

# SENSORCOMM 2014

## Foreword

The Eighth International Conference on Sensor Technologies and Applications (SENSORCOMM 2014), held between November 16-20, 2014 in Lisbon, Portugal, continued a series of events covering related topics on theory and practice on wired and wireless sensors and sensor networks.

Sensors and sensor networks have become a highly active research area because of their potential of providing diverse services to broad range of applications, not only on science and engineering, but equally importantly on issues related to critical infrastructure protection and security, health care, the environment, energy, food safety, and the potential impact on the quality of all areas of life.

Sensor networks and sensor-based systems support many applications today on the ground. Underwater operations and applications are quite limited by comparison. Most applications refer to remotely controlled submersibles and wide-area data collection systems at a coarse granularity.

Underwater sensor networks have many potential applications such a seismic imaging of undersea oilfields as a representative application. Oceanographic research is also based on the advances in underwater data collection systems.

There are specific technical aspects to realize underwater applications which can not be borrowed from the ground-based sensors net research. Radio is not suitable for underwater systems because of extremely limited propagation. Acoustic telemetry could be used in underwater communication; however off-the-shelf acoustic modems are not recommended for underwater sensor networks with hundreds of nodes because they were designed for long-range and expensive. As the speed of light (radio) is five orders of magnitude higher than the speed of sound, there are fundamental implications of time synchronization and propagation delays for localization. Additionally, existing communication protocols are not designed to deal with long sleep times and they can't shut down and quickly restart.

In wireless sensor and micro-sensor networks, energy consumption is a key factor for the sensor lifetime and accuracy of information. Protocols and mechanisms have been proposed for energy optimization considering various communication factors and types of applications. Conserving energy and optimizing energy consumption are challenges in wireless sensor networks, requiring energy-adaptive protocols, self-organization, and balanced forwarding mechanisms.

We take here the opportunity to warmly thank all the members of the SENSORCOMM 2014 Technical Program Committee, as well as the numerous reviewers. The creation of such a high quality conference program would not have been possible without their involvement. We also kindly thank all the authors who dedicated much of their time and efforts to contribute to SENSORCOMM 2014. We truly believe that, thanks to all these efforts, the final conference program consisted of top quality contributions.

Also, this event could not have been a reality without the support of many individuals, organizations, and sponsors. We are grateful to the members of the SENSORCOMM 2014

organizing committee for their help in handling the logistics and for their work to make this professional meeting a success.

We hope that SENSORCOMM 2014 was a successful international forum for the exchange of ideas and results between academia and industry and for the promotion of progress in the area of sensor technologies and applications.

We are convinced that the participants found the event useful and communications very open. We hope Lisbon provided a pleasant environment during the conference and everyone saved some time for exploring this beautiful city.

#### **SENSORCOMM 2014 Chairs:**

##### **SENSORCOMM Advisory Chairs**

Jean Philippe Vasseur, Cisco Systems, Inc., France

Petre Dini, Concordia University, Canada / China Space Agency Center, China

Jaime Lloret Mauri, Polytechnic University of Valencia, Spain

Jens Martin Hovem, Norwegian University of Science and Technology, Norway

Pascal Lorenz, University of Haute Alsace, France

Sergey Yurish, IFSA, Spain

##### **SENSORCOMM 2014 Industry Liaison Chairs**

Sarfraz Khokhar, Cisco Systems, Inc., USA

Harkirat Singh, Samsung Electronics Co., Korea

Javier Del Ser Lorente, TECNALIA-Telecom - Zamudio (Bizkaia), Spain

Michael Niedermayer, Fraunhofer IZM, Germany

##### **SENSORCOMM 2014 Research/Industry Chairs**

Hristo Djidjev, Los Alamos National Laboratory, USA Teng Rui, National Institute of Information and Communication Technology, Japan

S. Biju Kumar, Philips Research - Eindhoven, The Netherlands

##### **SENSORCOMM 2014 Special Area Chairs**

###### **Embedded systems**

Joshua Ellul, Imperial College, London, UK

###### **Security**

Yenumula Reddy, Grambling State University, USA

###### **Body networks**

Alessandro Pozzebo, Università degli Studi di Siena, Italy

###### **Underwater systems**

Mylène Toulgoat, Communications Research Centre - Ottawa, Canada

###### **Applications**

Elena Gaura, Coventry University, UK

###### **Performance**

Canfeng Chen, Nokia Research Center - Beijing, China

## **Atmospheric Icing and Sensing**

Muhammad Shakeel Virk, Narvik University College, Norway