

# **2018 Wireless Days (WD 2018)**

**Dubai, United Arab Emirates  
3-5 April 2018**



**IEEE Catalog Number: CFP1814F-POD**  
**ISBN: 978-1-5386-5634-1**

**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:	CFP1814F-POD
ISBN (Print-On-Demand):	978-1-5386-5634-1
ISBN (Online):	978-1-5386-5633-4
ISSN:	2156-9711

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

## The 2018 Wireless Days (WD)

### Technical Program

#### Ad hoc, Sensor, Mesh & Vehicular Networks 1

*“UFAP: Ultra-Fast Handoff Authentication Protocol for Wireless Mesh Networks”*  
Naif Alamri (University of Colorado & Taibah University, USA), Edward Chow (University of Colorado at Colorado Springs, USA), Amer Aljaedi (UCCS, USA), Abdelhamid Elgzil (University of Colorado at Colorado Springs, USA)

.....page 1

*“A Hybrid Reactive and Position-based Approach to Packet Routing in 3D Topology Networks”*  
Daniele Ronzani (Università degli Studi di Padova, Italy), Armir Bujari and Claudio E. Palazzi (University of Padua, Italy)

.....page 9

*“Applications, Requirements, and Design Guidelines for Multi-tiered Vehicular Network Architecture”*  
Zeeshan Hameed Mir (Higher Colleges of Technology (HCT), United Arab Emirates), Fethi Filali (QMIC, Qatar)

.....page 15

*“GeoMIP: A Novel Mobility Management Solution for Internet and VANET Communication using Geographic Partition in Mobile IP”*

Thiwiza Bellache (UVSQ, France), Sondes Kallel (LI-ParAD, France), Oyunchimeg Shagdar (VEDECOM, France), Samir Tohme (University of Versailles, France)

.....page 21

#### Short Session 1

*“Assisted Routing Algorithm for D2D Communication in 5G Wireless Networks”*  
Alex Bastos (Universidade Federal de São João Del Rei & Universidade Federal de Minas Gerais, Brazil), Cristiano M. Silva (Universidade Federal de São João Del-Rei, Brazil), Diogenes da Silva Junior (Federal University of Minas Gerais, Brazil)

.....page 28

*“A Low Wind-Load Lightweight Foldable/Deployable Multi-Beam Base Station Antenna For the Whole LTE Spectrum”*

Mohamed Sanad (Cairo University, Egypt), Noha Hassan (Cairo, Egypt)

.....page 31

*“Common SDN control channel for seamless handover in 802.11”*

Rastislav Bencel (Slovak University of Technology in Bratislava, Slovakia), Kristián Košťál, Ivan Kotuliak and Michal Ries (Slovak University of Technology, Slovakia)

.....page 34

*“Real-time Stress Evaluation using Wireless Body Sensor Networks”*

Maroun Koussaifi (Université of Bourgogne Franche Comté, France), Carol Habib (University of Franche-Comté, France), Abdallah Makhoul (University of Franche-Comté & FEMTO-ST, France)

.....page 37

## **Cloud & SDN**

*“A Dynamic Transmission Strategy Based on Network Slicing for Cloud Radio Access Networks”*  
Mahdi Ezzaouia (IMT Atlantique & University of Tunis El Manar, Tunisia), Cedric Gueguen (University of Rennes 1, France), Melhem El Helou (Saint Joseph University of Beirut, Lebanon), Mahmoud Ammar (University Tunis El Manar, Tunisia), Xavier Lagrange (IMT Atlantique & IRISA, Université Bretagne Loire, France), Ammar Bouallegue (National School of Engineers of Tunis, Tunisia)  
.....page 40

*“Early Classification of Residential Networks Traffic using C5.0 Machine Learning Algorithm”*  
Zied Aouini (University of La Rochelle & Orange Labs, France), Abdesselem Kortebi (Orange Labs, France), Yacine Ghamri-Doudane (University of la Rochelle, France), Iyad Lahsen Cherif (Paris Sud, France)  
.....page 46

*“A Comparative Evaluation of the Performance of Popular SDN Controllers”*  
Lusani Mamushiane and Sabelo Dlamini (Council for Scientific and Industrial Research, South Africa), Albert A. Lysko (Council for Industrial and Scientific Research & CSIR Meraka Institute, South Africa)  
.....page 54

*“Realization of Handover Management in SDNized 3GPP Architecture with Protocol Independent Forwarding”*  
Xuan-Thuy Dang (Technical University of Berlin & GT-ARC gGmbH, Germany), Manzoor Ahmed Khan (TU Berlin, Germany), Sebastian Peters (TU Berlin & DAI Labor, Germany), Tobias Dörsch (Technical University of Berlin & GT-ARC gGmbH, Germany)  
.....page 60

*“An adaptive network slicing for LTE Radio Access Networks”*  
Pedro Rezende (Institute of Computing - University of Campinas (Unicamp), Brazil), Edmundo Madeira (State University of Campinas, Brazil)  
.....page 68

## **Wireless Communications 1**

*“In-Band Omnidirectional Initial Access via Alamouti Scheme in Millimeter-Wave Cellular Networks”*  
Thayane Rodrigues Viana and Marcelo M Carvalho (University of Brasília, Brazil)  
.....page 74

*“Cooperative D2D Communications in the Uplink of Cellular Networks with Time and Power Division”*  
Doaa Kiwan and Amr El-Sherif (Nile University, Egypt), Tamer ElBatt (Faculty of Engineering, Cairo University & WINC, Nile University, Egypt)  
.....page 80

*“Experimental Evaluation of Shore to Unmanned Surface Vehicle Wi-Fi Communications”*  
André Coelho, Mário Lopes and Bruno Ferreira (INESC TEC and Faculdade de Engenharia, Universidade do Porto, Portugal), Rui Campos (INESC TEC and Faculty of Engineering, University of Porto, Portugal), Manuel Pereira Ricardo (Universidade do Porto & INESC Porto, Portugal)  
.....page 86

*“DCT-Based Compression Scheme for OFDM Baseband Signals”*  
Maria Nilma S Fonseca (Universidade Federal do Pará, Brazil), Leonardo Ramalho (UFPA, Brazil),  
Aldebaro Klautau (Universidade Federal do Para, Brazil), Chenguang Lu (Ericsson Research, Sweden),  
Stefan Höst (Lund University, Sweden), Miguel Berg (Ericsson AB, Sweden)  
.....page 92

**Short Session 2**

*“A Round-Robin MAC Approach for Limiting Deafness in Mobile Ad Hoc Network Beamforming Environments”*  
Vincenzo Inzillo (Università Della Calabria, Italy), Floriano De Rango (University of Calabria, Italy),  
Alfonso Ariza Quintana (University of Malaga, Spain), Amilcare Francesco Santamaria (University of Calabria, Italy)  
.....page 98

*“B- $\alpha$ WSP Selection Algorithm: a Load Balancing Convergecast for WSNs”*  
Nassima Bouadem (University of BEJAIA, Algeria), Rahim Kacimi (IRIT/UPS, University of Toulouse, France),  
Abdelkamel Tari (Bejaia University, Algeria)  
.....page 101

*“Uplink Performance Optimization of Ultra Dense Wi-Fi Networks using AP-managed TPC”*  
M. Shahwaiz Afaqui (Maynooth University, Ireland), Stephen Brown (National University of Ireland, Maynooth, Ireland),  
Ronan Farrell (Maynooth University, Ireland)  
.....page 104

*“An Artificial Neural Network Based Fault Detection and Diagnosis for Wireless Mesh Networks”*  
Akmal Yaqini and Freshta Popalyar (Technical University of Berlin, Germany)  
.....page 107

**Internet of Things**

*“LOST: Localized Blacklisting Aware Scheduling Algorithm for IEEE 802.15.4-TSCH Networks”*  
Dimitrios Zorbas (University of Piraeus, Greece), Vasileios Kotsiou (University of Strasbourg, Greece),  
Fabrice Théoleyre (CNRS, France), Georgios Z. Papadopoulos (IMT Atlantique, France), Christos Douligeris (University of Piraeus, Greece)  
.....page 110

*“Robust CSMA for Long-Range LoRa Transmissions with Image Sensing Devices”*  
CongDuc Pham (University of Pau, France)  
.....page 116

*“Overview of IEEE802.15.4g OFDM and its Applicability to Smart Building Applications”*  
Jonathan Munoz (Inria-Paris, EVA team, France), Emmanuel Riou (Gridbee Communications, France),  
Xavier Vilajosana (Universitat Oberta de Catalunya, Spain), Paul Muhlethaler (INRIA, France), Thomas Watteyne (Inria, France)  
.....page 123

*“IoB-DTN: a lightweight DTN protocol for mobile IoT Applications to smart bike sharing systems”*  
Yosra Zguira (University of Lyon 1, France), Herve Rivano (Inria & Université de Lyon, INRIA, INSA Lyon, CITI, France),  
Aref Meddeb (National School of Engineering, University of Sousse, Tunisia)  
.....page 131

*“A Fuzzy Logic Approach for Improving the Tracking Accuracy in Indoor Localisation Applications”*  
Imane Horiya Brahmi (University College Dublin, Ireland), Giovanni Abbruzzo and Michael Walsh (Tyndall National Institute, Ireland), Hichem Sedjelmaci (IRT System X, France), Brendan O’Flynn (Tyndall National Institute, Ireland)

.....page 137

*“BLINK: Making the Case for Bluetooth Open Source Stack”*

Ahmed Salem (Old Dominion University, USA), Tamer Nadeem (Virginia Commonwealth University, USA)

.....page 145

## **Ad hoc, Sensor, Mesh & Vehicular Networks 2**

*“CRITIC: A Cognitive Radio Inspired Road Traffic Congestion Reduction Solution”*

Soufiene Djahel (Manchester Metropolitan University, United Kingdom (Great Britain)), Adam Jones (Manchester Metropolitan University, France), Yassine Hadjadj- Aoul (University of Rennes 1, France), Ashfaq Khokhar (Illinois Institute of Technology, USA)

.....page 151

*“Analytical study of incremental approach for information dissemination in wireless networks”*

Andrey Belogaev (IITP RAS & MIPT, Russia), Evgeny Khorov, Artem Krasilov and Andrey Lyakhov (IITP RAS, Russia)

.....page 158

*“A Machine Learning Approach to TCP State Monitoring from Passive Measurements”*

Desta Haileselassie Hagos (University of Oslo & Faculty of Mathematics and Natural Sciences, Norway), Paal E. Engelstad (Oslo and Akershus University College, University of Oslo/UNIK and FFI, Norway), Anis Yazidi (Oslo and Akershus University College, Norway), Øivind Kure (Norwegian University of Science and Technology (NTNU), Norway)

.....page 164

*“Friendly-Drop: a social-based buffer management algorithm for Opportunistic Networks”*

Camilo Souza and Edjair S. Mota (Federal University of Amazonas, Brazil), Pietro Manzoni (Universitat Politècnica de València, Spain), Juan-Carlos Cano (Universidad Politecnica de Valencia, Spain), Carlos T. Calafate (Universidad Politècnica de Valencia, Spain), Enrique Hernández-Orallo (Universitat Politècnica de València, Spain), Jorge Herrera-Tapia (Universidad Politecnica de Valencia, Spain)

.....page 172

## **Ad hoc, Sensor, Mesh & Vehicular Networks 2**

*“Linear WSN Lifetime Maximization for Pipeline Monitoring using Hybrid K-means ACO Clustering Algorithm”*

Maroua Abdelhafidh (ENIS, Tunisia), Mohamed Fourati and Lamia Chaari Fourati (Institut supérieur d’informatique et multimédia de sfax, Tunisia), Adel Ben Mnaouer (Canadian University Dubai & Faculty of Engineering and Architecture, United Arab Emirates), Mokhtar Zid (GCT, Tunisia)

.....page 178

*“A Security Solution for V2V Communication within VANETs”*

Hamssa Hasrouny (University of Telecom SudParis, Lebanon), Abed Ellatif Samhat and Carole Bassil (Lebanese University, Lebanon), Anis Laouiti (TELECOM SudParis, France)

.....page 181

*“Sybil Attack Prevention through Identity Symmetric scheme in Vehicular Ad-Hoc Networks”*  
Mohamed Khalil (Nile University, Egypt), Marianne Azer (National Telecommunication Institute + Nile University, Egypt)

.....page 184

*“Investigations on Recent Power-aware Opportunistic protocols in WSN”*  
Lamia Chaari (University of Computer Science and Multimedia of Sfax & Laboratory of Technologies for Smart Systems at Digital Research Center of Sfax (CRNS), Tunisia), Sarah El-Kaffel (Laboratory of Technology for Smart Systems (LT2S), Tunisia), Adel Ben Mnaouer (Canadian University Dubai & Faculty of Engineering and Architecture, United Arab Emirates), Farid Touati (Qatar University, Qatar)

.....page 187

### **Wireless Communications**

*“M-ary Beam Angle Shift Keying Modulation for MIMO Channels”*  
Javad Hoseyni and Jacek Ilow (Dalhousie University, Canada)

.....page 190

*“Optimal Max-SINR Scheduling in Full-Duplex OFDMA Cellular Networks with Dynamic Arrivals”*  
Hassan Fawaz (Saint Joseph University of Beirut, Lebanon), Samer Lahoud (ESIB, Saint-Joseph University of Beirut, Lebanon), Melhem El Helou (Saint Joseph University of Beirut, Lebanon), Marc Ibrahim (Saint Joseph University & Saint Joseph University - ESIB, Lebanon)

.....page 196

*“Increasing Data Rates in Relay-Assisted Wireless Multicast Networks with Single Antenna Receivers”*  
Rashed Alsakarnah, Fadhel Alhumaidi and Jacek Ilow (Dalhousie University, Canada)

.....page 202

*“Radio Resource Calendaring in Cloud-based Radio Access Networks”*  
Jocelyne Elias, (Paris Descartes University & Sorbonne Paris Cité, France), Fabio Martignon (Université Paris-Sud, France), Mira Morcos (France, France), Lin Chen (The University of Paris-Sud, France), Tijani Chahed (Telecom SudParis, France)

.....page 207