## Contents

### Part I Main Track 1: Context-Awareness and Autonomy Paradigms

The Allocation in Cognitive Radio Network: Combined Genetic Algorithm and ON/OFF Primary User Activity Models .......................... 3  
Yasmina El Morabit, Fatiha Mrabti and El Houssein Abarkan

An Optimized Vertical Handover Approach Based on M-ANP and TOPSIS in Heterogeneous Wireless Networks .......................... 15  
Mohamed Lahby, Abdelbaki Attioui and Abderrahim Sekkaki

Performance Analysis of Routing Protocols in Vehicular Ad Hoc Network ........................................ 31  
Bouchra Marzak, Hicham Toumi, Elhabib Benlahmar and Mohamed Talea

A Message Removal Mechanism for Delay Tolerant Networks ........ 43  
Elenilson da Nóbrega Gomes, Carlos Alberto V. Campos, Sidney C. de Lucena and Aline Carneiro Viana

A Context-Aware Access Network Selection Based on Utility-Function for Handover in WLAN-LTE Environment .............................. 57  
Maroua Drissi, Mohammed Oumsis and Driss Aboutajdine

Study of the Impact of Designed Objective Function on the RPL-Based Routing Protocol ......................................................... 67  
Hanane Lamaazi, Nabil Benamar and Antonio J. Jara

Multi-channel Coordination Based MAC Protocols in Vehicular Ad Hoc Networks (VANETs): A Survey ........................ 81  
Mina Ouyous, Ouadoudi Zytoune and Driss Aboutajdine

Towards the Enhancement of QoS in 802.11e for Ad Hoc Networks ................................................................. 95  
Fatima Lakrami, Mohamed El-Kamili and Najib Elkamoun
DTN Network: Optimal Cluster Head in DTN Routing
Hierarchical Topology (DRHT) .................................................. 109
El Arbi Abdellaoui Alaoui, Said Agoujil, Moha Hajar and Youssef Qaraai

Implementation of Bit Error Rate Model of 16-QAM in Aqua-Sim
Simulator for Underwater Sensor Networks ............................... 123
Mohammed Jouhari, Khalil Ibrahimi and Mohammed Benattou

Energy Efficient In-Network Aggregation Algorithms in Wireless
Sensor Networks: A Survey .................................................... 135
Hafsa Ennajari, Yann Ben Maissa and Salma Mouline

Towards an Autonomic Approach for Software Defined Networks:
An Overview ................................................................. 149
Soukaina Bouzghiba, Hamza Dahmouni, Anouar Rachdi
and Jean-Marie Garcia

Privacy Preservation in the Internet of Things ......................... 163
Fatima Zahra Berrehili and Abdelhamid Belmekki

Packet Delay Analysis in Wireless Sensor Networks Using Fountain
Code Enabled-DCF .......................................................... 177
Rachid Aouami, Mohamed Hanaoui, Mounir Rifi and Mohammed Ouzzif

Part II Main Track 2: Mobile Edge Networking and Virtualization

Cost-Precision Tradeoffs in 3D Air Pollution Mapping Using WSN . . . 191
Ahmed Boubrima, Walid Bechkit, Hervé Rivano and Lionel Soulhac

A Novel Architecture with Dynamic Queues Based on Fuzzy Logic
and Particle Swarm Optimization Algorithm for Task Scheduling
in Cloud Computing .......................................................... 205
Hicham Ben Alla, Said Ben Alla, Abdellah Ezzati and Ahmed Mouhsen

A Vehicular Cloud for Secure and QoS Aware Service Provision . . . 219
Mouna Garai, Slim Rekhis and Noureddine Boudriga

A Conceptual Architecture for a Cloud-Based Context-Aware
Service Composition .......................................................... 235
Soufiane Faieq, Rajaa Saidi, Hamid Elghazi and Moulay Driss Rahmani

Knowledge Flows Within Open Source Software Projects:
A Social Network Perspective ............................................. 247
Noureddine Kerzazi and Ikram El Asri

A Pub-Sub Based Architecture for IDS as Service ..................... 259
Maïssa Mbaye and Cheikh Ba
Towards a Service Broker for Telecom Service Provision and Negotiation in IMS Network ........................................ 273
Imane Haddar, Brahim Raouyane and Mostafa Bellafkih

A New Approach for Modeling Strategic IT Governance Workflow ................................................................. 285
Meriem Chergui, Aziza Chakir, Hicham Medromi and Mostafa Radoui

Decentralized Control of Substations in Smart Cities ................. 299
Mohamed Nouh Dazahra, Faycel Elmariami, Aziz Belfqih,
Jamal Boukhrouaa, Lakhich Anass and Cherkaoui Nazha

Part III Main Track 3: Enablers, Challenges and Applications

Comparative Analysis of Different Excitation Techniques for Cylindrical Dielectric Resonator Antenna ......................... 311
Kaoutar Allabouche, Fabien Ferrero, Najiba El Amrani El Idrissi,
Mohammed Jorio, Jean Marc Ribero, Leonardo Lizzi
and Abdellatif Slimani

Recognition of OFDM and SCLD Signals Based on Second-Order Statistics ....................................................... 321
Mohamed Firdaoussi, Hicham Ghennioui and Mohamed El-Kamili

MDE-Based Languages for Wireless Sensor Networks Modeling: A Systematic Mapping Study ................................. 331
Fatima Essaadi, Yann Ben Maissa and Mohammed Dahchour

Multi-homing as an Enabler for 5G Networks: Survey and Open Challenges ....................................................... 347
Salma Ibnalfakih, Essaïd Sabir and Mohammed Sadik

Fast Algorithm for 3D Local Feature Extraction Using Hahn and Charlier Moments ........................................... 357
Abderrahim Mesbah, Aissam Berrahou, Mostafa El Mallahi
and Hassan Qjidaa

Automatic Detection of Suspicious Lesions in Digital X-ray Mammograms ......................................................... 375
Abdelali Elmoufidi, Khalid El Fahssi, Said Jai-Andaloussi,
Abderrahim Sekkaki, Gwenole Quellec, Mathieu Lamard
and Guy Cazuguel

Smart Antenna System Using Butler Matrix Based Beamforming Network for X Band Applications ................... 387
Hayat Errifi, Abdennaceur Baghdad, Abdelmajid Badri and Aicha Sahel
Comparative Study of Radiation Performance Between Two Ultra Wide Band Planar Patch Array Antennas for Weather Radar Applications in C-Band ........................................... 401 Abdellatif Slimani, Saad Dosse Bennani, Ali El Alami and Kaoutar Allabouche

Performance Evaluation of MB-OFDM UWB Systems Based on Optimization Algorithm for CP Decomposition .................. 413 Zakaria Mohammadi, Awatif Rouijel and Rachid Saadane

CPW-Fed Dragon Fractal Antenna for UWB Applications ............. 423 Abdelati Reha, Abdelkebir El Amri and Othmane Benhmammouch

An Efficient Method of Improving Image Retrieval Using Combined Global and Local Features ................................. 431 Abderrahim Khatabi, Amal Tmiri and Ahmed Serhir

A Comparative Experimental Study of Spectral Hashing ................. 445 Loubna Karbil, Imane Daoudi and Hicham Medromi

Comparison of Feeding Modes for a Rectangular Microstrip Patch Antenna for 2.45 GHz Applications ....................... 457 Ouadiaa Barrou, Abdelkebir El Amri and Abdelati Reha

Online Signature Verification: A Survey on Authentication in Smartphones ................................................................. 471 Waseem Akram and Munam Ali Shah

Hybrid Approach for Moving Object Detection ............................ 481 Bouchra Honnit, Mohamed Nabil Saidi and Ahmed Tamtaoui

The Analysis of KDD-Parameters to Develop an Intrusion Detection System Based on Neural Network ......................... 491 Ilhame El Farissi, Sara Chadli, Mohamed Emharraf and Mohammed Saber

A CAD System for the Detection of Abnormalities in the Mammograms Using the Metaheuristic Algorithm Particle Swarm Optimization (PSO) ........................................... 505 Khaoula Belhaj Soulami, Mohamed Nabil Saidi and Ahmed Tamtaoui

Texture Segmentation Based on Dual Tree Complex Wavelet Transform and Support Vector Machine ............................... 519 Amal Farress, Mohamed Nabil Saidi and Ahmed Tamtaoui

Parallel and Reconfigurable Mesh Architecture for Low and Medium Level Image Processing Applications .................. 529 Ihirri Soukaina, Errami Ahmed and Khaldoun Mohamed
A Survey on Segmentation Techniques of Mammogram Images .... 545
Ilhame Ait Ibachir, Rachida Es-salhi, Imane Daoudi, Saida Tallal and Hicham Medromi

Part IV Special Session 1: Smart Cities and Urban Informatics for Sustainable Development

A Hybrid Machine Learning Based Low Cost Approach for Real Time Vehicle Position Estimation in a Smart City .... 559
Ikram Belhajem, Yann Ben Maissa and Ahmed Tamtaoui

Toward a Practical Method for Introducing and Evaluating Trust Learning Models in Open Multi-agent Systems .... 573
Youssef Mifrah, Abdeslam En-Nouaary and Mohamed Dahchour

Context-Aware Driving Assistance: An Approach for Monitoring-Based Modeling and Self-learning Cars .... 587
Afaf Bouhoute, Rachid Oucheikh and Ismail Berrada

ABE Based Raspberry Pi Secure Health Sensor (SHS) .... 599
Divyashikha Sethia, Suraj Singh and Vaibhav Singhal

Towards Data-as-a-Service Provisioning with High-Quality Data .... 611
Elarbi Badidi, Hayat Routaib and Mohammed El Koutbi

Part V Special Session 2: Unmanned Aerial Vehicles From Theory to Applications

Coverage and Power Gain of Aerial Versus Terrestrial Base Stations .... 627
Mohammad Mahdi Azari, Fernando Rosas, Alessandro Chiumento, Kwang-Cheng Chen and Sofie Pollin

Ultra-Reliable IEEE 802.11 for UAV Video Streaming: From Network to Application .... 637
Bertold Van den Bergh, Alessandro Chiumento and Sofie Pollin

A New Adaptative Security Protocol for UAV Network .... 649
Oumhany Zouhri, Siham Benhadou and Hicham Medromi

Optimal Beaconing Policy for Tactical Unmanned Aerial Vehicles .... 659
Sara Koulali, Mostafa Azizi, Essaïd Sabir and Rim Koulali
Part VI Special Session 3: From Data to Knowledge: Big Data Applications and Solutions

Document-Oriented Data Warehouses: Complex Hierarchies and Summarizability ............................................. 671
Max Chevalier, Mohammed El Malki, Arlind Kopliku, Olivier Teste and Ronan Tournier

Application of APSIS on a Card Payment Solution ......................... 685
Hassan El Alloussi, Karim Benzidane, Othman El Warrak, Leila Fetjah, Said Jai-Andalousi and Abderrahim Sekkaki

Predicting Chronic Kidney Failure Disease Using Data Mining Techniques ......................................................... 701
Basma Boukenze, Abdelkrim Haqiq and Hajar Mousannif
Advances in Ubiquitous Networking 2
Proceedings of the UNet'16
El-Azouzi, R.; Menasche, D.S.; Sabir, E.; De Pellegrini, F.;
Benjillali, M. (Eds.)
2017, XX, 712 p. 317 illus., Hardcover
ISBN: 978-981-10-1626-4