

CALL FOR PAPERS

LOCALGOS 2007

First International Workshop on Localized Algorithms and Protocols
for Wireless Sensor Networks
<http://ants.dif.um.es/localgos07>

In conjunction with the IEEE International Conference on
Distributed Computing in Sensor Systems (DCOSS 2007)
www.dcross.org

June 18 - 20, 2007
Santa Fe, New Mexico, USA

Wireless sensor networks consist of a large set of embedded devices each having limited computation and communication capabilities. By using wireless multihop communication, small chunks of collected data are aggregated and sent towards some selected data sinks. In this way individual measurements emerge to a global picture of the entire physical phenomenon. Wireless sensor networks enable rapid deployment, require minimum maintenance effort, and have minimum influence on the measured phenomenon. It is envisioned that in many application scenarios sensor networks will lead us beyond the scale, precision, and detail of what we can measure with traditional techniques today.

Sensor networks may have hundreds or thousands of nodes, with limited energy supplies and communication capabilities. Thus, it is of paramount importance for the networking algorithms and protocols to be able to scale with a very large number of devices. The main paradigm shift to achieve those desirable properties is to apply localized (or greedy) schemes as opposed to existing protocols requiring global information. Localized algorithms are distributed algorithms where simple local node behavior achieves a desired global objective. Localized protocols provide scalable solutions, that is, solutions for wireless networks with an arbitrary number of nodes, which is the main goal of this plan.

This workshop will bring together researchers working in the field of localized algorithms and protocols for wireless sensor networks. The main objective is on data communication, topology control, sensor coverage, and sensor localization. Data communication problems are those in which one or multiple sources need to send data to one or multiple destinations. They include among others, unicast and multicast routing, geocasting and data gathering. In the routing problem a path is created to allow the data source to send packets to one (unicast) or multiple (multicast) destinations. Geocasting consist of sending a data packet to all sensor nodes within a pre-defined geographic area. In the data gathering problem, data from a set of sensor nodes is collected and transmitted toward one or multiple (eventually mobile) base stations. Topology control algorithms and protocols include problems such as neighbor detection, boundary detection, and network organization problems in which a subset of the original topology satisfying some properties is obtained. Examples of topology control problems are computation of dominating sets, planar graphs, and energy efficient sub topologies. Sensor coverage denotes the ability of a sensor network to cover each point in a given area by a certain minimum number of sensor nodes. Localized coverage control includes energy conserving sleep cycles, and autonomous mobile sensor nodes which collaboratively move to achieve a desired area coverage. The majority of localized protocols require that nodes are aware of their physical position. In relative positioning such information is made available by means of distance measurements between neighboring nodes and triangulation, while the distance between two neighbor nodes is estimated by measuring the received signal strength.

Scope of the Workshop

The main objective of the workshop is to present state of the art research results in the area of localized algorithms and protocols for wireless sensor networks. The workshop covers among others the following research topics (not limited to):

- Unicast and multicast routing
- Broadcasting
- Energy-efficient and bandwidth-efficient communication
- Security in wireless sensor networks
- Data management, query processing and data delivery
- Topology construction and maintenance in wireless sensor networks
- Localized protocols for duty-cycled sensor networks
- Geocasting techniques for wireless sensor networks
- Auto-configuration and network formation protocols and algorithms
- Relative positioning algorithms
- Lower bounds on information exchange required for localized solutions
- Network graph properties supporting localized protocols
- Worst and average case analysis on the deviation from optimal solutions

Important Dates

Manuscript Submission: March 23, 2007
Acceptance Notification: April 15, 2007
Final Manuscript Due: May 01, 2007

Paper Submission

Submitted manuscripts may not exceed 12 single-spaced pages using 12-point size font on 8.5x11 inch pages, including figures and tables. References may be included in addition to the 12 pages. Submissions will be judged on correctness, originality, technical strength, significance, quality of presentation, and interest and relevance to the workshop attendees. Submitted papers may not have appeared in or be under consideration for another conference or a journal. Accepted papers will be published in the workshop proceedings of the International Conference on Distributed Computing in Sensor Systems (DCOSS 2007).

Please submit papers via Easy Chair by using the following URL:
<http://www.easychair.org/LOCALGOS07/>. In case of trouble with the submission you may send your publication by email to both program co-chairs (pedrom at dif.um.es, frey at imada.sdu.dk).

General Chair

- Ivan Stojmenovic, SITE, University of Ottawa

Program Co-Chair

- Pedro M. Ruiz Martinez, University of Murcia, Spain
- Hannes Frey, IMADA, University of Southern Denmark

Program Committee

- Raffaele Bruno, IIT-CNR, Italy
- Silvia Giordano, University of Applied Science, SUPSI, Switzerland
- Isabelle Guerin Lassous, INRIA Rhone Alpes, France
- Francois Ingelrest, EPFL, Lausanne, Switzerland
- Lars M. Kristensen, University of Aarhus, Denmark
- Thomas Kunz, Carleton University, Canada
- Miguel A. Labrador, Univ. South Florida, USA
- Hai Liu, SITE, University of Ottawa, Canada
- Norbert Luttenberger, Universitat Kiel, Germany
- Pietro Manzoni, Univ. Politecnica de Valencia, Spain
- Mikhail Nesterenko, Kent State University, USA
- Luis Orozco, Univ. Castilla La Mancha, Spain
- Josep Paradells, Technical University of Catalonia (UPC), Spain
- Sumesh J Philip, Western Illinois University, USA
- S. S. Ravi, State University of New York at Albany, USA
- Steffen Rothkugel, University of Luxemburg
- Stefan Ruehrup, SITE, University of Ottawa, Canada
- Gregor Schiele, Universität Mannheim