Editorial

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Biographical notes: Falko Dressler is an Assistant Professor leading the Autonomic Networking Group at the Department of Computer Sciences, University of Erlangen. He teaches on self-organising sensor and actor networks, network security and communication systems. He received his MSc

and PhD from the Department of Computer Sciences, University of Erlangen in 1998 and 2003, respectively. His research activities are focused on (but not limited to) autonomic networking addressing issues in wireless *ad hoc* and sensor networks, vehicular communication, self-organisation, bio-inspired mechanisms, and adaptive network monitoring and security techniques.

Antonio Manzalini got his MSc in Electronic Engineering from the Politecnico of Turin (Italy). He joined Telecom Italia Lab (formerly CSELT) by joining RT&D activities on technologies and architectures for advanced networking. He has been awarded five patents on networking and services systems and methods. He was active in the ITU standardisation as Rapporteur (1997–2000). He has been actively involved in several EURESCOM and European Project. In 2003, he was appointed as member of the Scientific Committee of Centre Tecnològic de Telecomunicacions de Catalunya. In 2008, he has been awarded with the International Certification of Project Manager by PMI. Currently, he is joining the long term research activities of the Future Centre of Telecom Italia.

Daniele Miorandi is the Head of the Pervasive Computing and Communications Area at CREATE-NET, Italy. He received a PhD in Communications Engineering from the University of Padova in 2005. His research interests include bio-inspired approaches to networking and service provisioning in large-scale computing systems, modelling and performance evaluation of wireless networks, wireless extensions of fieldbus systems, prototyping of wireless mesh solutions. He has been publishing more than 70 papers in internationally refereed journals and conferences. He serves on the Steering Committee of various international events (WiOpt, Autonomics, ValueTools).

Luís Rodrigues is a Professor at Departamento de Engenharia Informática, Instituto Superior Técnico, Universidade Técnica de Lisboa and a Researcher of the Distributed Systems Group at INESC-ID/IST. His interests include fault-tolerant, distributed systems, middleware, mobile computing and autonomic computing. He has more than 100 publications in these areas. He is a co-author of two books on distributed computing. He is a Member of the Ordem dos Engenheiros, ACM and IEEE.

Fabrice Saffre is a Principal Researcher in the Centre for Information and Security Systems Research of British Telecommunications (BT). He has authored many publications on collective behaviour in complex adaptive and autonomous systems, both natural and artificial. A member of the Institute of Physics and of the British Computer Society, he holds a post-graduate degree in Computer Science and a PhD in Theoretical Biology from the Université Libre de Bruxelles. Since he joined BT in 2000, his work has generated over 15 patents and patent applications in nature-inspired computing.

This Special Issue of *IJAACS* includes a selection of the best papers presented at Autonomics 2008, the Second edition of the International Conference on Autonomic Computing and Communication Systems (www.autonomics.eu), which took place in Torino, Italy, in September 2008.

The objective of this conference is to create an international networking forum capable of driving emergent autonomic technology, promoting cross-fertilisation among the different related disciplines, and fostering collaboration between various initiatives and projects in Europe, the USA and Asia. In particular, Autonomics intends to offer to

both researchers and practitioners a venue where the different aspects and challenges of autonomics could be presented and discussed, including:

- Architectures and algorithms for autonomic self-systems.
- Innovative approaches to the design of autonomic systems.
- Application to communications, networking and computing fields.
- Specific use-cases, applications and experimental activities.

The conference final programme included the presentation of papers accepted for the main track (~30% acceptance rate), two keynote lectures, and three co-located workshops, namely, innovative service technologies (INSERTech), SAC-FIRE and the 8th workshop of the MiNEMA ESF Scientific Programme.

The papers selected for this Special Issue reflect the multi-disciplinary nature of the topics addressed by the conference. Paper 'Strategies for repeated games with subsystem takeovers implementable by deterministic and self-stabilising automata', by S. Dolev, E.M. Schiller, P.G. Spirakis and P. Tsigas, illustrates how game-theory and self-stabilisation are relevant to model autonomic systems. Paper 'Emergent engineering: a radical paradigm shift', by M. Ulieru and R. Doursat advocates a bottom up 'design by emergence' approach to the construction of complex autonomic systems. Paper 'Autonomous and scalable failure detection in distributed systems', by B. Satzger, A. Pietzowski and T. Ungerer, addresses the topic of organising monitoring relations among nodes in a network to achieve scalable self-monitoring. Paper 'Component deployment using parallel ant-nests', by M.J. Csorba, P.E. Heegaard and P. Herrmann shows how biologically inspired algorithms, namely, algorithms inspired by the foraging behaviour of ants may be applied to solve component placement in a pool of computers. Finally, paper 'Model-based integrated management: applying autonomic systems engineering to network and systems management', by E. Höfig and P.H. Deussen, discusses how to document, store, exchange and query management plans to increase the autonomic capabilities of systems.

We believe this set of papers represents an interesting sample of the diversity of topics covered by the Autonomics conference.