

2018 14th International Conference on Distributed Computing in Sensor Systems (DCOSS 2018)

**New York, New York, USA
18 – 20 June 2018**



**IEEE Catalog Number: CFP18DCO-POD
ISBN: 978-1-5386-5471-2**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18DCO-POD
ISBN (Print-On-Demand):	978-1-5386-5471-2
ISBN (Online):	978-1-5386-5470-5
ISSN:	2325-2936

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2018 14th International Conference on Distributed Computing in Sensor Systems **DCOSS 2018**

Table of Contents

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

Session 1: Signals

Distributed Mining of Popular Paths in Road Networks	1
<i>Panagiota Katsikouli (University of Edinburgh, Informatics & University of Lyon, Inria, INSA-Lyon, CITI), Maria Sinziana Astefanoaei (University of Edinburgh, Informatics), and Rik Sarkar (University of Edinburgh, Informatics)</i>	
White Space Prediction for Low-Power Wireless Networks: A Data-Driven Approach	9
<i>Indika Sanjeewa Abeywickrama Dhanapala (Cork Institute of Technology, Cork, Ireland), Ramona Marfievici (Cork Institute of Technology, Cork, Ireland), Sameera Palipana (Cork Institute of Technology, Cork, Ireland), Piyush Agrawal (United Technologies Research Centre, Cork, Ireland), and Dirk Pesch (Cork Institute of Technology, Cork, Ireland)</i>	
Projection-Based Constrained Fusion Performance with Link Loss and Measurement Bias	17
<i>Qiang Liu (Oak Ridge National Laboratory)</i>	
Recursive Truth Estimation of Time-Varying Sensing Data from Online Open Sources	25
<i>Hang Cui, Tarek Abdelzaher (University of Illinois at Urbana Champaign), and Lance Kaplan (Army Research Laboratories)</i>	

Session 2: Industrial IoT

Dynamic Context for Static Context Header compression in LPWANs	35
<i>Khaled Q. Abdelfadeel (Nimbus Centre, Cork Institute of Technology, Ireland), Victor Cionca (Nimbus Centre, Cork Institute of Technology, Ireland), and Dirk Pesch (Nimbus Centre, Cork Institute of Technology, Ireland)</i>	
On Designing Provably Correct DODAG Formation Criteria for the IPv6 Routing Protocol for Low-Power and Lossy Networks (RPL)	43
<i>Agnieszka Paszkowska (University of Warsaw) and Konrad Iwanicki (University of Warsaw)</i>	

Duty-Cycle-Aware Real-Time Scheduling of Wireless Links in Low Power WANS .53.....	
<i>Md Tamzeed Islam (UNC), Bashima Islam (UNC at Chapel Hill), and Shahriar Nirjon (UNC at Chapel Hill)</i>	

Session 3: Applications I

Knowledge Transfer Between Embedded Controllers .61.....	
<i>Sulki Lee (University of North Carolina at Chapel Hill) and Shahriar Nirjon (University of North Carolina at Chapel Hill)</i>	
PulseHV: Opportunistic Data Transmissions over High Voltage Pulses for Smart Farming Applications .69.....	
<i>Jana Huchtkoetter (TU Clausthal), Andreas Reinhardt (TU Clausthal), and Ulf Kulau (TU Braunschweig)</i>	
FnS: Enhancing Traffic Mobility and Public Safety based on a Hybrid Transportation System .77.....	
<i>Allan M. de Souza (University of Campinas), Leonardo C. Botega (University Centre Eurípides of Marília), and Leandro A. Villas (University of Campinas)</i>	

Session 4: Algorithms

CHAINMAIL: Distributed Coordination for Multi-task k-Assignment Using Autonomous Mobile IoT Devices .85	
<i>Lukas Esterle (Aston University)</i>	
Resilient Distributed Diffusion for Multi-task Estimation .93.....	
<i>Jiani Li (Institute for Software Integrated Systems, Vanderbilt University) and Xenofon Koutsoukos (Institute for Software Integrated Systems, Vanderbilt University)</i>	
Leveraging Knowledge for Path Exposure .103.....	
<i>Simon Shamoun (City University of New York), Jie Mei (Brooklyn College), Tarek F. Abdelzaher (University of Illinois at Urbana Champaign), and Amotz Bar-Noy (City University of New York)</i>	

Posters and Demos

Poster: SCARAB ² - Scalable, Robust and Adaptive on Board Ballistocardiography .111.....	
<i>Nico Jahne-Raden (Peter L. Reichertz Institute for Medical Informatics University of Braunschweig - Institute of Technology and Hannover Medical School), Henrike Gutschleg (Peter L. Reichertz Institute for Medical Informatics University of Braunschweig - Institute of Technology and Hannover Medical School), Mario Kallenbach (Institute of Flight Guidance TU Braunschweig), Thomas Feuerle (Institute of Flight Guidance TU Braunschweig), and Ulf Kulau (Institute of Computer Engineering TU Braunschweig)</i>	
Poster: Frequency Scaling in Time Synchronization for Wireless Sensor Networks .113.....	
<i>Farzad Asgarian (University of Michigan, Ann Arbor) and Khalil Najafi (University of Michigan, Ann Arbor)</i>	
Poster: On Cost-Sensitive Task Allocation in Social Sensing: An Online Learning Approach .115.....	
<i>Yang Zhang (University of Notre Dame) and Dong Wang (University of Notre Dame)</i>	

Demo: Taking Advantage of the Shock Hazard: How to Use an Electric Fence for Data Transfers .117.....	<i>Jana Huchtkoetter (TU Clausthal) and Andreas Reinhardt (TU Clausthal)</i>
Poster: Semantic Clustering in Credible Human Sensed Event Detection .119.....	<i>Sikder Tahsin Al-Amin (University of Houston, Texas, USA), Suraiya Tairin (Bangladesh University of Engineering and Technology, Dhaka, Bangladesh), Sharmin Afrose (Bangladesh University of Engineering and Technology, Dhaka, Bangladesh), Walid Mohammad (Bangladesh University of Engineering and Technology, Dhaka, Bangladesh), and Mahmuda Naznin (Bangladesh University of Engineering and Technology, Dhaka, Bangladesh)</i>

Invited Posters

Adaptive Wireless Power Transfer in Mobile Ad Hoc Networks .121.....	<i>Adelina Madhja (Computer Technology Institute and Press "Diophantus" & University of Patras), Sotiris Nikolettseas (Computer Technology Institute and Press "Diophantus" & University of Patras), and Alexandros A. Voudouris (University of Patras)</i>
--	---

Session 5: Systems

Adaptive Secrecy Amplification with Radio Channel Key Extraction .123.....	<i>Lukas Nemec (Masaryk University), Radim Ostadal (Masaryk University), Vashek Matyas (Masaryk University), and Petr Svenda (Masaryk University)</i>
Marrying Stationary Low-Power Wireless Networks and Mobile Robots in a Hybrid Surveillance System .131..	<i>Eduardo Ferrera (University of Duisburg-Essen, Germany), Matteo Ceriotti (University of Duisburg-Essen, Germany), Sascha Jungen (University of Duisburg-Essen, Germany), Ninja Heiße (University of Duisburg-Essen, Germany), Jesús Capitán (University of Sevilla, Spain), and Pedro J. Marrón (University of Duisburg-Essen, Germany)</i>
How Different Transceiver Hardware Effects Concurrent Transmissions in WSNs .139.....	<i>Georg von Zengen (Technische Universität Braunschweig), Alexander Baumstark (Technische Universität Braunschweig), Alexander Willecke (Technische Universität Braunschweig), Ulf Kulau (Technische Universität Braunschweig), and Lars Wolf (Technische Universität Braunschweig)</i>

Session 6: Applications II

Deep Beacon: Image Storage and Broadcast over BLE Using Variational Autoencoder Generative Adversarial Network. .147.....	<i>Chong Shao (University of North Carolina at Chapel Hill) and Shahriar Nirjon (University of North Carolina at Chapel Hill)</i>
On Opinion Characterization in Social Sensing: A Multi-view Subspace Learning Approach .155.....	<i>Yang Zhang (University of Notre Dame), Nathan Vance (University of Notre Dame), Daniel (Yue) Zhang (University of Notre Dame), and Dong Wang (University of Notre Dame)</i>

Social-Behavioral Aware Optimization of Energy Consumption in Smart Homes .163.....	
<i>Valeria Dolce (University of Palermo), Courtney Jackson (Missouri</i>	
<i>University of Science and Technology), Simone Silvestri (University of</i>	
<i>Kentucky), Denise Baker (Missouri University of Science and</i>	
<i>Technology), and Alessandra De Paola (University of Palermo)</i>	
Author Index 173.	