistical inference techniques in the design of (self-*) security systems
- Learning models for (self-*) security systems like firewalls, malware and spam recognition and intrusion detection
- Reflective and self-adaptive mechanisms in operating systems, managed runtime environments and complex software architectures
- SASO principles in Robotic systems
- Robotic systems making use of self-assembly and self-adaptation principles
- Learning and environmental modeling in robotic systems
- SASO principles in image recognition techniques
- Applications for neural networks and artificial intelligence
- SASO principles for Ambient Systems and Context-awareness
- Cyber-physical systems design with self-* principles
- Open, interoperable, adaptive systems relevant for ambient systems, characterized by under-specification, dynamic, several designers, without global control and knowledge
- Distributed management, adaptation and monitoring mechanisms in energy networks, smart grids, transportation and traffic as well as large-scale communication infrastructures
- Concepts, models, architectures, etc. for awareness (context-awareness, social-awareness...) in self-* systems
- Real-world experience with engineered systems exhibiting self-* properties
- Predictability, controllability and risks in systems with self-* properties
- Experiences with fail-safety and efficiency of SASO systems as opposed to traditionally built systems
- Examples for detrimental effects of self-organization phenomena in practical systems
- Experiments of complex problem-solving with self-* principle such as constraint-satisfaction problem, multi-disciplinary, multi-criteria, multi-objective optimization
- Prevention of unwanted self-organization effects

Submissions Instructions: All submissions should be 10 pages and formatted according to the IEEE Computer Society Press proceedings style guide and submitted electronically in PDF format. Please register as authors and submit your papers using the SASO 2012 conference management system. The proceedings will be published by IEEE Computer Society Press, and made available as a part of the IEEE digital library. Note that a separate call for poster submissions has also been issued.

Program Chairs: *Anwitaman Datta* (Distributed Systems), NTU, Singapore; *Marie-Pierre Gleizes* (Self-organization), Université de Toulouse, France; *Ingo Scholtes* (Socio-technical Systems), ETH Zurich, Switzerland.

For full CFP details and latest deadlines see:
http://saso2012.univ-lyon1.fr/callforpapers.php