

2018 International Conference on Smart Communications and Networking (SmartNets 2018)

**Yasmine Hammamet, Tunisia
16 – 17 November 2018**



**IEEE Catalog Number: CFP18P14-POD
ISBN: 978-1-5386-9203-5**

**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:	CFP18P14-POD
ISBN (Print-On-Demand):	978-1-5386-9203-5
ISBN (Online):	978-1-5386-9202-8

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

**Technical Program of the International Conference on
Applications, Communications and Networking
(SmartNets-2018)
November 16-17, 2018 - Hammamet, Tunisia**

Day 1 – Friday November 16, 2018	
Time	Event
08:15am – 09:00 am	Registration
09:00 am – 09:30 am	<p style="text-align: center;">Opening Ceremony – Room Sidi Bou Said Prof. Nidal Nasser & Prof. Tarek Bejaoui (General Co-Chairs) Prof. Amin Zribi (Program Committee Co-Chair)</p>
09:30 am – 10:30 am	<p>Keynote Speaker 1: Prof. Fumiyuki Adachi (Tohoku University, Japan)</p> <p>Title: " Evolution Into 5G and Distributed MIMO for enhanced Mobile Broadband"</p> <p>Chair: Prof. Tomohiko Taniguchi (Fujitsu Laboratories Limited, Japan)</p> <p>Room: Sidi Bou Said</p>
10:30 am – 11:00 am	Coffee Break
11:00 am – 12:30 pm	<p>Session A1: Smart Apps and IoT Room: Sidi Bou Said Chair: Dr. Mohamed Laaraiedh (University of Carthage, Tunisia)</p> <ol style="list-style-type: none"> Smart Learning Analytics and Frequent Formative Assessments to Improve Student Retention, Muhammad Mustafa Hassan (University of Eastern Finland, Finland).....1 IoT-based Smart Airport Solution, Reema AlMashari, Ghada AlJurbua, Lama AlHoshan, Norah Al Saud, Ola BinSaeed and Nidal Nasser (Alfaisal University, Saudi Arabia).....7 Tajweed Classification Using Artificial Neural Network, Fadzil Ahmad (Universiti Teknologi MARA Pulau Pinang, Malaysia).....13 Get as you Pay Model for IaaS Cloud Computing, Sherif Yehia AbdelGhany (Arab Academy for Science, Technology and Maritime Transport; Financial Regulatory Authority, Egypt); Hoda M. Hassan (British University in Egypt; Engineering Faculty, Egypt).....17 Person Tracking System based on Arduino Microcontroller and Web Technologies, Amir Hammami (College of Computer Science; IT in Shaqra Afif Branch, Saudi Arabia).....23 The Quest for Scalable and Intelligent Trajectory Data Analytics Systems: Status Report and Future Directions, Rim Moussa (LaTICE; ENI-Carthage, Tunisia), Ahmed Haddad (LaTICE; ENI-Carthage, Tunisia), Tarek Bejaoui (University of Carthage, Tunisia).....27
12:30 pm – 02:30 pm	Lunch

02:00 pm – 03:00 pm	<p>Keynote Speaker 2: Eng. Javier Gabas (Libelium, Spain)</p> <p>Title: Libelium activities in IoT and Smart Cities</p> <p>Chair: Prof. Nidal Nasser (Alfaisal University, KSA)</p> <p>Room: Sidi Bou Said</p>
03:00 pm – 03:30 pm	Coffee Break
03:30 pm – 05:00 pm	<p>Session A2: Smart Communication Protocols and QoS I</p> <p>Room: Sidi Bou Said</p> <p>Chair: Dr. Rim Haddad (University of Carthage, Tunisia)</p> <ol style="list-style-type: none"> Experimental Validation of a Reconfigurable GLONASS Sub-Sampling Receiver, Hanen Mehrez (CarUniv, Tunisia); Muriel Muller (Institut Mines-Telecom, Telecom SudParis, France); Rim Barrak (SupCom, University of Carthage); Ghalid Abib (Telecom SudParis, France); Adel Ghazel (SupCom, University of Carthage, Tunisia); Alexandre Vervisch-Picois (Telecom SudParis, France), Samama Nel (Telecom SudParis, France).....33 Design of a 28 GHz Switched Beamforming Antenna System Based on 4×4 Butler Matrix, Siwar Louati (University AlManar Tunis, Tunisia); Mohamed Ould-Elhassen (University of Carthage, Tunisia).....N/A The reliability and optimal data usage of BGAN Satellite Communications for Remote Outstations, Kinan Ghanem (University of Strathclyde; Power Networks Demonstration Centre, United Kingdom); Federico Coffele and James Irvine (University of Strathclyde, United Kingdom).....39 TCSR: an AIMD Trust-based Protocol for Secure Routing in VANET, Afef Slama (University of Manouba, Tunisia); I. Lengliz (Military Academy, Academy, Tunisia), A. Belguith (King Saud University, Saudi Arabia).....44 Performance Analysis assessment for subsampling technique: case study reconfigurable GNSS receiver, Hanen Mehrez ; Rim Barrak ; Adel Ghazel (SupCom, University of Carthage, Tunisia); Ghalid Abib (Institut Mines Telecom , France); Muriel Muller (Telecom SudParis, France).....52 <p>Session A3: Security and Privacy for Smart Systems</p> <p>Room: Hannibal</p> <p>Chair: Dr. Nihel Ben Youssef (University of Carthage, Tunisia)</p> <ol style="list-style-type: none"> Blockchain-enhanced Roots-of-Trust, Vitor Jesus (Birmingham City University, United Kingdom).....57 An Improved ESPRIT algorithm for DOA estimation of Coherent signals, Nader Karmous (SupCom, University of Carthage, Tunisia), Mohamed Ould El Hassan (SupCom, University of Carthage, Tunisia), Fethi Choubani (SupCom, University of Carthage, Tunisia).....64

	<p>3. Hiding Data in Image Using Steganography Techniques with Lossless and Lossy Compression Algorithms, <i>Osama Fouad AbdelWahab (Faculty Of Engineering - Minia University; Faculty of Electronic Engineering – Egypt).....N/A</i></p> <p>4. Cyber Security of SCADA Network in Thermal Power Plants, <i>Mohamed Najeh Lakhoua (SMS, ENICarthage, Tunisia).....68</i></p> <p>5. Advancing the Security of Trustworthy Self-IoT, <i>Nizar Msadek (University of Luxembourg, Luxembourg); Ridha Soua (University of Luxembourg, Luxembourg), Latif Ladid (University of Luxembourg, Luxembourg),Thomas Engel (University of Luxembourg, Luxembourg).....72</i></p>
7:30 pm – 11:00 pm	Gala Dinner

Day 2 – Saturday November 17, 2018	
Time	Event
08:15am – 09:00 am	Registration
09:00 am – 10:00 am	<p>Keynote Speaker 3: Prof. Fawzi Behmann (TelNet Manag Consulting Inc., USA)</p> <p>Title: "Creativity: The Role of Humans in the hyper-connected society"</p> <p>Chair: Prof. Rim Moussa (University of Carthage, Tunisia)</p> <p>Room: Sidi Bou Said</p>
10:00 am – 10:30 am	Coffee Break
10:30m – 11:00 am	<p>MarkerLab use case - Ing. Amine Mahdhi</p> <p>Chair: Dr. Nihel Ben Youssef (University of Carthage, Tunisia)</p>
11:00 am – 12:30 am	<p>Session B1: Smart Healthcare Systems</p> <p>Room: Sidi Bou Said</p> <p>Chair: Prof. Hatem Ben Sta</p> <ol style="list-style-type: none"> Reutilization and adaptation of a mobile architecture for Diabetes self-management, Teddy Ivan Ibrahim Bessin (Institut Burkinabe des Arts et Metiers, Burkina Faso); Ferdinand Guinko (Université Ouaga 1 Pr Joseph Ki-Zerbo, Burkina Faso); Hatem Ben Sta (University of Tunis at El Manar, Higher Institute of Computer Science, Tunisia).....79 A Review on posture monitoring systems, Ferdews Tlili (ENSI, Tunisia); Rim Haddad (Sup'Com, Tunisia); Youssef Ouakrim (TELUQ University Montreal, Canada); Ridha Bouallegue (Sup'Com., Tunisia); Neila Mezghani (TELUQ University Montreal, Canada).....85 A mobile cloud-based application for renal insufficiency patient monitoring, Lydie Koné (Université Ouaga 1 Pr Joseph Ki-Zerbo, Burkina Faso).....91 A survey on smart shoe insole systems, Salma Saidani (ENIT, Tunisia); Rim Haddad (Sup'Com, Tunisia); Neila Mezghani (TELUQ University Montreal, Canada); Ridha Bouallegue (Sup'Com., Tunisia).....98 Development of an ECG Android application for Telemedicine Service, Manel Boubaker (ENICarthage, Tunisia).....N/A
12:30 pm – 02:00 pm	Lunch & Best Paper Award Ceremony
02:00 pm – 03:30 pm	<p>Session B2: Smart Communication Protocols and QoS II</p> <p>Room: Sidi Bou Said</p> <p>Chair: Prof. Mohamed Najeh Lakhoua (University of Carthage, Tunisia)</p> <ol style="list-style-type: none"> Indoor Performance of a Sub-Sampling Multi-Standard GNSS Receiver,

	<p><i>Hanen Mehrez (SupCom, University of Carthage, Tunisia); Adel Ghazel (SupCom, University of Carthage, Tunisia); Muriel Muller (Institut Mines-Telecom, Telecom SudParis, France); Rim Barrak (SupCom, University of Carthage, Tunisia); Alexandre Vervisch-Picois (Institut Mines-Telecom, Telecom SudParis, France).....104</i></p> <p>2. Estimate the Number of Nodes in a Nanonetwork, <i>Athraa Al-Krizi (University of Liverpool, United Kingdom).....N/A</i></p> <p>3. Enhancing Guaranteed end-to-end delay in IEEE 802.15.4, <i>Sghaier Amra (ISITCOM, Tunisia).....109</i></p> <p>4. Overview of Smart Grids Architecture and Design , <i>Mohamed Najeh Lakhoua (SMS, ENICarthage, Tunisia); Wertani Hamza (ENICarthage, Tunisia).....114</i></p> <p>Session B3: Advanced Technology for Intelligent Infrastructure Room: <i>Hannibal</i> Chair: <i>Dr. Amin Zribi (University of Carthage, Tunisia)</i></p> <p>1. A Short-Term Load Forecasting of 33kV, 11kV and 415V Electrical Systems using HMLP Network, <i>Z. Saad (Universiti Teknologi Mara, Malaysia).....119</i></p> <p>2. Hardware design considerations for smart electromagnetic flowmeter <i>Adnen Rajhi (Carthage National School of Engineers, Tunisia).....125</i></p> <p>3. Improvement of the piezoelectric sensor by the progress of the measurement accuracy, <i>Zine Ghemari (University of M'sila., Algeria).....N/A</i></p> <p>4. Reliability of Bond graph Tool for Modelling and Analysis of a MEMS Accelerometer: Applications of an Airbag trigger, <i>Abderrahmen Sellami (El Manar University Tunis; Laboratoire d'Application de l'Efficacité Énergétique et des Énergies Renouvelables, Tunisia).....N/A</i></p> <p>5. Study and improvement of vibration sensor, <i>Zine Ghemari (University of M'sila., Algeria).....N/A</i></p>
04:00 pm	Coffee Break & Closing Ceremony