

# International Workshop on Performance Methodologies and Tools for Wireless Sensor Networks

October, 23: Pisa, Italy

In conjunction with the **VALUETOOLS 2009 Conference**



## Scope

Researchers in the field of wireless networks heavily rely on simulations to evaluate the performance of the communication and networking algorithms (e.g., routing protocol, multiple access protocols, localization techniques, etc.).

The goal of this workshop is to provide an up-to-date overview of the main simulation approaches to evaluate the performance of wireless sensor networks (WSNs), an emerging paradigm for future wireless networks. The proposed workshop will be organized in three panels.

A first panel is dedicated to the definition of *evaluation metrics for simulation of sensor networks*. Its emphasis is on system modeling (e.g., wireless channel modeling), the definition of general and meaningful performance metrics, and the comparison between field validation and computer simulation. Our goal is to highlight the need for a common approach to the design of experiments, e.g., on the basis of a clear identification of the confidence bounds of some assumptions and the systematic use of proper statistical techniques.

The second panel is devoted to *cross-layering* aspects in the design and simulation of WSNs. More precisely, we want to offer to the WSN community a place to discuss how the cross-layering could be meaningfully evaluated by means of common performance metrics (e.g., multivariate analysis techniques, system modeling, long-range dependence, and control theory).

A final panel will focus on the emerging paradigm of *cognitive sensor networking*, which relies upon the use of cognitive radios technologies. The application of dynamic spectrum access communications to sensor networks is an open and challenging problem, as it involves techniques drawn from game theory, optimization theory, distributed detection, and network calculus.

**WORKSHOP WEBSITE:** <http://www.wsnperf.org>

# Topics

In particular, the WSNPerf workshop focuses on the simulation and performance analysis of WSNs.

Topics of interest for the Workshop include, but are not limited to:

## Simulator use and validation of simulation accuracy

- Design of experiment: good practice, common data sets or scenarios, etc.
- Wireless channel modeling
- Comparative studies of results obtained from different network simulation tools
- Validation with experimentation and real data from implementations

## Cross-Layering

- Metrics definition for the cross-layering
- Cross-layer performance gain assessment
- Quantification of the interactions between the layers
- Multivariate and statistical analysis of the cross-layering

## Performance of Cognitive Radio Systems

- Metric definition in the context of cognitive radios.
- Performance analysis of cross-layer support
- Efficiency in the learning cycle
- Distributed spectrum detection and decision
- Modeling and simulation of cognitive networks in well-known simulators (NS2, OPNET, etc.)

# Important Dates

**Paper Submission Deadline: June 1, 2009**

Notification of Acceptance: July 13, 2009

Camera-ready Manuscripts due: July 27, 2009

Conference Date: October 23, 2009

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# Submission

Authors are invited to submit papers of up to 10 pages in a PDF file, complying with the ACM conference proceedings format, through EasyChair.

Each paper will be peer reviewed for quality and correctness by at least three reviewers.

Only original papers, written in English, which have not been published previously elsewhere, and are not currently under review for publication elsewhere, will be accepted.

# Conference Committees

## Workshop Chairs

- Jean-Michel Dricot, *Université Libre de Bruxelles, Belgium*
- Gianluigi Ferrari, *University of Parma, Italy*

## Technical Program Committee

- François Horlin, *Université Libre de Bruxelles, Belgium*
- Philippe De Doncker, *Université Libre de Bruxelles, Belgium*
- Tinku Rasheed, *Create-Net, Italy*
- Luca Ascari, *Henesis, Italy*
- Paolo Medagliani, *University of Parma, Italy*
- Marco Martalò, *University of Parma, Italy*
- Alberto Bononi, *University of Parma, Italy*
- Roberto Verdone, *University of Bologna, Italy*
- Andrea Abrardo, *University of Siena, Italy*
- Stefan Mangold, *SwissCom, Switzerland*
- Thomas Watteyne, *UC Berkeley, USA*
- Roberto Pagliari, *Cornell University, USA*
- Fabrice Valois, *INSA-Lyon, France*