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Self-Organizing Systems

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Preface

We welcome you to the proceedings of the Third International Workshop on Self-Organizing Systems (IWSOS 2008) hosted at the University of Vienna, Austria. IWSOS provides an annual forum to present and discuss recent research in self-organization focused on networks and networked systems. Research in self-organizing networked systems has advanced in recent years, but the investigation of its potentials and limits still leaves challenging and appealing open research issues for this and subsequent IWSOS workshops.

Complex and heterogeneous networks make self-organization highly desirable. Benefits envisioned by self-organization are the inherent robustness and adaptability to new dynamic traffic, topology changes, and scaling of networks. In addition to an increasingly complex Global Internet, a number of domain-specific subnetworks benefit from advances in self-organization, including wireless mesh networks, wireless sensor networks, and mobile ad-hoc networks, e.g., vehicular ad-hoc networks. Self-organization in networked systems is often inspired by other domains, such as nature (evolution theory, swarm intelligence), sociology (human cooperation), and economics (game theory). Aspects of controllability, engineering, testing, and monitoring of self-organizing networks remain challenging and are of particular interest to IWSOS.

This year, we received 70 full paper and 24 short paper submissions from authors of 33 different countries. This strong interest in the workshop is very encouraging for research in self-organizing systems and allowed us to provide a strong technical program. Based on the recommendations of the Technical Program Committee and external expert reviewers, we accepted 20 full papers from the full paper submissions and invited 9 as short papers. Of the 24 short paper submissions we accepted 4 for presentation for a total of 13 short papers. Most full papers were reviewed by four experts, and all papers received at least three reviews. A number of papers were shepherded toward publication by the Technical Program Committee and external expert reviewers.

Our technical program consisted of sessions on Peer-to-Peer Systems (4 papers), Overlay Networks (3 papers), Resource and Service Management (4 papers), Theory and General Approaches (3 papers), Wireless Sensor Networks (3 papers), and Fault Detection, Resilience, and Self-Healing (3 papers). Additionally, there were two short paper sessions: Short Papers – Networking Topics (7 papers) and Short Papers – Theory, General and Distributed System Topics (6 papers).

To complement the technical program we invited a discussion paper on open issues of self-organizing systems, which led to a panel discussion on the future application of self-organization to large, complex, robust, and resilient networks. We were delighted to have two keynote addresses: Martha Steenstrup discussed the history, state-of-the-art, and future prospects of self-organizing networks. Kurt Tutschku focused on how network virtualization is facilitated by

self-organization and how self-organization can be applied to future virtualized networks.

We are grateful to all Technical Program Committee members and additional reviewers who provided thorough reviews that made the selection of the papers possible. For their mentoring effort, we want to express our particular thanks to Paul Smith, Amine Houyou, Helmut Hlavacs, Mikhail Smirnov, Simon Dobson, Marco Mamei, Christian Bettstetter, Majid I. Khan, Güneş Erçal-Özkaya, and Matthias Hollick. Special thanks go to our IWSOS 2008 General Chair, Helmut Hlavacs, for his outstanding support in all the phases of the workshop organization. Many thanks go to Eugen Mühlvenzl and his team from the Austrian Computer Society for their support in the organization of the workshop. Additionally, without the support of our Viennese Organizing Committee, the workshop would not have been possible. Particular thanks go to Shelley Buchinger for her contributions to the website and invaluable support during paper submission, Harald Meyer for his tireless support in announcing different calls for the workshop, Andrea Hess for her precise technical editing support of the proceedings, and Alexander Adrowitzer for coordinating the side-program of the workshop. Finally, we want to thank the numerous authors for their submissions and contributions to the technical program.

December 2008

Karin Anna Hummel
James P.G. Sterbenz

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IWSOS 2008, the Third International Workshop on Self-Organizing Systems, was organized by the Department of Distributed and Multimedia Systems, University of Vienna, Austria in cooperation with the Austrian Computer Society in Vienna, December 10–12, 2008.

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Table of Contents

Theory and General Approaches

Wireless Sensor Networks

Fault Detection, Resilience, and Self-Healing

Short Papers – Networking Topics

Short Papers – Theory, General and Distributed System Topics