

2015 International Conference on Distributed Computing in Sensor Systems

(DCOSS 2015)

**Fortaleza, Brazil
10 – 12 June 2015**



IEEE Catalog Number: CFP15DCO-POD
ISBN: 978-1-4799-8857-0

2015 International Conference on Distributed Computing in Sensor Systems

DCOSS 2015

Table of Contents

Message from the General Chairs and Program Chairs	ix
Organizing Committee.....	x
Technical Program Committee.....	xi

Session 1: Mobile Sensing

An Adaptive Middleware for Opportunistic Mobile Sensing	1
<i>Rafael Oliveira Vasconcelos, Luis Talavera, Igor Vasconcelos, Marcos Roriz, Markus Endler, Berto de Tácio Pereira Gomes, and Francisco José da Silva e Silva</i>	
High Resolution Air Pollution Maps in Urban Environments Using Mobile Sensor Networks	11
<i>Ali Marjovi, Adrian Arfire, and Alcherio Martinoli</i>	
Opportunistic Radio Assisted Navigation for Autonomous Ground Vehicles	21
<i>Hongkai Wen, Yiran Shen, Savvas Papaioannou, Winston Churchill, Niki Trigoni, and Paul Newman</i>	

Session 2: Applications and Programming

PerOMAS: Personal Office Management and Automation System	31
<i>Artur Balanuta, Ricardo Lopes Pereira, and Carlos Santos Silva</i>	
Holmes: A Comprehensive Anomaly Detection System for Daily In-home Activities	40
<i>Enamul Hoque, Robert F. Dickerson, Sarah M. Preum, Mark Hanson, Adam Barth, and John A. Stankovic</i>	
Tokenit: Designing State-Driven Embedded Systems through Tokenized Transitions	52
<i>Amir Taherkordi, Christian Johansen, Frank Eliassen, and Kay Römer</i>	

Session 3: Low-Power Wireless

Load-Balanced Data Collection through Opportunistic Routing	62
<i>Mathieu Michel, Simon Duquennoy, Bruno Quoitin, and Thiemo Voigt</i>	
Estimating Low-Power Radio Signal Attenuation in Forests: A LiDAR-Based Approach	71
<i>Silvia Demetri, Gian Pietro Picco, and Lorenzo Bruzzone</i>	
PREED: Packet REcovery by Exploiting the Determinism in Industrial WSN Communication	81
<i>Filip Barac, Mikael Gidlund, and Tingting Zhang</i>	

Session 4: Distributed Processing

Spatio-Temporal Hierarchical Data Aggregation Using Compressive Sensing (ST-HDACS)	91
<i>Xi Xu, Rashid Ansari, and Ashfaq Khokhar</i>	
The Price of Incorrectly Aggregating Coverage Values in Sensor Selection	98
<i>Amotz Bar-Noy, Matthew P. Johnson, Nooreddin Naghibolhosseini, Dror Rawitz, and Simon Shamoun</i>	
Ensuring High Performance of Consensus-Based Estimation by Lifetime Maximization in WSNs	108
<i>César Asensio-Marco, Daniel Alonso-Román, and Baltasar Beferull-Lozano</i>	

Session 5: Hybrid Networking

Passive, Privacy-Preserving Real-Time Counting of Unmodified Smartphones via ZigBee Interference	115
<i>Roman Lim, Marco Zimmerling, and Lothar Thiele</i>	
Interconnecting WiFi Devices with IEEE 802.15.4 Devices without Using a Gateway	127
<i>Shengrong Yin, Qiang Li, and Omprakash Gnawali</i>	
Localization Using Anonymous Measurements	137
<i>Niklas Wiström, Arash Behboodi, Filip Lemic, Thiemo Voigt, and Adam Wolisz</i>	

Session 6: Estimation

Optimal Power Management with Guaranteed Minimum Energy Utilization for Solar Energy Harvesting Systems	147
<i>Bernhard Buchli, Pratyush Kumar, and Lothar Thiele</i>	
Prediction of Despeckling Efficiency of DCT-Based Filters Applied to SAR Images	159
<i>Oleksii S. Rubel, Vladimir V. Lukin, and Fatima S. de Medeiros</i>	
Distributed Randomized Kaczmarz and Applications to Seismic Imaging in Sensor Network	169
<i>Goutham Kamath, Paritosh Ramanan, and Wen-Zhan Song</i>	

Session 7: Humans as Sensors

Joint Localization of Events and Sources in Social Networks	179
<i>Prasanna Giridhar, Shiguang Wang, Tarek F. Abdelzaher, Jemin George, Lance Kaplan, and Raghu Ganti</i>	
On Exploiting Logical Dependencies for Minimizing Additive Cost Metrics in Resource-Limited Crowdsensing	189
<i>Shaohan Hu, Shen Li, Shuochao Yao, Lu Su, Ramesh Govindan, Reginald Hobbs, and Tarek F. Abdelzaher</i>	

Poster Abstracts

Decentralized Energy and Power Estimation in Solar-Powered Wireless Sensor Networks	199
<i>Ahmad H. Dehwah, Souhaib Ben Taieb, Jeff S. Shamma, and Christian G. Claudel</i>	
Android Application to Management Multiple Networking Interfaces	201
<i>Victor Tortorello, Luis H.V. Nakamura, Daniel C. Lobato, and Rodolfo I. Meneguette</i>	
An Efficient Agent Location Management for Wireless Sensor Networks	203
<i>Hiroaki Fukuda and Paul Leger</i>	
Wireless Sensor Network-Based Urban Traffic Monitoring Using Inertial Reference Data	206
<i>Mustafa Mousa, Mohammed Abdulaal, Stephen Boyles, and Christian Claudel</i>	
Sensor Node to Improve Resiliency and Monitoring in Smart Grids: Taking the Lab to Field in Industry	208
<i>Luke Russell, Rafik Goubran, and Felix Kwamena</i>	
A Health Smart Home System to Report Incidents for Disabled People	210
<i>Diulie J. Freitas, Tiago B. Marcondes, Luis H.V. Nakamura, and Rodolfo I. Meneguette</i>	

PhD Forum

Towards an IoT-Based Architecture for Wine Traceability	212
<i>Leonardo B. Campos and Carlos E. Cugnasca</i>	
System Support for Self-Adaptive Cyber-Physical Systems	214
<i>Marcio E.F. Maia and Rossana Maria de Castro Andrade</i>	
Smart Shadow—An Autonomous Availability Computation Resource Allocation Platform for Internet of Things in the Fog Computing Environment	216
<i>Danilo Reis de Vasconcelos, Rossana Maria de Castro Andrade, and Jose Neuman de Souza</i>	

International Workshop on Internet of Things — Ideas and Perspectives (IoTIP 2015)

A Roadmap for Cloud SECO: EcoData and the New Actors in IoT Era	218
<i>Marcelo França, Rodrigo Santos, and Claudia Werner</i>	
Getting Virtualized Wireless Sensor Networks' IaaS Ready for PaaS	224
<i>Imran Khan, Fatima Zahra Errourda, Sami Yangui, Roch Glitho, and Noël Crespi</i>	
Middleware for Internet of Things: A Study	230
<i>Ghofrane Fersi</i>	
Personalization Using Sensors for Preliminary Human Detection in an IoT Environment	236
<i>Luke Russell, Rafik Goubran, and Felix Kwamena</i>	

Seventh International Workshop on Performance Control in Wireless Sensor Networks (PWSN 2015)

Average Power Consumption Breakdown of Wireless Sensor Network Nodes Using IPv6 over LLNs	242
<i>Javier Schandy, Leonardo Steinfeld, and Fernando Silveira</i>	
Enabling Design of Performance-Controlled Sensor Network Applications through Task Allocation and Reallocation	248
<i>Atis Elsts, Farshid Hassani Bijarbooneh, Martin Jacobsson, and Konstantinos Sagonas</i>	
Achieving Human-Aware Seamless Handoff	254
<i>David Nunes, Duarte Raposo, David Silva, Pedro Carmona, and Jorge Sá Silva</i>	
Routing and Data Aggregation toward a High Speed Sink in Wireless Sensor Networks	260
<i>Leandro N. Balico, Horacio A.B.F. Oliveira, Eduardo F. Nakamura, Raimundo S. Barreto, and Antonio A.F. Loureiro</i>	
Author Index	266