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Algorithmic Aspects of Wireless Sensor Networks

First International Workshop, ALGOSENSORS 2004
Turku, Finland, July 16, 2004
Proceedings



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Preface

This volume contains the contributed papers and invited talks presented at the 1st International Workshop on Algorithmic Aspects of Wireless Sensor Networks (ALGOSENSORS 2004), which was held July 16, 2004, in Turku, Finland, co-located with the 31st International Colloquium on Automata, Languages, and Programming (ICALP 2004).

Wireless ad hoc sensor networks have become a very important research subject due to their potential to provide diverse services in numerous applications. The realization of sensor networks requires intensive technical research and development efforts, especially in power-aware scalable wireless ad hoc communications protocols, due to their unusual application requirements and severe constraints.

On the other hand, a solid theoretical background seems necessary for sensor networks to achieve their full potential. It is an algorithmic challenge to achieve efficient and robust realizations of such large, highly dynamic, complex, non-conventional networking environments. Features, including the huge number of sensor devices involved, the severe power, computational and memory limitations, their dense deployment and frequent failures, pose new design, analysis and implementation challenges.

This event is intended to provide a forum for researchers and practitioners to present their contributions related to all aspects of wireless sensor networks.

Topics of interest for ALGOSENSORS 2004 were:

- Modeling of specific sensor networks.
- Methods for ad hoc deployment.
- Algorithms for sensor localization and tracking of mobile users.
- Dynamic sensor networks.
- Hierarchical clustering architectures.
- Attribute-based named networks.
- Routing: implosion issues and resource management.
- Communication protocols.
- Media access control in sensor networks.
- Simulators for sensor networks.
- Sensor architecture.
- Energy issues.

This volume contains 2 invited papers related to corresponding keynote talks, one by Viktor Prasanna (University of Southern California, USA) and one by Paul Spirakis (University of Patras and Computer Technology Institute, Greece) and 15 contributed papers that were selected by the Program Committee (PC) from 40 submitted papers. Each paper was reviewed by at least 2 PC members, while a total of 99 reviews were solicited.

We would like to thank all the authors who submitted papers to ALGOSENSORS 2004, the members of the Program Committee, as well as the

external referees. Also we thank the members of the Organizing Committee. We especially wish to thank Prof. Dr. Jan van Leeuwen for valuable comments.

We gratefully acknowledge the support from the Research Academic Computer Technology Institute (RACTI, Greece, <http://www.cti.gr>), and the Athens Information Technology (AIT, Greece, <http://www.ait.gr>) Center of Excellence for Research and Graduate Education. Also, we thank the European Union (EU) IST/FET (“Future and Emerging Technologies”) R&D Projects of the Global Computing (GC) Proactive Initiative FLAGS (IST-2001-33116, “Foundational Aspects of Global Computing Systems”) and CRESCCO (IST-2001-33135, “Critical Resource Sharing for Cooperation in Complex Systems”) for supporting ALGOSENSORS 2004. Finally, we wish to thank Springer-Verlag, Lecture Notes in Computer Science (LNCS), and in particular Alfred Hofmann, as well as Anna Kramer and Ingrid Beyer, for a very nice and efficient cooperation.

July 16, 2004

Sotiris Nikolettseas and Jose Rolim

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