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Self-Organizing Systems

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Proceedings

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Preface

We welcome you to the proceedings of the 4th International Workshop on Self-Organizing Systems (IWSOS 2009) hosted at ETH, Zurich, Switzerland. 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 Future 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 34 full paper and 27 short paper submissions. The high quality of the submissions allowed us to provide a strong technical program. Based on the recommendations of the Technical Program Committee and external expert reviewers, we accepted 14 full papers from the full-paper submissions and invited 3 as short papers. Of the 27 short-paper submissions we accepted 10 for presentation for a total of 13 short papers. All full papers received three to four reviews and all short papers three reviews, with a few exceptions that were clearly out of scope. A number of papers were shepherded toward publication by the Technical Program Committee and external expert reviewers.

Our technical program consisted of full-paper sessions on Ad Hoc and Sensor Networks (3 papers), Services, Storage and Internet Routing (3 papers), Peer-to-Peer Systems (3 papers), Theory and General Approaches (3 papers), and Overlay Networks (2 papers). Additionally, there were three short-paper sessions on Peer-to-Peer Systems and Internet Routing (4 papers), Wireless Networks (5 papers), and Networking Topics (4 papers). To complement the technical program we invited a discussion paper on design approaches for self-organizing systems. Finally, we were delighted to have two keynote addresses by Dario Floreano and Martin May.

We are grateful to all Technical Program Committee members and additional reviewers who provided thorough reviews that made the selection of the papers possible, and the ones who additionally helped with the paper shepherding

process. Special thanks go to our IWSOS 2009 General Chair, Bernhard Plattner, for his outstanding support in all the phases of the workshop organization.

Our thanks go to Georg Carle and Guy Leduc from IFIP TC6 for supporting the workshop with IFIP sponsorship. We are also indebted to the Euro-nf Network of Excellence for supporting IWSOS 2009 by sponsoring travel grants for their members attending the workshop. We thank Caterina Sposato from ETH Zurich for help in the local organization and the side program, and finally ETH Zurich for providing us with excellent facilities free of charge.

December 2009

Thrasyvoulos Spyropoulos
Karin Anna Hummel

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