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# TABLE OF CONTENTS

**Monday, June 15th, 2020**

## **MM-1: V2X Communications & Networking (5G-EWNAT Workshop)**

**Session Chair:** Yin Xu (Shanghai Jiaotong University, P.R. China)

<b>A Semi-centralized Security Framework for InVehicle Networks</b> .....	1
Ivan Edmar Carvajal Roca <sup>1</sup> , Jian Wang <sup>1</sup> , Jun Du <sup>1</sup> , Shuangqing Wei <sup>2</sup> <sup>1</sup> Tsinghua University, P.R. China, <sup>2</sup> Louisiana State University, USA	
<b>Two Beam Resource Scheduling Strategies for Multi-RF-Chain based V2I Communication</b> .....	7
Yijia Feng <sup>1</sup> , Jiahao Wang <sup>1</sup> , Dazhi He <sup>1</sup> , Yin Xu <sup>1</sup> , Yunfeng Guan <sup>1</sup> , Yu Zhang <sup>2</sup> , Wei Xie <sup>2</sup> <sup>1</sup> Shanghai Jiao Tong University, P.R. China, <sup>2</sup> Academy of Broadcasting Science, P.R. China	
<b>Contour-Based V2V Channel Cluster Identification Algorithm</b> .....	13
Runnan Liu <sup>1</sup> , Yihang Huang <sup>1</sup> , Dazhi He <sup>1</sup> , Yin Xu <sup>1</sup> , Yu Zhang <sup>2</sup> <sup>1</sup> Shanghai Jiao Tong University, P.R. China, <sup>2</sup> Academy of Broadcasting Science, P.R. China	
<b>A Novel Method on Resource Allocation for V2X</b> .....	18
Weimin Xing, Haigang He, Youxiong Lu, Jin Yang, Yuzhou Hu, Lin Chen ZTE Corporation, P.R. China	
<b>Highly Selective Filter for Suppressing Interference of 5G Signals to C-band Satellite Receiver</b> .....	24
Jinlin Yang <sup>1</sup> , Yan Zhang <sup>1</sup> , Dongsheng Zhang <sup>2</sup> , Tao Hong <sup>1</sup> , Qinlu Liu <sup>1</sup> , Da Sun <sup>1</sup> , Aoyang Dong <sup>1</sup> , Shanwei Lv <sup>1</sup> <sup>1</sup> Beihang University, P.R. China, <sup>2</sup> Beijing BBEF Science & Technology Co., Ltd., P.R. China	
<b>MA-1: Satellite Physical Layer Communications (Satellite Symposium)</b>	
<b>Session Chair:</b> Chunxiao Jiang (Tsinghua University, P.R. China)	
<b>An Adaptive Carrier and Symbol Synchronization Approach for QPSK Signal</b> .....	28
Zhiming Yang, Xin Ji, Zhiyi Song, Liyan Qiao, Yang Yu, Xiyuan Peng Harbin Institute of Technology, P.R. China	
<b>Iterative Doppler Frequency Offset Estimation in Low SNR Satellite Communications</b> .....	36
Jiawei Wang <sup>1</sup> , Chunxiao Jiang <sup>1</sup> , Linling Kuang <sup>1</sup> , Song Guo <sup>2</sup> <sup>1</sup> Tsinghua University, P.R. China, <sup>2</sup> Hong Kong Polytechnic University, P.R. China	
<b>Dynamic Perturbation Decoding of Polar-CRC Cascaded Code</b> .....	42
Dongliang Xiao, Zhenzhen Gu China Agricultural University, P.R. China	

<b>Iterative Joint Carrier-Frequency Offset Estimation and Channel Decoding for Satellite Narrowband IoT Transmission System</b> .....	46
Zerun Huang <sup>1</sup> , Yun Liu <sup>2</sup> , Xiang Chen <sup>1</sup> , Jie Gong <sup>1</sup> , Ruiliang Song <sup>2</sup>	
<sup>1</sup> Sun Yat-sen University, P.R. China, <sup>2</sup> The 54th Research Institute of China Electronics Technology Group Corporation, P.R. China	
<b>Code Design for Noncoherent Detection in Satellite Communication Systems</b> .....	52
Michel Kulhandjian <sup>1</sup> , Hovannes Kulhandjian <sup>2</sup> , Claude D'Amours <sup>1</sup>	
<sup>1</sup> University of Ottawa, Canada, <sup>2</sup> California State University-Fresno, USA	
 <b>MA-2: Multimedia Communications (Multimedia Symposium)</b>	
<b>Session Chairs:</b>	Liang Zhou and Xin Wei (Nanjing University of Posts and Telecommunications, P.R. China)
<b>Federated Quantile Regression over Networks</b> .....	57
Liqi Huang, Xin Wei, Peikang Zhu, Yun Gao, Mingkai Chen, Bin Kang	
Nanjing University of Posts and Telecommunications, P.R. China	
<b>Parallel Streaming for a Multi-homed Dash Client</b> .....	63
Ali Hodroj <sup>1</sup> , Marc Ibrahim <sup>1</sup> , Yassine Hadjadj-Aoul <sup>2</sup>	
<sup>1</sup> Saint Joseph University of Beirut, Lebanon, <sup>2</sup> University Rennes, France	
<b>Computation Offloading with Reinforcement Learning in D2D-MEC Network</b> .....	69
Gaibin Li, Mingkai Chen, Xin Wei, Ting Qi, Wenqin Zhuang	
Nanjing University of Posts and Telecommunications, P.R. China	
<b>QoE-Driven Distributed Content Segments Sharing with Service Differentiation in D2D Network</b> .....	75
Yiming Song, Mingkai Chen, Xin Wei, Ting Qi, Xuguang Zhang	
Nanjing University of Posts and Telecommunications, P.R. China	
<b>Inferring Quality of Experience for Adaptive Video Streaming over HTTPS and QUIC</b> .....	81
Tisa Selma <sup>1</sup> , Abdelhak Bentaleb <sup>2</sup> , Saad Harous <sup>1</sup>	
<sup>1</sup> United Arab Emirates University, UAE, <sup>2</sup> National University of Singapore, Singapore	
<b>Evaluation of the Capacity Usage Efficiency of LTE networks with Impatient Video Streaming Users</b> .....	88
Samah Abo Sakr, Amal Abdel Razzac, Youmni Ziade	
Beirut Arab University, Lebanon	
 <b>MA-3: Smart Grid Communications (Intelligent Network Computing Workshop)</b>	
<b>Session Chair:</b>	Kaixuan Wang (Shanxi University of Finance and Economics, P.R. China)
<b>A Backup Network Planning Method for Electric Power Communication Network</b> .....	94
Beibei Zhi <sup>1</sup> , Geng Zhang <sup>2</sup> , Yang Wang <sup>2</sup> , Hai Jiang <sup>1</sup>	
<sup>1</sup> Wuhan University, P.R. China, <sup>2</sup> China Electric Power Research Institute, P.R. China	
<b>Electric Theft Behavior Detection Method based on Power Customer Data Analysis</b> .....	99
Yang Xue <sup>1</sup> , Yifei Shu <sup>2</sup> , Heng Yang <sup>3</sup> , Sha Liu <sup>1</sup> , Yinghui Xu <sup>1</sup>	
<sup>1</sup> China Electric Power Research Institute Co., Ltd., P.R. China, <sup>2</sup> State Grid Ningxia Electric Power Research Institute Co., Ltd., P.R. China, <sup>3</sup> State Grid Co., Ltd., P.R. China	
<b>Characteristics of Electricity Consumption of Typical Industrial Loads based on Power Data Analysis</b> .....	103
Sha Liu <sup>1</sup> , Yining Yang <sup>1</sup> , Yang Xue <sup>1</sup> , Zilong Wang <sup>2</sup> , Heng Yang <sup>2</sup> , Yinghui Xu <sup>1</sup> , Cong Wang <sup>1</sup> , Liu Yang <sup>1</sup>	
<sup>1</sup> China Electric Power Research Institute Co., Ltd., P.R. China, <sup>2</sup> State Grid Co., Ltd., P.R. China	

<b>Fault Diagnosis Algorithm of AC Transmission Controller based on PLC Technology</b> .....	107
Mingxin Qiu Shandong Vocational College of Light Industry, P.R. China	
<b>A Spectrum Allocation Method based on Load Balancing for Heterogeneous Networks of Smart Grid</b> .....	111
Yilong Chen <sup>1</sup> , Wenjing Li <sup>2</sup> , Yanru Wang <sup>3</sup> , Wenjie Ma <sup>3</sup> , Hui Liu <sup>3</sup> , Jie Zhang <sup>3</sup> , Diya Ran <sup>4</sup> , Yiqi Zhao <sup>4</sup> <sup>1</sup> State Grid Shanghai Municipal Electric Power Company, P.R. China, <sup>2</sup> State Grid Information & Telecommunication Group, Ltd., P.R. China, <sup>3</sup> Beijing FibriLink Communications Co., Ltd., P.R. China, <sup>4</sup> Beijing University of Posts and Telecommunications, P.R. China	
<b>Reliability Analysis and Optimization Algorithm of Power Communication Network based on Resource Association Features</b> .....	116
Zhiyuan Ye <sup>1,2</sup> , Zhiyu Chen <sup>3</sup> , Pengcheng Ni <sup>1,2</sup> , Qiang Pu <sup>1,2</sup> , Linglong Li <sup>1,2</sup> <sup>1</sup> Anhui Jiyuan Software Co., Ltd, P.R. China, <sup>2</sup> State Grid Information and Telecommunication Group Co., Ltd., P.R. China, <sup>3</sup> State Grid Corporation of China, P.R. China	
<b>MA-4: WSN and IoT Applications (WSNs Symposium)</b>	
<b>Session Chairs:</b> George Hadjichristofi (European University, Cyprus) and Richie Leo (ZTE Corporation, P.R. China)	
<b>A Wearable LoRa-Based Emergency System for Remote Safety Monitoring</b> .....	120
Gaby Bou Tayeh <sup>1</sup> , Joseph Azar <sup>1</sup> , Abdallah Makhoul <sup>1</sup> , Christophe Guyeux <sup>1</sup> , Jacques Demerjain <sup>2</sup> <sup>1</sup> Université de Bourgogne Franche-Comté, France, <sup>2</sup> Lebanese University, Lebanon	
<b>Fuzzy C-Means based Clustering Algorithm in WSNs for IoT Applications</b> .....	126
Rahil Bensaïd <sup>1,2</sup> , Maymouna Ben Said <sup>1</sup> , Hatem Boujemaâ <sup>1</sup> <sup>1</sup> University of Carthage, Tunisia, <sup>2</sup> National Engineering School of Gabes, Tunisia	
<b>Text Data Truth Discovery using Self-confidence of Sources</b> .....	131
Faxue Yang <sup>1</sup> , Kun Lu <sup>1</sup> , Mingchu Li <sup>1</sup> , Shuxin Chen <sup>1</sup> , Yuanfang Chen <sup>2</sup> , Mohsen Guizani <sup>3</sup> , Weitong Hu <sup>2</sup> <sup>1</sup> Dalian University of Technology, P.R. China, <sup>2</sup> School of Cyberspace, P.R. China, <sup>3</sup> University of Idaho, USA	
<b>Pose Detection with Backscattered Visible Light Sensing Utilizing a Single RGB Photodiode: A Model based Feasibility Study</b> .....	137
Andreas P. Weiss, Saman Zahiri Rad, Franz P. Wenzl Joanneum Research, Austria	
<b>A Multi-wire based Technique for Leak Detection and Localization in Underground Water Pipelines</b> .....	143
Raouia Khelif <sup>1,2</sup> , Mohamed Kharrat <sup>1,2,3</sup> , Manel Elleuchi <sup>1,2</sup> , Abdulfattah Mohammad Obeid <sup>4</sup> , Mohamed Abid <sup>1,2</sup> <sup>1</sup> University of Sfax, Tunisia, <sup>2</sup> Digital Research Center of Sfax, Tunisia, <sup>3</sup> University of Kairouan, Tunisia, <sup>4</sup> King Abdulaziz City for Science and Technology, Saudi Arabia	
<b>Using Water Filling Technique and SVD Decomposition for Cooperative Node Selection in WSN</b> .....	149
Lamia Grira <sup>1</sup> , Ridha Bouallegue <sup>2</sup> <sup>1</sup> University of Tunis El Manar, Tunisia, <sup>2</sup> University of Carthage, Tunisia	
<b>MA-5: PHY layer for IoT I (5G-IoT Symposium)</b>	
<b>Session Chair:</b> Xiangming Li (Beijing Institute of Technology, P.R. China)	
<b>An Improved Puncturing Scheme for Polar Codes</b> .....	154
Wei Liu <sup>1</sup> , Yue Wang <sup>1</sup> , Ao Li <sup>1</sup> , Peng Yu <sup>2</sup> , Fanqin Zhou <sup>2</sup> <sup>1</sup> Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Beijing University of Posts and Telecommunications, P.R. China	

<b>Adaptive Modulation and Coding Technology in 5G System</b> .....	159
Yue Wang <sup>1</sup> , Wei Liu <sup>1</sup> , Linqun Fang <sup>2</sup>	
<sup>1</sup> Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Yunnan Innovation Institute · BUAA, P.R. China	
<b>An Advanced Design of MAC Layer for Smart Metering in Internet of Things</b> .....	165
Ziyang Zhang <sup>1</sup> , Xianzhi Lu <sup>2</sup>	
<sup>1</sup> Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Chongqing College of Electronic Engineering, P.R. China	
<b>Data Transmission Scheme Based on AES and Polar Codes</b> .....	172
Dongliang Xiao, Zhenzhen Gu, Chao Yang, Na Sun	
China Agricultural University, P.R. China	
<b>Design of Relay Station Antenna Suitable for Tunnel</b> .....	178
Gang Peng, Jinjun Tian, Zhaozhao Wang	
Chongqing Cewei Technology Co., Ltd., P.R. China	
<b>A Pre-restructured Learning-ISTA Deep Network for Millimeter Wave Antenna Array Diagnosis</b> .....	183
Wei Wang, Yongfeng Ma, Siqi Ma, Jianguo Li, Xiangming Li	
Beijing Institute of Technology, P.R. China	
<b>Performance Analysis of FM Dipole Antenna and Array</b> .....	188
Qinlu Liu <sup>1</sup> , Yan Zhang <sup>1</sup> , Wei Xiao <sup>2</sup> , Jinlin Yang <sup>1</sup> , Da Sun <sup>1</sup> , Jialin Zhang <sup>1</sup> , Tao Hong <sup>1</sup> , Shanwei Lv <sup>1</sup>	
<sup>1</sup> Beihang University, P.R. China, <sup>2</sup> Beijing BBEF Science & Technology Co., Ltd., P.R. China	
<b>MA-6: Smart Blockchain/Security (Intelligent Network Computing Workshop)</b>	
<b>Session Chair:</b>	Shaoyong Guo (Beijing University of Posts and Telecommunications, P.R. China)
<b>Blockchain-based Data Security Management Mechanism for Power Terminals</b> .....	191
Zhicai Huang, Huiqing Zhu	
Dongguan Power Supply Bureau of Guangdong Power Grid Co., Ltd.	
<b>Power Mobile Terminal Identity Authentication Mechanism based on Blockchain</b> .....	195
Heping Huang, Xiaoqun Chen	
Dongguan Power Supply Bureau of Guangdong Power Grid Co., Ltd.	
<b>Reform of Network Security Technology Practice Teaching System based on Virtual Simulation Training Platform</b> .....	199
Ping Xia	
Guangzhou College of Technology and Business, P.R. China	
<b>Transmission Guarantee Method of End-to-end Service in Narrowband Dynamic Environment</b> .....	204
Yahui Ding <sup>1</sup> , Peng Yu <sup>1</sup> , Jianli Guo <sup>2</sup> , Xiujuan Shi <sup>2</sup> , Yi Zhang <sup>2</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Electronics Technology Group Corporation, P.R. China	
<b>Continuous Authentication of Mouse Dynamics based on Decision Level Fusion</b> .....	210
Lifang Gao <sup>1</sup> , Yangyang Lian <sup>1</sup> , Hui Feng Yang <sup>1</sup> , Rui Xin <sup>1</sup> , Zhuozhi Yu <sup>2</sup> , Wenwei Chen <sup>2</sup> , Wei Liu <sup>1</sup> , Yefeng Zhang <sup>2</sup> , Yukun Zhu <sup>2</sup> , Siya Xu <sup>3</sup> , Shaoyong Guo <sup>3</sup> , Yanjin Cheng <sup>3</sup>	
<sup>1</sup> State Grid Hebei Information & Telecommunication, P.R. China, <sup>2</sup> Beijing Fibrlink Communications Co., Ltd., P.R. China, <sup>3</sup> Beijing University of Posts and Telecommunications, P.R. China	
<b>Multi-dimensional Identity Authentication Mechanism for Power Maintenance Personnel based on Blockchain</b> .....	215
Fangfang Dang, Feng Gao, Huichao Liang, You Sun	
State Grid Henan Electric Power Company, P.R. China	

## MA-7: 5G and Beyond Networks and Services (Wireless Nets Symposium)

**Session Chair:** Nidal Nasser (Alfaisal University, Saudi Arabia)

### **Interference Reducing and Resource Allocation in UAV-Powered Wireless Communication System** ..... 220

Weidang Lu<sup>1</sup>, Peiyuan Si<sup>1</sup>, Guoxing Huang<sup>1</sup>, Hong Peng<sup>1</sup>, Su Hu<sup>2</sup>, Yuan Gao<sup>3,4</sup>

<sup>1</sup>Zhejiang University of Technology, P.R. China, <sup>2</sup>University of Electronic Science and Technology of China, P.R. China, <sup>3</sup>Tsinghua University, P.R. China, <sup>4</sup>Academy of Military Science of PLA, P.R. China

### **A Dynamic Cluster Head Selecting Algorithm for UAV Ad Hoc Networks** ..... 225

Liang Ye<sup>1</sup>, Yu Zhang<sup>1</sup>, Yue Li<sup>2</sup>, Shuai Han<sup>1</sup>

<sup>1</sup>Harbin Institute of Technology, P.R. China, <sup>2</sup>Heilongjiang University, P.R. China

### **URLLC and eMBB Coexistence in Unlicensed Spectrum: A Preemptive Approach** ..... 229

Ayat Zaki-Hindi<sup>1,2</sup>, Salah-Eddine Elayoubi<sup>3</sup>, Tijani Chahed<sup>2</sup>

<sup>1</sup>Orange Labs, France, <sup>2</sup>Institut Polytechnique de Paris, France, <sup>3</sup>CentraleSupélec, France

### **Toward a Highway Traffic Flow Monitoring System based on Mobile Phone Signaling Data** ..... 235

Guifa Hao<sup>1</sup>, Yuchen Sha<sup>2</sup>, Cong Li<sup>1</sup>, Jinghui Xia<sup>2</sup>, Nianqi Zhang<sup>3</sup>, Fei Ding<sup>3</sup>, Yong Yin<sup>3</sup>, Fei Ding<sup>2</sup>

<sup>1</sup>Zhejiang Highway Department, P.R. China, <sup>2</sup>Nanjing University of Posts and Telecommunications, P.R. China, <sup>3</sup>China Mobile Group Jianguo Co., Ltd., P.R. China

### **Resource Allocation for Mobile Edge Computing System based on PDT Network** ..... 240

Chenguang He<sup>1,2</sup>, Jingqi Yang<sup>1</sup>, Shouming Wei<sup>1,2</sup>, Liang Ye<sup>1,2</sup>

<sup>1</sup>Harbin Institute of Technology, P.R. China, <sup>2</sup>Ministry of Public Security, P.R. China

### **Cloud-RAN Functional Split for an Efficient Fronthaul Network** ..... 245

Veronica Quintana Rodriguez<sup>1</sup>, Fabrice Guillemin<sup>1</sup>, Alexandre Ferrieux<sup>1</sup>, Laurent Thomas<sup>2</sup>

<sup>1</sup>Orange Labs, France, <sup>2</sup>Open Cells Project, France

## MA-8: Satellite Networks (Satellite Symposium)

**Session Chair:** Chunxiao Jiang (Tsinghua University, P.R. China)

### **Capacity Analysis of Multi-layer Satellite Networks** ..... 251

Xiangming Zhu<sup>1,2</sup>, Chunxiao Jiang<sup>2</sup>, Linling Kuang<sup>2</sup>, Mianxiong Dong<sup>3</sup>, Zhifeng Zhao<sup>1</sup>

<sup>1</sup>Zhejiang Lab, P.R. China, <sup>2</sup>Tsinghua University, P.R. China, <sup>3</sup>Muroran Institute of Technology, Japan

### **Shipping Lane-Aware Caching and Transmission Scheme for Maritime Wireless Networks** ..... 257

Chuanao Jiang<sup>1,2,3</sup>, Yuzhou Fu<sup>2</sup>, Chunxiao Jiang<sup>1,3</sup>, Liuguo Yin<sup>1,2,3</sup>

<sup>1</sup>Tsinghua University, P.R. China, <sup>2</sup>Peng Cheng Laboratory, P.R. China, <sup>3</sup>Beijing National Research Center for Information Science and Technology, P.R. China

### **A Cognitive Networking Technique for LTP Segmentation** ..... 263

Ricardo Lent

University of Houston, USA

### **Traffic Optimization in Satellites Communications: A Multi-agent Reinforcement Learning Approach** ..... 269

Zeyu Qin, Haipeng Yao, Tianle Mai

Beijing University of Posts and Telecommunications, P.R. China

### **Double Auction Game-based Computing Resource Allocation in LEO Satellite System** ..... 274

Yaqing Jin<sup>1</sup>, Haipeng Yao<sup>2</sup>, Tianle Mai<sup>2</sup>

<sup>1</sup>Beijing University of Technology, P.R. China, <sup>2</sup>Beijing University of Posts and Telecommunications, P.R. China

**Resource Allocation in Beam Hopping Communication Satellite System** ..... 280

Dingyuan Shi<sup>1</sup>, Feng Liu<sup>2</sup>, Tao Zhang<sup>1</sup>

<sup>1</sup>Beihang University, P.R. China, <sup>2</sup>Beijing University of Aeronautics and Astronautics, P.R. China

**MA-9: Multimedia Information Processing (Multimedia Symposium)**

**Session Chairs:** Liang Zhou and Xin Wei

(Nanjing University of Posts and Telecommunications, P.R. China)

**Video Compression Estimating Recognition Accuracy for Remote Site Object Detection** ..... 285

Yusuke Shinohara, Hayato Itsumi, Beye Florian, Takanori Iwai

NEC Corporation, Japan

**DQ-RM: Deep Reinforcement Learning-based Route Mutation Scheme for Multimedia Services** ..... 291

Tao Zhang<sup>1</sup>, Changqiao Xu<sup>1</sup>, Bingchi Zhang<sup>1</sup>, Xiaohui Kuang<sup>1,2</sup>, Yue Wang<sup>3</sup>, Shujie Yang<sup>1</sup>, Gabriel-Miro Muntean<sup>4</sup>

<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup>State Key Laboratory of Science and Technology on Information System Security, P.R. China, <sup>3</sup>Beijing Key Laboratory of Network System Architecture and Convergence, P.R. China, <sup>4</sup>Dublin City University, Ireland

**A Priority-aware DASH-based Multi-View Video Streaming Scheme over Multiple Channels** ..... 297

Abid Yaqoob, Ting Bi, Gabriel-Miro Muntean

Dublin City University, Ireland

**Proactive Information Dissemination in WebRTC-based Live Video Distribution** ..... 304

Ishani Sarkar<sup>1</sup>, Soufiane Rouibia<sup>1</sup>, Dino Lopez-Pacheco<sup>2</sup>, Guillaume Urvoy-Keller<sup>2</sup>

<sup>1</sup>Easybroadcast, France, <sup>2</sup>Université Côte d'Azur, I3S, France

**Accurate Prediction of Streaming Video Traffic in TCP/IP Networks using DPI and Deep Learning** ..... 310

Waqar Ali Aziz<sup>1</sup>, Hassaan Khaliq Qureshi<sup>1</sup>, Adnan Iqbal<sup>2</sup>, Marios Lestas<sup>3</sup>

<sup>1</sup>National University of Sciences and Technology, P.R. China, <sup>2</sup>Namal Institute, Pakistan, <sup>3</sup>Frederick University, Cyprus

**An Efficient Hadoop-Based Framework for Data Storage and Fault Recovering in Large-Scale Multimedia Sensor Networks** ..... 316

Ghina Saad<sup>1</sup>, Hassan Harb<sup>2</sup>, Abdelhafid Abouaissa<sup>1</sup>, Lhassane Idoumghar<sup>1</sup>, Nour Charara<sup>2</sup>

<sup>1</sup>University of Haute Alsace Colmar, France, <sup>2</sup>American University of Culture and Education, Lebanon

**MA-10: PHY layer for IoT II (5G-IoT Symposium)**

**Session Chair:** Shuanli Wu (Computer Network Information Center, CAS, P.R. China)

**LDPC for receive antennas selection in massive MiMo** ..... 322

Djedjiga Benzid<sup>1</sup>, Kadoch Michel<sup>1</sup>, Zhengwei Chang<sup>2</sup>, Jizhao Lu<sup>2</sup>, Rongke Liu<sup>3</sup>

<sup>1</sup>École de Technologie Supérieure, Canada, <sup>2</sup>State Grid Sichuan Electric Power Company, P.R. China, <sup>3</sup>Beihang University, P.R. China

**An Improved Threshold Wavelet Denoising LS Channel Estimation Algorithm based on IoT** ..... 326

HaoLin Wang<sup>1</sup>, Fanqin Zhou<sup>2</sup>, Peng Yu<sup>2</sup>, Shaohua Liu<sup>1</sup>

<sup>1</sup>Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup>Beijing University of Posts and Telecommunications, P.R. China

**Research on Chirp Signal Denoising Algorithm based on IoT** ..... 331

Shaohua Liu<sup>1</sup>, Peng Yu<sup>2</sup>, Fanqin Zhou<sup>2</sup>, Haolin Wang<sup>1</sup>

<sup>1</sup>Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup>Beijing University of Posts and Telecommunications, P.R. China



<b>Digital-Analog Hybrid Equalization of Broadband Signals based on Equivalent Time Sampling</b> .....	337
Xuhui Ding, Yongfeng Ma, Jiwen Wang, Wei Wang, Jianguo Li, Xiangming Li Beijing Institute of Technology, P.R. China	
<b>Simulation and Analysis of the Impact of MIMO System on Communication Quality</b> .....	341
Shi Wei Economy and Informatization Commission of Jiangjin District, P.R. China	
<b>Lookup Service for Fog-based Indoor Localization Platforms using Chord Protocol</b> .....	345
Amir Guidara <sup>1</sup> , Ghofrane Fersi <sup>2</sup> , Faouzi Derbel <sup>1</sup> <sup>1</sup> Leipzig University of Applied Sciences, Germany, <sup>2</sup> University of Sousse, Tunisia, <sup>3</sup> University of Sfax, Tunisia	

## Tuesday, June 16th, 2020

### TM-1: Invited Papers

**Session Chair:** Sofiene Affes (INRS-EMT, University of Quebec, Canada)

<b>Coverage Analysis of UAVs in Millimeter Wave Networks: A Stochastic Geometry Approach</b> .....	351
Matilde Boschiero, Marco Giordani, Michele Polese, Michele Zorzi University of Padova, Italy	

<b>Connectivity-Based Joint Parameter Estimation in One-Dimensional Wireless Sensor Networks</b> .....	358
Nour Zaarour <sup>1</sup> , Sofiène Affes <sup>1</sup> , Nahi Kandil <sup>2</sup> , Nadir Hakem <sup>2</sup> <sup>1</sup> INRS, Canada, <sup>2</sup> Université du Québec en Abitibi-Témiscamingue, Canada	

<b>A Non-Stationary VVLC MIMO Channel Model for Street Corner Scenarios</b> .....	365
Qingshan Chen <sup>1</sup> , Cheng-Xiang Wang <sup>2,3</sup> , Jian Sun <sup>1</sup> , Wensheng Zhang <sup>1</sup> , Qiuming Zhu <sup>4</sup> <sup>1</sup> Shandong University, P.R. China, <sup>2</sup> Southeast University, P.R. China, <sup>3</sup> Purple Mountain Laboratories, P.R. China, <sup>4</sup> Nanjing University of Aeronautics and Astronautics, P.R. China	

<b>Multimodal and Multi-pass Authentication Mechanisms for Electric Vehicle Charging Networks</b> .....	371
Binod Vaidya, Hussein T. Mouftah University of Ottawa, Canada	

<b>Adaptive Access Control Policies for IoT Deployments</b> .....	377
Ashraf Alkhresheh <sup>1</sup> , Khalid Elgazzar <sup>2</sup> , Hossam S. Hassanein <sup>2</sup> <sup>1</sup> Queen's University, Canada, <sup>2</sup> University of Ontario Institute of Technology, Canada	

### TM-2: Intelligent Wireless Communications (Intelligent Network Computing Workshop)

**Session Chair:** Fei Zheng (Guilin University of Electronic Technology, P.R. China)

<b>Optimization on Cooperative Communications based on Network Coding in Multi-hop Wireless Networks</b> .....	384
Xiande Bu <sup>1</sup> , Chuan Liu <sup>1</sup> , Qiang Yu <sup>1</sup> , Lei Yin <sup>2</sup> , Feng Tian <sup>2</sup> <sup>1</sup> Global Energy Interconnection Research Institute, P.R. China, <sup>2</sup> Nanjing University of Posts and Telecommunications, P.R. China	

<b>Deep Reinforcement Learning based Green Resource Allocation Mechanism in Edge Computing driven Power Internet of Things</b> .....	388
Mo Yang <sup>1</sup> , Peng Yu <sup>1</sup> , Ying Wang <sup>1</sup> , Xiuli Huang <sup>2</sup> , Weiwei Miu <sup>3</sup> , Pengfei Yu <sup>2</sup> , Wei Li <sup>3</sup> , Ruxia Yang <sup>2</sup> , Minxing Tao <sup>1</sup> , Lei Shi <sup>4</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Global Energy Interconnection Research Institute Co., Ltd., P.R. China, <sup>3</sup> State Grid Jiangsu Electric Power Co., Ltd., P.R. China, <sup>4</sup> Carlow Institute of Technology, Ireland	
<b>Energy Saving Algorithm of Wireless Network Nodes in Cluster</b> .....	394
Zihong Zhang, Rui Luo, Wei Fu HongHe University, P.R. China	
<b>Research on 5G Wireless Network Deployment in Tourist Cities</b> .....	398
Hao Chen <sup>1</sup> , Yong Mo <sup>1</sup> , QuanZhi Qian <sup>1</sup> , Ping Xia <sup>2</sup> <sup>1</sup> Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Guangzhou College of Technology and Business, P.R. China	
<b>Cluster-Based Routing Algorithm for WSN based on Subtractive Clustering</b> .....	403
Ling Chen, Wenwen Liu, Daofu Gong, Yan Chen State Key Laboratory of Mathematical Engineering and Advanced Computing, P.R. China	
<b>Clustering and Routing Optimization Algorithm for Heterogeneous Wireless Sensor Networks</b> .....	407
Ling Chen, Wenwen Liu, Daofu Gong, Yan Chen State Key Laboratory of Mathematical Engineering and Advanced Computing, P.R. China	
<b>TM-3: Network Security (Security Symposium)</b>	
<b>Session Chair:</b> Sghaier Guizani (Alfaisal University, Saudi Arabia)	
<b>SVCF : Secure Vehicular Cloud Framework</b> .....	412
Soukeina Zouaidi <sup>1</sup> , Abdelfettah Belghith <sup>2</sup> , Ilhem Lengliz <sup>3</sup> <sup>1</sup> University of Manouba, Tunisia, <sup>2</sup> King Saud University, Saudi Arabia, <sup>3</sup> Military Academy, Tunisia	
<b>Fuzzing Attacks for Vulnerability Discovery within MQTT Protocol</b> .....	420
G. Casteur, A. Aubaret, B. Blondeau, V. Clouet, A. Quemat, V. Pical, R. Zitouni ECE Paris Research Lab, France	
<b>Investigating the Filter Capacity of Linecouplers in KNX regarding Network Security</b> .....	426
Johannes Goltz University of Rostock, Germany	
<b>Enforcing Risk-Awareness in Access Control Systems: Synthesis, Discussion and Guidelines</b> .....	433
Pierrette Annie Evina <sup>1</sup> , Faouzi Jaidi <sup>1,2</sup> , Faten Labbene Ayachi <sup>1</sup> , Adel Bouhoula <sup>1</sup> <sup>1</sup> University of Carthage, Tunisia, <sup>2</sup> ESPRIT School of Engineering, Tunisia	
<b>Active, Reactive and Proactive Visibility-Based Cyber Defense for Defending against Attacks on Critical Systems</b> .....	439
Yosra Lakhdhar, Slim Rekhis University of Carthage, Tunisia	
<b>Comparative Study of Classification Algorithms for Cloud IDS using NSL-KDD Dataset in WEKA</b> .....	445
Saida Farhat <sup>1</sup> , Manel Abdelkader <sup>2</sup> , Amel Meddeb-Makhlouf <sup>1</sup> , Faouzi Zarai <sup>1</sup> <sup>1</sup> University of Sfax, Tunisia, <sup>2</sup> University of Tunis, Tunisia	

## TM-4: Security and Privacy (WSNs Symposium)

Session Chair: Jalal Almhana (University of Moncton, Canada)

- Identifying DDoS Attacks from Fluctuations in Wireless Traffic in an Intelligent IoT Road Network** ..... 451  
Konstantinos Skoufas, Evangelos D. Spyrou, Dimitris Mitrakos  
Aristotle University of Thessaloniki, Greece
- A Secure, Energy-Efficient and Distributed Manageable Model for a Smart Home** ..... 457  
Ioannis Kounatidis<sup>1</sup>, Constandinos X. Mavromoustakis<sup>2</sup>, Periklis Chatzimisios<sup>1</sup>, George Mastorakis<sup>3</sup>,  
Jordi Mongay Batalla<sup>4</sup>  
<sup>1</sup>International Hellenic University, Greece,<sup>2</sup>University Of Nicosia, Cyprus,<sup>3</sup>Hellenic Mediterranean University, Greece,  
<sup>4</sup>Warsaw University of Technology and National Institute of Telecommunications, Poland
- LGMal: A Joint Framework based on Local and Global Features for Malware Detection** ..... 463  
Yuhan Chai<sup>1</sup>, Jing Qiu<sup>1</sup>, Shen Su<sup>1</sup>, Chunsheng Zhu<sup>2,3</sup>, Lihua Yin<sup>1</sup>, Zhihong Tian<sup>1</sup>  
<sup>1</sup>Guangzhou University, P.R. China,<sup>2</sup>Southern University of Science and Technology, P.R. China,<sup>3</sup>Peng Cheng Laboratory, P.R. China
- An Online Anomaly Detection Approach for Unmanned Aerial Vehicles** ..... 469  
Chafiq Titouna<sup>1</sup>, Farid Naït-Abdesselam<sup>1,2</sup>, Hassine Moun gla<sup>1</sup>  
<sup>1</sup>University of Paris, France,<sup>2</sup>University of Missouri-Kansas City, USA
- A Lightweight and Secure Authentication Protocol for WSN** ..... 475  
Himani Sikarwar, Debasis Das  
Indian Institute of Technology Jodhpur, India
- Security Issues in Industry 4.0** ..... 481  
Intissar Jamai, Lamia Ben Azzouz, Leïla Azouz Saïdane  
University of Manouba, Tunisia
- ## TM-5: Algorithms for IoT (5G-IoT Symposium)
- Session Chair: Yunchuan Sun (Beijing Normal University, P.R. China)
- Improvement of SINR for MIMO Channels in Terahertz Communication** ..... 489  
Xianzhi Lu<sup>1</sup>, Mingming Lv<sup>2</sup>, Tao Hong<sup>2,3</sup>, Michel Kadoch<sup>4</sup>  
<sup>1</sup>Chongqing College of Electronic Engineering, P.R. China,<sup>2</sup>Beihang University, P.R. China,<sup>3</sup>Yunnan Innovation Institute·BUAA,  
P.R. China,<sup>4</sup>University of Quebec, Canada
- A New Navigation Method for VR-based Telerobotic System via Supervisor's Real Walking in a Limited Physical Space** ..... 494  
Wei Gai<sup>1</sup>, Huiyu Li<sup>1</sup>, Yanshuai Zhao<sup>1</sup>, Maiwang Shi<sup>1</sup>, Wenfei Wang<sup>1</sup>, Yunchuan Sun<sup>2</sup>, Chenglei Yang<sup>1</sup>  
<sup>1</sup>Shandong University, P.R. China,<sup>2</sup>Beijing Normal University, P.R. China
- Beam Tracking based on unscented Kalman Filter Theory in Millimeter Wave Communication Systems for IoT** ..... 499  
Gaolu Liu<sup>1</sup>, Fanqin Zhou<sup>2</sup>, Peng Yu<sup>2</sup>  
<sup>1</sup>Chongqing University of Posts and Telecommunications, P.R. China,<sup>2</sup>Beijing University of Posts and Telecommunications, P.R. China
- Recent Research on AI in Games** ..... 505  
Boming Xia<sup>1</sup>, Xiaozhen Ye<sup>1</sup>, Adnan O.M. Abuassba<sup>2</sup>  
<sup>1</sup>University of Science and Technology Beijing, P.R. China,<sup>2</sup>Arab Open University, Palestine

<b>An Improved Fuzzy Algorithmic Approach Applying on Medical Image to Improve the Contrast</b> .....	511
Min Wu Guangdong Ocean University, P.R. China	
<b>TM-6: Broadcast in the Era of B5G (5G-EWNAT Workshop)</b>	
<b>Session Chair:</b>	Richie Leo (ZTE Corporation, P.R. China)
<b>Research on OTFS Modulation Applied in LTE-based 5G Terrestrial Broadcast</b> .....	514
Boyuan Xu <sup>1</sup> , Zhiping Xia <sup>1</sup> , Runnan Liu <sup>2</sup> , Yu Zhang <sup>1</sup> , Jun Hu <sup>1</sup> , Wei Xie <sup>1</sup> <sup>1</sup> Academy of Broadcast Science, P.R. China, <sup>2</sup> Shanghai Jiao Tong University, P.R. China	
<b>Comparative Study on KPIs between FeMBMS and DTMB</b> .....	520
Zhiping Xia, Boyuan Xu, Xiangkun Meng, Yu Zhang Academy of Broadcasting Science, P.R. China	
<b>Research on Networking Technology of Digital Terrestrial Television Single Frequency Network</b> .....	525
Ming Dai Communication University of China, P.R. China	
<b>Novel Printed UWB Miniature Antenna for UHF TV and LTE/4G Devices</b> .....	530
Mervat Madi, Karim Y. Kabalan American University of Beirut, Lebanon	
<b>Signed Network Embedding with Dynamic Metric Learning</b> .....	533
Huangang Wu <sup>1</sup> , Donghai Guan <sup>1</sup> , Guangjie Han <sup>2</sup> , Weiwei Yuan <sup>1</sup> , Mohsen Guizani <sup>3</sup> <sup>1</sup> Nanjing University of Aeronautics and Astronautics, P.R. China, <sup>2</sup> Dalian University of Technology, P.R. China, <sup>3</sup> Qatar University, Qatar	
<b>TA-1: Internet of Things and Network Security (Wireless Nets Symposium)</b>	
<b>Session Chair:</b>	Muhammad Imran (King Saud University, Saudi Arabia)
<b>Scalable and Cost Efficient Maximum Concurrent Flow over IoT using Reinforcement Learning</b> .....	539
Abou-Bakr Djaker <sup>1,3</sup> , Bouabdellah Kechar <sup>1</sup> , Hatem Ibn-Khedher <sup>2</sup> , Hassine Moun gla <sup>2,3</sup> , Hossam Afifi <sup>3</sup> <sup>1</sup> Université Oran1, Algeria, <sup>2</sup> Université de Paris, France, <sup>3</sup> Institut Polytechnique de Paris, France	
<b>Load Optimization of Joint User Association and Dynamic TDD in Ultra Dense Networks</b> .....	545
Shouming Wei, Ting Li, Wei Wu Harbin Institute of Technology, P.R. China	
<b>Reinforcement Learning Empowered QoS-aware Adaptive Q-Routing in Ad-hoc Networks</b> .....	551
Jiacheng Du, Xiaoyan Huang, Fan Wu, Supeng Leng University of Electronic Science and Technology of China, P.R. China	
<b>On the Performance of Irregular Repetition Slotted Aloha with Multiple Packet Reception</b> .....	557
Iman Hmedoush <sup>1</sup> , Cédric Adjih <sup>1</sup> , Paul Mühlethaler <sup>1</sup> , Vinod Kumar <sup>2</sup> <sup>1</sup> Inria, France, <sup>2</sup> WWRF, Switzerland	
<b>IoT Device Type Identification using Hybrid Deep Learning Approach for Increased IoT Security</b> .....	565
Jiaqi Bao, Bechir Hamdaoui, Weng-Keen Wong Oregon State University, USA	

**A Secure Routing Protocol in Heterogeneous Networks for Internet of Things** ..... 571

Wassim Jerbi<sup>1</sup>, Abderrahmen Guermazi<sup>1</sup>, Hamed Trabelsi<sup>2</sup>

<sup>1</sup>Higher Institute of Technological Studies, Tunisia<sup>2</sup>National School of Engineering, Tunisia

**TA-2: e-Health I (e-Health Symposium)**

**Session Chair:** Aiman Erbad (Qatar University, Qatar)

**Smart Edge Healthcare Data Sharing System** ..... 577

Zina Chkirbene, Amr Mohamed, Aiman Erbad, Mohsen Guizani  
Qatar University, Qatar

**Internet of Medical Things : Remote Diagnosis and Monitoring Application for Diabetics** ..... 583

Serigne M.K. Mbengue<sup>1</sup>, Ousmane Diallo<sup>1</sup>, EL Hadji M. Ndoeye<sup>1</sup>, Joel J.P.C. Rodrigues<sup>2,3,4</sup>, Augusto Neto<sup>3,5</sup>,  
Jalal Al-Muhtadi<sup>4</sup>

<sup>1</sup>University of Assane Seck, Senegal,<sup>2</sup>Federal University of Piau, Brazil,<sup>3</sup>Instituto de Telecomunicações, Portugal,

<sup>4</sup>King Saud University, Saudi Arabia,<sup>5</sup>Federal University of Rio Grande do Norte, Brazil

**A Heart Rate Extraction from the Speech Signal without a Priori Information about the Speaker** ..... 589

Dmitry Polshenkov<sup>1</sup>, Ekaterina Pakulova<sup>2</sup>, Oleg Basov<sup>1</sup>, Artem Ryndin<sup>2</sup>  
<sup>1</sup>ITMO University, Russia,<sup>2</sup>Southern Federal University, Russia

**Migrating Intelligence from Cloud to Ultra-Edge Smart IoT Sensor based on Deep Learning:  
An Arrhythmia Monitoring Use-Case** ..... 595

Sadman Sakib<sup>1</sup>, Mostafa M. Fouda<sup>2</sup>, Zubair Md. Fadlullah<sup>1</sup>, Nidal Nasser<sup>3</sup>

<sup>1</sup>Lakehead University, Canada,<sup>2</sup>Benha University, Egypt,<sup>3</sup>Alfaisal University, Saudi Arabia

**Double Authentication Model based on PPG and ECG Signals** ..... 601

Lucas Bastos<sup>1</sup>, Thais Tavares<sup>1</sup>, Denis Rosário<sup>1</sup>, Eduardo Cerqueira<sup>1</sup>, Aldri Santos<sup>2</sup>, Michele Nogueira<sup>2</sup>  
<sup>1</sup>Federal University of Pará, Brazil,<sup>2</sup>Federal University of Paraná, Brazil

**Improving Human Activity Recognition Algorithms using Wireless Body Sensors and SVM** ..... 607

Aymen Shaafi, Osman Salem, Ahmed Mehaoua  
University of Paris Descartes, France

**TA-3: Signal Processing for Wireless Communications I  
(Communication & Signal Processing Symposium)**

**Session Chair:** Rodolfo Oliveira (NOVA University of Lisbon, Portugal)

**Design and Implementation of Polyphase Fast Fourier Transform Channelizer** ..... 613

Ali Ghandour<sup>1</sup>, Ahmad Mansour<sup>2</sup>, Hussein AlAsadi<sup>3</sup>, Walid Ghandour<sup>4</sup>

<sup>1</sup> National Council for Scientific Research, Lebanon,<sup>2</sup>Islamic University of Lebanon, Lebanon,<sup>3</sup>Advanced Research, Engineering  
& Consulting Services, Germany,<sup>4</sup>Lebanese University, Lebanon

**Performance Analysis of Downlink OSTBCOFDM and OSTBC-GFDM Signals in the context of  
5th Generation C-RAN** ..... 619

Khalil Aissaoui, Sofien Mhatli, Rabah Attia  
Tunisia Polytechnic School, Tunisia

<b>VANET Clustering based on Weighted Trusted Cluster Head Selection</b> .....	623
Grace Khayat <sup>1</sup> , Constandinos X. Mavromoustakis <sup>1</sup> , George Mastorakis <sup>2</sup> , Jordi Mongay Batalla <sup>3</sup> , Hoda Maalouf <sup>4</sup> , Evangelos Pallis <sup>2</sup>	
<sup>1</sup> University of Nicosia, Cyprus, <sup>2</sup> Hellenic Mediterranean University, Greece, <sup>3</sup> Warsaw University of Technology and National Institute of Telecommunications, Poland, <sup>4</sup> Notre Dame University – Louaize, Lebanon	

<b>Noise-Resilient Blind Deconvolution using Error-Correcting Codes</b> .....	629
Humera Hameed <sup>1</sup> , Muhammad Farooq <sup>2</sup> , Ubaid Ullah Fayyaz <sup>2</sup>	
<sup>1</sup> Information Technology University, Pakistan, <sup>2</sup> University of Engineering and Technology, Pakistan	

<b>In-Band Full-duplex Residual Self-interference Approximation in Multi-tap Delay Fading Channels</b> .....	635
Ayman T. Abusabah <sup>1,2</sup> , Luis Iriio <sup>2</sup> , Rodolfo Oliveira <sup>1,2</sup>	
<sup>1</sup> Universidade Nova de Lisboa, Portugal, <sup>2</sup> Instituto de Telecomunicações, Portugal	

<b>Analysis of Architectural solutions Impact on Energy Consumption: Graph-Based Analysis</b> .....	641
Basma Khil, Adel Khalfallah, Samir Ben Ahmed	
University of Tunis El Manar, Tunisia	

## **TA-4: Smart Industry Applications I (Intelligent Network Computing Workshop)**

**Session Chair:** Tao Hong (Beihang University, P.R. China)

<b>Bionic Robot Jellyfish based on Multi-Link Mechanism</b> .....	649
Bo Tang <sup>1</sup> , Li Jiang <sup>2</sup> , Rotian Li <sup>1</sup>	
<sup>1</sup> Xi'an Technological University, <sup>2</sup> Xi'an Medical University	

<b>Mobile Platform Type Lower Limb Rehabilitation Electromechanical System</b> .....	653
Bo Tang <sup>1</sup> , Li Jiang <sup>2</sup> , Xinxing Zhang <sup>1</sup> , Rui Fu <sup>1</sup> , Shan Yang <sup>1</sup>	
<sup>1</sup> Xi'an Technological University, <sup>2</sup> Xi'an Medical University	

<b>Temperature Measurement Algorithm based on Fiber Bragg Grating for Intelligent Electrical Equipment</b> .....	657
Mingxin Qiu	
Shandong Vocational College of Light Industry, P.R. China	

<b>Stability Analysis of Electronic Circuit based on Complex Neural Network Theory</b> .....	661
Yandong Yu, Yuge Yao	
Jining Normal University, P.R. China	

<b>Modeling and Simulation of Micro-Piezoelectric Energy Collector with Cantilever Beam</b> .....	667
Jilan Yan	
Shandong Vocational College of Light Industry, P.R. China	

<b>Optimal Path Planning for Robot based on Ant Colony Algorithm</b> .....	671
Hong Zhao	
Shandong Vocational College of Light Industry, P.R. China	

## **TA-5: UAV & Vehicle Networks (5G-IoT Symposium)**

**Session Chair:** Jie Sheng (Soochow University, P.R. China)

<b>Uplink Performance Analysis of UAV Cellular Communications with Power Control</b> .....	676
Xiuhua Fu <sup>1</sup> , Tian Ding <sup>1</sup> , Michel Kadoch <sup>2</sup> , Mohamed Cheriet <sup>2</sup>	
<sup>1</sup> Shandong University of Technology, P.R. China, <sup>2</sup> University of Quebec, Canada	

<b>Research on Emergency Coverage Capability of Fixed-Wing UAV based on 5G</b> .....	680
Shaowei Zhang China Telecom Research Institute, P.R. China	
<b>A Downlink Coverage Scheme of Tethered UAV</b> .....	685
Lei Liu Beijing Research Institute of China Telecom Co., Ltd., P.R. China	
<b>3D Deployment of Multiple UAVs for Emergent On-Demand Offloading</b> .....	692
Allafi Omran <sup>1</sup> , Lokman Sboui <sup>1</sup> , Michel Kadoch <sup>1</sup> , Zhengwei Chang <sup>2</sup> , Jizhao Lu <sup>3</sup> , Rongke Liu <sup>4</sup> <sup>1</sup> École de Technologie Supérieure, Canada, <sup>2</sup> State Grid Sichuan Electric Power Company, P.R. China, <sup>3</sup> State Grid Henan Electric Power Company, P.R. China, <sup>4</sup> Beihang University, P.R. China	
<b>A Fast Processing Method for Railway Track Laser Stripes based on Internet of Things</b> .....	697
Shuxue Peng, Weimin Diao, Yang Xinxin Beihang University, P.R. China	
<b>Spectrum Management in High-Speed Railway Cooperative Cognitive Radio Network based on Multi-agent Reinforcement Learning</b> .....	702
Cheng Wang, Qingting Wu, Ziwen Tang, Jie Sheng, Cheng Wu, Yiming Wang Soochow University, P.R. China	
<b>TA-6: Privacy &amp; Security (Security Symposium)</b>	
<b>Session Chair:</b> Amr Mohamed (Qatar University, Qatar)	
<b>Iterative per Group Feature Selection for Intrusion Detection</b> .....	708
Zina Chkirbene <sup>1</sup> , Aiman Erbad <sup>1</sup> , Ridha Hamila <sup>1</sup> , Ala Gouisssem <sup>1</sup> , Amr Mohamed <sup>1</sup> , Mohsen Guizani <sup>1</sup> , Mounir Hamdi <sup>2</sup> <sup>1</sup> Qatar University, Qatar, <sup>2</sup> Hamad Bin Khalifa University, Qatar	
<b>Investigation on Deep Learning Methods for Privacy and Security Challenges of Cognitive IoV</b> .....	714
M. Saifeddine Hadj Sassi, Lamia Chaari Fourati Digital Research Center of Sfax, Tunisia	
<b>RL-MADP: Reinforcement Learning-based Misdirection Attack Prevention Technique for WSN</b> .....	721
Iqra Mustafa <sup>1</sup> , Sheraz Aslam <sup>2</sup> , Muhammad Bilal Qureshi <sup>3</sup> , Nouman Ashraf <sup>4</sup> , Shahzad Aslam <sup>5</sup> , Syed Muhammad Mohsin <sup>6</sup> , Hasnain Mustafa <sup>6</sup> <sup>1</sup> Cork Institute of Technology, Ireland, <sup>2</sup> University of Technology, Cyprus, <sup>3</sup> Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Pakistan, <sup>4</sup> Waterford Institute of Technology, Ireland, <sup>5</sup> Institute of Southern Punjab, Pakistan, <sup>6</sup> COMSATS University Islamabad, Pakistan	
<b>Investigating the Darknet</b> .....	727
Rachid Bou Zeid <sup>1</sup> , Joanna Moubarak <sup>2</sup> , Carole Bassil <sup>1</sup> <sup>1</sup> Lebanese University, Lebanon, <sup>2</sup> P.O. Tech, Lebanon	
<b>Algorithm for Multi Keyword Search over Encrypted Data in Cloud Environment</b> .....	733
Debasis Das <sup>1</sup> , Ruhul Amin <sup>2</sup> , Sumit Kalra <sup>1</sup> <sup>1</sup> Indian Institute of Technology Jodhpur, India, <sup>2</sup> International Institute of Information Technology Naya Raipur, India	
<b>A Survey of Blockchain-based Cybersecurity for Vehicular Networks</b> .....	740
Xifeng Wang <sup>1</sup> , Changqiao Xu <sup>1</sup> , Zan Zhou <sup>1</sup> , Shujie Yang <sup>1</sup> , Limin Sun <sup>2</sup> <sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Chinese Academy of Sciences, P.R. China	

## TA-7: e-Health I (e-Health Symposium)

**Session Chair:** Khalid Abulsaud (Qatar University, Qatar)

- Compression Distortion-Rate Analysis of Biomedical Signals in Machine Learning Tasks in Biomedical Wireless Sensor Network Applications** ..... 746  
José Santos, Michael Hempel, Hamid Sharif  
University of Nebraska-Lincoln, USA
- UAV Placement Optimization for Internet of Medical Things** ..... 752  
Chaogang Tang<sup>1</sup>, Chunsheng Zhu<sup>2,3</sup>, Xianglin Wei<sup>4</sup>, Joel J.P.C. Rodrigues<sup>5,6</sup>, Mohsen Guizani<sup>7</sup>, Weijia Jia<sup>8</sup>  
<sup>1</sup>China University of Mining and Technology, P.R. China,<sup>2</sup>Southern University of Science and Technology, P.R. China,<sup>3</sup>Peng Cheng Laboratory, P.R. China,<sup>4</sup>Nanjing Telecommunication Technology Research Institute, P.R. China,<sup>5</sup>Federal University of Piauí, Brazil,<sup>6</sup>Instituto de Telecomunicações, Portugal,<sup>7</sup>Qatar University, Qatar,<sup>8</sup>University of Macau, P.R. China
- Experimenting Long Range Wide Area Network in an e-Health Environment: Discussion and Future Directions** ..... 758  
Nagib Matni<sup>1</sup>, Jean Moraes<sup>1</sup>, Lucas Pacheco<sup>1</sup>, Denis Rosário<sup>1</sup>, Helder Oliveira<sup>1</sup>, Eduardo Cerqueira<sup>1</sup>, Augusto Neto<sup>2,3</sup>  
<sup>1</sup>Federal University of Pará, Brazil,<sup>2</sup>Federal University of Rio Grande do Norte, Brazil,<sup>3</sup>Instituto de Telecomunicações, Brazil
- Auction-based Time Resource Allocation for Energy Harvesting WBAN** ..... 764  
Nedia Badri<sup>1</sup>, Leïla Nasraoui<sup>1,2</sup>, Leïla Azouz Saidane<sup>1</sup>, Nour Brinis<sup>1</sup>  
<sup>1</sup>University of Manouba, Tunisia,<sup>2</sup>University of Carthage, Tunisia
- IoT Anti-Jamming Strategy using Game Theory and Neural Network** ..... 770  
A. Gouisseem, K. Abulsaud, E. Yaacoub, T. Khattab, M. Guizani  
Qatar University, Qatar
- Heuristic Algorithm for Gateway Location Selection in Large Scale LoRa Networks** ..... 777  
Krzysztof Grochla, Konrad Połys  
Polish Academy of Sciences, Poland
- ## TA-8: Recent Advances (Intelligent Network Computing Workshop)
- Session Chair:** Ying Wang (Beijing University of Posts and Telecommunications, P.R. China)
- SLA-driven Creditable and Negotiable Resource optimized Allocation Scheme in Cloud** ..... 783  
Yu Peng<sup>1</sup>, Yan Yong<sup>2</sup>, Qiu Haotian<sup>1</sup>, Wang Ying<sup>1</sup>, Zhou Fanqin<sup>1</sup>, Feng Lei<sup>1</sup>, Li Wenjing<sup>1</sup>, Qiu Xue-song<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China,<sup>2</sup>State Grid Zhejiang Electric Power Co., Ltd., P.R. China
- VNF Dynamic Scaling and Deployment Algorithm based on Traffic Prediction** ..... 789  
Riming Tong<sup>1</sup>, Siya Xu<sup>1</sup>, Bo Hu<sup>2</sup>, Jinghong Zhao<sup>3</sup>, Lei Jin<sup>3</sup>, Shaoyong Guo<sup>1</sup>, Wenjing Li<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China,<sup>2</sup>State Grid Liaoning Electric Power Supply Co., Ltd., P.R. China,<sup>3</sup>State Grid Liaoning Electric Power Co., Ltd., P.R. China
- Dynamic Orchestration of Service Function Chain based on Reinforcement Learning** ..... 795  
Lin Geng<sup>1</sup>, Junli Mao<sup>1</sup>, Ke Chen<sup>2</sup>, Naling Li<sup>2</sup>  
<sup>1</sup>The 54th Research Institute of CETC, P.R. China,<sup>2</sup>Beijing University of Posts and Telecommunications, P.R. China
- Service Chain Mapping Algorithm based on Reinforcement Learning** ..... 800  
Wei Li<sup>1</sup>, Haiyang Wu<sup>1</sup>, Chunxia Jiang<sup>1</sup>, Ping Jia<sup>1</sup>, Naling Li<sup>2</sup>, Peng Lin<sup>3</sup>  
<sup>1</sup>State Grid Jiangsu Electric Power Co., Ltd., P.R. China,<sup>2</sup>Beijing University of Posts and Telecommunications, P.R. China,<sup>3</sup>Beijing Vectinfo Technologies Co., Ltd., P.R. China



**Dynamically Split the Traffic in Software Defined Network based on Deep Reinforcement Learning** ..... 806  
Hengbin An<sup>1</sup>, Yutong Ji<sup>2</sup>, Ning Zhang<sup>3</sup>, Peng Yu<sup>1</sup>, Ying Wang<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup>State Grid Jibei Information & Telecommunication Company, P.R. China, <sup>3</sup>State Grid Information & Telecommunication Branch, P.R. China

**A Load Balancing Mechanism for 5G Data Centers** ..... 812  
Xin Cui<sup>1</sup>, Qingke Meng<sup>1</sup>, Weihan Wang<sup>2</sup>  
<sup>1</sup>Shandong University of Technology, P.R. China, <sup>2</sup>Shanghai Normal University, P.R. China

**An Optimized Controller Placement Algorithm in 5G Based on SDN** ..... 816  
Xin Cui<sup>1,2</sup>, Xiaohui Gao<sup>2</sup>, Yan Ma<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup>Shandong University of Technology, P.R. China

**TA-9: Cooperative Communications and MIMO Systems (Wireless Nets Symposium)**  
**Session Chair:** Jalel Ben-Othman (University of Paris 13, France)

**New User Grouping Scheme for Better User Pairing in NOMA Systems** ..... 820  
Salifou Mouchili, Soumaya Hamouda  
University of Carthage, Tunisia

**Energy Efficient Relay Selection Algorithm for Virtual MIMO Cooperative Networks** ..... 826  
Mohamad El Cheikh, Oluyomi Simpson, Yichuang Sun  
University of Hertfordshire, United Kingdom

**Performance Analysis of 64-QAM Proposed Modification in MIMO Transmit Diversity at LTE Network Cell Edges** ..... 833  
Haitham Hafez, Onsy Abdul Alim, Amro Mokhtar  
Alexandria University, Egypt

**Access Selection Algorithm based on Traffic Distribution with Delay Optimization in Heterogeneous Wireless Networks** ..... 839  
Gen Liang, Minyi Chen  
Guangdong University of Petrochemical Technology, P.R. China

**Issues of Decision-Making Information Systems: A Review** ..... 845  
Aminata Kane<sup>1</sup>, Karim Konate<sup>1</sup>, Joel J.P.C. Rodrigues<sup>2,3</sup>  
<sup>1</sup>Cheikh Anta Diop University of Dakar, Senegal, <sup>2</sup>Federal University of Piau , Brazil, <sup>3</sup>Instituto de Telecomunika es, Portugal

**TA-10: Routing Protocols (5G-IoT Symposium)**  
**Session Chair:** Hui Yang (Beijing University of Posts and Telecommunications, P.R. China)

**Virtual Force Traffic-aware Routing Protocol for Wireless Sensor Networks** ..... 851  
Jiangyu Yan<sup>1</sup>, Wei Ding<sup>2</sup>, Haobo Guo<sup>1</sup>, Liangrui Tang<sup>1</sup>  
<sup>1</sup>North China Electric Power University, P.R. China, <sup>2</sup>China Southern Power Grid Research Institute, P.R. China

**Routing and Resource Allocation Leveraging Self-organizing Feature Maps in Multi-core Optical Networks Against 5G and Beyond** ..... 857  
Qiuyan Yao, Hui Yang, Boyuan Yan, Bowen Bao, Ao Yu, Jie Zhang  
Beijing University of Posts and Telecommunications, P.R. China

<b>Brain-like Development based Multi-routing Optimization for High Mobility in Optical Fronthaul</b> .....	861
Rui Li, Hui Yang, Ao Yu, Bowen Bao, Guanliang Zhao, Jie Zhang Beijing University of Posts and Telecommunication, P.R. China	
<b>Deep Reinforcement Learning based Time Synchronization Routing Optimization for C-RoFN in beyond 5G</b> .....	865
Ao Yu <sup>1,2</sup> , Baoguo Yu <sup>1,3</sup> , Hui Yang <sup>2</sup> , Qiuyan Yao <sup>2</sup> , Jie Zhang <sup>2</sup> , Mohamed Cheriet <sup>4</sup> <sup>1</sup> State Key Lab of Satellite Navigation System and Equipment Technology, P.R. China, <sup>2</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>3</sup> Electronics Technology Group Corporation, P.R. China, <sup>4</sup> Université du Québec, Canada	
<b>Co-Allocation of Service Routing in SDN-driven 5G IP+Optical Smart Grid Communication Networks based on Deep Reinforcement Learning</b> .....	868
Qingliu Ma <sup>1</sup> , Ao Xiong <sup>1</sup> , Peng Yu <sup>1</sup> , Shaoyong Guy <sup>1</sup> , Ningzhe Xing <sup>2</sup> , Wenjing Li <sup>1</sup> , Lei Fang <sup>1</sup> , Qiu Xue-song <sup>1</sup> <sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> State Grid Corporation of China, Jibei Electric Power Company, P.R. China	
<b>Demonstration of Intent Defined Optical Network: Toward Artificial Intelligence-Based Optical Network Automation</b> .....	874
Kaixuan Zhan <sup>1</sup> , Hui Yang <sup>1</sup> , Jun Li <sup>2</sup> , Guanliang Zhao <sup>1</sup> , Bohui Wang <sup>1</sup> , Jie Zhang <sup>1</sup> <sup>1</sup> Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup> China Aerospace Science and Technology Corporation, P.R. China	
<b>Anti-SEU design of SRAM based on FinFET Process</b> .....	878
Man Zhang, Lijun Zhang, Yiping Zhang Soochow University, P.R. China	

**Wednesday, June 17th, 2020**

<b>WM-1: Smart Industry Applications II (Intelligent Network Computing Workshop)</b>	
<b>Session Chair:</b>	Shuanli Wu (Computer Network Information Center, CAS, P.R. China)
<b>Analysis of the Application of Artificial Intelligence Technology in the Construction of Smart Campus</b> .....	882
Weiyang Liang Jiaying University, P.R. China	
<b>Development Trend and Thinking of Artificial Intelligence in Education</b> .....	886
Weiyang Liang Jiaying University, P.R. China	
<b>Improved Algorithm for Solving Trust Region Sub-problem based on Adams Two-Step Algorithm</b> .....	891
Jilan Yan Shandong Vocational College of Light Industry, P.R. China	
<b>Visual Monitoring Algorithms for Real-time Change of Fitness Center Rate</b> .....	897
Hong Zhao Shandong Vocational College of Light Industry, P.R. China	
<b>Coupling Model Prediction of Fresh Grape Metamorphism in Cold Chain Transportation</b> .....	901
Rui Luo, Zihong Zhang, Wei Xiong HongHe University, P.R. China	

<b>Vehicular Network Edge Intelligent Management : A Deep Deterministic Policy Gradient Approach for Service Offloading Decision</b> .....	905
Yinlin Ren <sup>1</sup> , Xiuming Yu <sup>2</sup> , Xingyu Chen <sup>1</sup> , Shaoyong Guo <sup>1</sup> , Qiu Xue-song <sup>1</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> China Electronics Standardization Institute, P.R. China	

## **WM-2: Multimedia Services (Multimedia Symposium)**

**Session Chairs:** Liang Zhou and Xin Wei  
(Nanjing University of Posts and Telecommunications, P.R. China)

<b>Performance Study of Catmull-Clark Subdivision Surfaces Algorithm</b> .....	911
Ali J. Ghandour <sup>1</sup> , Walid J. Ghandour <sup>2</sup> , Hassan Diab <sup>3</sup> , Ahmad Nasri <sup>1</sup>	
<sup>1</sup> National Council for Scientific Research, Lebanon, <sup>2</sup> Lebanese University, Lebanon, <sup>3</sup> Prime Minister, Lebanon	

<b>AVIRA: Enhanced Multipath for Content-aware Adaptive Virtual Reality</b> .....	917
Fabio Silva, Mohammed Amine Togou, Gabriel-Miro Muntean Dublin City University, Ireland	

<b>A Novel EEG based Directed Transfer Function for Investigating Human Perception to Audio Noise</b> .....	923
Bingrui Geng <sup>1</sup> , Ke Liu <sup>2</sup> , Yiping Duan <sup>1,2</sup> , Qiwei Song <sup>1</sup> , Xiaoming Tao <sup>1,2</sup> , Jianhua Lu <sup>1,2</sup> , Jincheng Shi <sup>3</sup>	
<sup>1</sup> Tsinghua University, P.R. China, <sup>2</sup> Beijing National Research Center for Information Science and Technology, P.R. China, <sup>3</sup> China Mobile Online Services Co., Ltd., P.R. China	

<b>Direct Propagation of Network QoS Distribution to subjective QoE for Video on Demand Applications using VP9 Codec</b> .....	929
Abdul Wahab, Nafi Ahmad, John Schormans Queen Mary University of London, United Kingdom	

<b>Performance Evaluation of a Multi-User Virtual Reality Platform</b> .....	934
Venkatakrisnan Parthasarathy, Anderson Augusto Simiscuka, Noel O'Connor, Gabriel-Miro Muntean Dublin City University, Ireland	

<b>Deep-broad Learning System for Traffic Flow Prediction toward 5G Cellular Wireless Network</b> .....	940
Mingzi Chen, Xin Wei, Yun Gao, Liqi Huang, Mingkai Chen, Bin Kang Nanjing University of Posts and Telecommunications, P.R. China	

## **WM-3: Deep Learning in WSN (WSNs Symposium)**

**Session Chair:** Hassine Moun gla (University of Paris Descartes & Instiut Mines Telecom, France)

<b>Scalable and Cost Efficient Resource Allocation Algorithms using Deep Reinforcement Learning</b> .....	946
Mohammed Laroui <sup>1,2,3</sup> , Moussa Ali Cherif <sup>1</sup> , Hatem Ibn Khedher <sup>2,3</sup> , Hassine Moun gla <sup>2,3</sup> , Hossam Afifi <sup>3</sup>	
<sup>1</sup> Djillali Liabes University, Algeria, <sup>2</sup> Université de Paris, France, <sup>3</sup> Institut Polytechnique de Paris, France	

<b>Analytical Study of Frame Aggregation Level to Infer IEEE 802.11 Network Load</b> .....	952
Nour El Houda Bouzouita, Anthony Busson, Herve Rivano Université de Lyon, France	

<b>Deep Reinforcement Learning for Real-Time Trajectory Planning in UAV Networks</b> .....	958
Kai Li <sup>1</sup> , Wei Ni <sup>2</sup> , Eduardo Tovar <sup>1</sup> , Mohsen Guizani <sup>3</sup>	
<sup>1</sup> CISTER Research Centre, Portugal, <sup>2</sup> CSIRO, Portugal, <sup>3</sup> Qatar University, Qatar	

<b>Tailored Deep Learning based Architecture for Smart Agriculture</b> .....	964
Louay Boukhris <sup>1</sup> , Jihene Ben Abderrazak <sup>1,2</sup> , Hichem Besbes <sup>2</sup>	
<sup>1</sup> ESPRIT School of Engineering, Tunisia, <sup>2</sup> University of Carthage, Tunisia	
<b>Service Oriented D2D Efficient Communication for Post-Disaster Management</b> .....	970
Sami Abdellatif <sup>1</sup> , Okba Tibermacine <sup>1</sup> , Walid Bechkit <sup>2</sup> , Abdelmalik Bachir <sup>1</sup>	
<sup>1</sup> Biskra University, Algeria, <sup>2</sup> University of Lyon, France	
<b>An Adaptive Adjustment Algorithm of the Parameters in Alarm Association Rule Mining</b> .....	976
Xiaodan Shi <sup>1</sup> , Libin Jiao <sup>2</sup> , Gang Cheng <sup>3</sup> , Yang Yang <sup>1</sup> , Xingyu Chen <sup>1</sup> , Peng Yu <sup>1</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> The 54th Research Institute of CETC, P.R. China, <sup>3</sup> PLA Academy of Military Science, P.R. China	

## **WM-4: Satellite Transmission and Resource Allocation (Satellite Symposium)**

**Session Chair:** Chunxiao Jiang (Tsinghua University, P.R. China)

<b>Flexible and Aggregated Mobility Management in Integrated Satellite-Terrestrial Networks</b> .....	982
---	-----

Wenyong Dai<sup>1,2</sup>, Hewu Li<sup>1,2</sup>, Qian Wu<sup>1,2</sup>, Xiaomo Wang<sup>3</sup>

<sup>1</sup>Tsinghua University, P.R. China,<sup>2</sup>Beijing National Research Center for Information Science and Technology, P.R. China,

<sup>3</sup>China Academy of Electronics and Information Technology, P.R. China

<b>Satellite Multicast Transmission Scheme in Integrated Satellite-Maritime Networks</b> .....	988
--	-----

Yuzhou Fu<sup>1</sup>, Chuanao Jiang<sup>1,3</sup>, Liuguo Yin<sup>1,2</sup>

<sup>1</sup>Beijing National Research Center for Information Science and Technology, P.R. China,<sup>2</sup>Peng Cheng Laboratory, P.R.

China,<sup>3</sup>Tsinghua University, P.R. China

<b>Distributed Power Control based on Constrained MPC in Cognitive Satellite Terrestrial Networks</b> .....	994
---	-----

Shuying Zhang<sup>1</sup>, Zuyao Ni<sup>1</sup>, Chunxiao Jiang<sup>1</sup>, Linling Kuang<sup>1</sup>, Zhu Han<sup>2</sup>, Xiaohui Zhao<sup>3</sup>

<sup>1</sup>Tsinghua University, P.R. China,<sup>2</sup>University of Houston, USA,<sup>3</sup>Jilin University, P.R. China

<b>Reduced Complexity Iterative Multi-user Detector for IDMA-based Satellite Communication System</b> .....	1000
---	------

Senli Li<sup>1</sup>, Yun Liu<sup>2</sup>, Xiang Chen<sup>1</sup>, Jie Gong<sup>1</sup>, Lijun Zhai<sup>3</sup>

<sup>1</sup>Sun Yat-sen University, P.R. China,<sup>2</sup>The 54th Research Institute of China Electronics Technology Group Corporation, P.R.

China,<sup>3</sup>Application and Technology on Aerospace Information Laboratory CETE, P.R. China

<b>The Feasibility of Coexistence between IMT-2020 and Inter-Satellite Service in 26GHz band</b> .....	1006
--	------

Liyuan Zhong, Dong Zhou, Ruiqi Liu, Xinhui Wang, Xi Meng

ZTE Corporation, P.R. China

<b>Performance Analysis of M-QAM OFDM for Satellite Laser Communication Systems</b> .....	1012
---	------

Yuying Sun<sup>1</sup>, Lei Yang<sup>2</sup>, Xueguang Yuan<sup>1</sup>, Yang'an Zhang<sup>1</sup>, Mengting Qu<sup>1</sup>

<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China,<sup>2</sup>China Transport Telecommunications & Information Center,

P.R. China

## **WM-5: Resource Allocation and Scheduling (5G-IoT Symposium)**

**Session Chair:** Zhaoyuan Shi (Chongqing University of Posts and Telecommunications, P.R. China)

<b>Resource Regulation Strategy based on Resource Allocation Benefitstate Transition in 5G Fronthaul</b> .....	1015
--	------

Yiqian Liu, Hui Yang, Ao Yu, Qiuyan Yao, Bowen Bao, Jie Zhang

Beijing University of Posts and Telecommunication, P.R. China

<b>A Spectrum Resource Sharing Algorithm for IoT Networks based on Reinforcement Learning</b> .....	1019
Zhaoyuan Shi <sup>1,2</sup> , Xianzhong Xie <sup>1</sup> , Michel Kadoch <sup>3</sup> , Mohamed Cheriet <sup>3</sup>	
<sup>1</sup> Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Anqing Normal University, P.R. China, <sup>3</sup> University of Quebec, Canada	
<b>Co-operative Admission Control and Optimum Power Allocation underlying 5G-IoT Networks aided D2D-Satellite Communication</b> .....	1025
Asfandyar Awan, Zhao Qi, Hu Shan Beihang University, P.R. China	
<b>Outage Probability of CDF-Based Scheduling for Uplink NOMA with Practical SIC Considerations</b> .....	1031
Huabing Lu <sup>1</sup> , Xianzhong Xie <sup>1</sup> , Zhaoyuan Shi <sup>1</sup> , Michel Kadoch <sup>2</sup> , Mohamed Cheriet <sup>2</sup> , Jun Cai <sup>3</sup>	
<sup>1</sup> Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup> University of Quebec, Canada, <sup>3</sup> Concordia University, Canada	
<b>CoopeRA: Cooperator Resource Allocation Algorithm based On Clustering and D2D Transmissions in LTE Heterogeneous Networks and 5G networks</b> .....	1037
Chafika Tata <sup>1</sup> , Michel Kadoch <sup>2</sup> , Zhengwei Chang <sup>3</sup> , Jizhao Lu <sup>4</sup> , Rongke Liu <sup>5</sup>	
<sup>1</sup> University of Algiers 1, Algeria, <sup>2</sup> École de Technologie Supérieure Montreal, Canada, <sup>3</sup> State Grid Sichuan Electric Power Company, P.R. China, <sup>4</sup> State Grid Henan Electric Power Company, P.R. China, <sup>5</sup> Beihang University, P.R. China	
<b>Throughput-oriented Power Allocation Scheme based on Convex Optimization for Cache-enabled FiWi Access Network in 5G IoT Scenario</b> .....	1043
Lin Guan <sup>1</sup> , Hui Yang <sup>1</sup> , Bowen Bao <sup>1</sup> , Ao Yu <sup>1</sup> , Jun Li <sup>2</sup> , Mohamed Cheriet <sup>3</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> China Aerospace Science and Technology Corporation, P.R. China, <sup>3</sup> Université du Québec, Canada	
<b>WM-6: Physical Layer Advancements (5G-EWNAT Workshop)</b>	
<b>Session Chair:</b>	Yu Zhang (Chinese Academy of Broadcasting Science, P.R. China)
<b>Performance Evaluation of 5G Ultra-Reliable and Low Latency Communications</b> .....	1047
Peng Hao, Xianghui Han, Shuqiang Xia, Min Ren, Yiwei Deng ZTE Corporation, P.R. China	
<b>Configured Grant based URLLC Enhancement for Uplink Transmissions</b> .....	1053
Chunli Liang, Shuqiang Xia, Xianghui Han, Peng Hao ZTE Corporation, P.R. China	
<b>Soft HARQ for 5G Downlink</b> .....	1059
Chulong Liang <sup>1,2</sup> , Jin Xu <sup>1,2</sup> , Qiujiu Guo <sup>1,2</sup> , Jun Xu <sup>1,2</sup>	
<sup>1</sup> ZTE Corporation, P.R. China, <sup>2</sup> State Key Laboratory of Mobile Network and Mobile Multimedia Technology, P.R. China	
<b>Parallel Concatenation Codes with Polar Component Codes for Incremental Redundancy Hybrid Automatic Repeat reQuest Functionality</b> .....	1065
Focai Peng, Jin Xu, Mengzhu Chen, Li Tian ZTE Corporation, P.R. China	
<b>LDPC design for 5G NR URLLC &amp; mMTC</b> .....	1071
Liguang Li <sup>1,2</sup> , Jun Xu <sup>1,2</sup> , Jin Xu <sup>1,2</sup> , Liujiun Hu <sup>1,2</sup>	
<sup>1</sup> ZTE Corporation, P.R. China, <sup>2</sup> State Key Laboratory of Mobile Network and Mobile Multimedia Technology, P.R. China	
<b>A Hybrid TSLM and A-Law Companding Scheme for PAPR Reduction in FBMC-OQAM Systems</b> .....	1077
Xiao Li, Dongfei Wang, Zheng Li, Wei Bai, Xiao Hu, Rui Fu Academy of Broadcasting Science, P.R. China	

## WA-1: Physical Layer Design (Wireless Nets Symposium)

**Session Chair:** Mourad Azzam (Lebanese American University, Lebanon)

### **Cross-term Suppression of Multi-component Signals based on Improved STFT-Wigner** ..... 1082

Qianqian Zhu<sup>1</sup>, Yue Li<sup>1,2</sup>, Hongchang He<sup>1</sup>, Gang Huang<sup>1</sup>  
<sup>1</sup>Heilongjiang University, P.R. China, <sup>2</sup>Ministry of Public Security, P.R. China

### **Multiband L-Shaped Slot Antenna Loaded with Split Ring Resonator** ..... 1087

Nabil Dakhli, Fethi Choubani  
University of Carthage, Tunisia

### **Color Space and Multi-stream Spatial Modulation based Indoor Visible Light Communication** ..... 1091

Meng Guo<sup>1</sup>, Zhiquan Bai<sup>1</sup>, Ke Pang<sup>1</sup>, Xinhong Hao<sup>2</sup>, Jie Tian<sup>3</sup>, KyungSup Kwak<sup>4</sup>  
<sup>1</sup>Shandong University, P.R. China, <sup>2</sup>Beijing Institute of Technology, P.R. China, <sup>3</sup>Shandong Normal University, P.R. China, <sup>4</sup>INHA University, Korea

### **Design and Analysis of Color Shift Keying Modulation based Cooperative SM VLC System** ..... 1096

Meng Guo<sup>1</sup>, Zhiquan Bai<sup>1</sup>, Ke Pang<sup>1</sup>, Xinhong Hao<sup>2</sup>, Jie Tian<sup>3</sup>, KyungSup Kwak<sup>4</sup>  
<sup>1</sup>Shandong University, P.R. China, <sup>2</sup>Beijing Institute of Technology, P.R. China, <sup>3</sup>Shandong Normal University, P.R. China, <sup>4</sup>INHA University, Korea

### **A Max-log-MPA Algorithm based on Serial and Threshold in SCMA System** ..... 1101

Guanghua Zhang<sup>1</sup>, Zonglin Gu<sup>1</sup>, Jianpeng Zhang<sup>1</sup>, Shihai Li<sup>1</sup>, Jingqiu Ren<sup>1</sup>, Weidang Lu<sup>2</sup>  
<sup>1</sup>Northeast Petroleum University, P.R. China, <sup>2</sup>Zhejiang University of Technology, P.R. China

### **Aparecium Wi-Fi Planner using Enhanced Indoor Propagation Model** ..... 1106

Ali Ghandour<sup>1</sup>, Jamal Haydar<sup>2</sup>, Ali Hariri<sup>2</sup>, Jad Chahine<sup>2</sup>  
<sup>1</sup>National Council for Scientific Research, Lebanon, <sup>2</sup>Islamic University of Lebanon, Lebanon

## WA-2: Signal Processing for Wireless Communications II (Communication & Signal Processing Symposium)

**Session Chair:** Rodolfo Oliveira (NOVA University of Lisbon, Portugal)

### **Joint SDMA and Power-Domain NOMA System for Multi-User Mm-Wave Communications** ..... 1112

Israa Khaled<sup>1,2</sup>, Charlotte Langlais<sup>1</sup>, Ammar El Falou<sup>2</sup>, Michel Jezequel<sup>1</sup>, Bachar ElHassan<sup>2</sup>  
<sup>1</sup>IMT Atlantique, France, <sup>2</sup>Lebanese University, Lebanon

### **Transmit Diversity for FSO/RF-Based Multiuser Networks** ..... 1118

Imène Trigui<sup>1</sup>, Sofiène Affes<sup>1</sup>, Anas M. Salhab<sup>2</sup>, Mohamed-Slim Alouini<sup>3</sup>  
<sup>1</sup>INRS-EMT, Canada, <sup>2</sup>King Fahd University of Petroleum & Minerals, Saudi Arabia, <sup>3</sup>King Abdullah University of Science and Technology, Saudi Arabia

### **Joint Relay and Jammer Selection based on Deep Learning for Improving the Physical Layer Secrecy in Cooperative Networks** ..... 1124

Hefdhallah Sakran<sup>1,2</sup>  
<sup>1</sup>University of Stuttgart, Germany, <sup>2</sup>Ibb University, Yemen

### **Residual Self-Interference Estimation in In-Band Full-Duplex Wireless Systems** ..... 1130

Luis Irio<sup>1</sup>, Ayman T. Abusabah<sup>1,2</sup>, Rodolfo Oliveira<sup>1,2</sup>  
<sup>1</sup>Instituto de Telecomunicações, Portugal, <sup>2</sup>Universidade Nova de Lisboa, Portugal

<b>Labeling-Based Recipient Identification for BICM-ID in 64-QAM Case</b> .....	1135
Maciej Krasicki Poznan University of Technology, Poland	
<b>The Design of FIR Filter based on Improved DA and Implementation to High-Speed Ground Penetrating Radar System</b> .....	1140
Jixi Li <sup>1</sup> , Xu Bai <sup>1</sup> , Shuai Han <sup>1</sup> , Yue Yu <sup>2</sup> <sup>1</sup> Harbin Institute of Technology, P.R. China, <sup>2</sup> China Academy of Information and Communications Technology, P.R. China	
<b>WA-3: Optimization in Wireless Networks (WSNs Symposium)</b>	
<b>Session Chair:</b> Chadi Abou-Rjeily (Lebanese American University, Lebanon)	
<b>Optimal Consensus Time Synchronizations for Wireless Sensor Networks</b> .....	1145
Abderrazak Abdaoui <sup>1</sup> , Hasan Tariq <sup>1</sup> , Farid Touati <sup>1</sup> , Tarek Elfouly <sup>1</sup> , Mohammed Al-Hitmi <sup>1</sup> , Mohamed H. Ahmed <sup>2</sup> <sup>1</sup> Qatar University, Qatar, <sup>2</sup> Memorial University of Newfoundland, Canada	
<b>Low-Cost Underwater Localization System</b> .....	1153
B. Gerondeau, L. Galeota, A. Caudwell, R. Gouge, A. Martin, R. Séguin, R. Zitouni ECE Paris Research Lab, France	
<b>Optimal Harvesting Duration for Two Way Relaying</b> .....	1159
Ghassan Alnwaimi <sup>1</sup> , Hatem Boujemaa <sup>2</sup> <sup>1</sup> King Abdulaziz University, Saudi Arabia, <sup>2</sup> University of Carthage, Tunisia	
<b>Optimal Power Allocation for Cooperative DS-CDMA Systems</b> .....	1164
Ghassan Alnwaimi <sup>1</sup> , Hatem Boujemaa <sup>2</sup> <sup>1</sup> King Abdulaziz University, Saudi Arabia, <sup>2</sup> University of Carthage, Tunisia	
<b>Latency and Energy Transmission Cost Optimization using BCO-aware Energy Routing for Smart Grid</b> .....	1170
Sara Hebal <sup>1</sup> , Saad Harous <sup>2</sup> , Djamila Mechta <sup>1</sup> <sup>1</sup> Ferhat Abbas Sétif 1 University, Algeria, <sup>2</sup> United Arab Emirates University, UAE	
<b>Wireless Sensor Networks Life Time Optimization based on the Improved Firefly Algorithm</b> .....	1176
Miodrag Zivkovic, Nebojsa Bacanin, Eva Tuba, Ivana Strumberger, Timea Bezdán, Milan Tuba Singidunum University, Serbia	
<b>WA-4: Smart Platform/Software (Intelligent Network Computing Workshop)</b>	
<b>Session Chair:</b> Feng Lei (Beijing University of Posts and Telecommunications, P.R. China)	
<b>Application of Computer Digital Simulation Technology in the Research of Martial Arts Action Structure Image</b> .....	1182
Qingbao Wang Baicheng Normal University, P.R. China	
<b>Self-Service Analysis Tools based on Open Sharing</b> .....	1188
Ran Ran, Dapeng Zhou, Jue Bo, Pan Hu, Jun Qi, Qiang Gao, Junwei Sun State Grid Liaoning Electric Power Co., Ltd., P.R. China	
<b>Instant Messaging Tool Task Collaboration Platform</b> .....	1192
Dapeng Zhou, Ran Ran, Xing Huang, Jue Bo, Zhuanguan Yang, Hao Wang State Grid Liaoning Electric Power Co., Ltd., P.R. China	

**Modeling and Computer Simulation Analysis of Bearing-Gear System** ..... 1196

Li Chang  
Shandong Vocational College of Light Industry, P.R. China

**Simulation Analysis of Finite Element Preprocessing based on HyperMesh** ..... 1202

Li Chang  
Shandong Vocational College of Light Industry, P.R. China

**Research on the Construction of the Dynamical Mechanism Model for the Military Civilian Integration Sharing of College Educational Resources of Hubei Province** ..... 1208

Chao Xie<sup>1</sup>, Yulin Luo<sup>2</sup>, Xiangjun Yu<sup>3</sup>  
<sup>1</sup>Wuhan Donghu University, P.R. China, <sup>2</sup>Wenhua College, P.R. China, <sup>3</sup>Hubei Business College, P.R. China

**WA-5: Performance Optimization and Analysis (5G-IoT Symposium)**

**Session Chair:** Kadoch Michel (ETS University of Quebec, Canada)

**Capsule Networks-based Traffic Prediction for Resources Deployment in B5G Fronthaul Network** ..... 1213

Zhen Xu, Hui Yang, Ao Yu, Qiuyan Yao, Bowen Bao, Jie Zhang  
Beijing University of Posts and Telecommunication, P.R. China

**A Parameter Optimization Method for LTE-R Handover based on Reinforcement Learning** ..... 1216

Xingqiang Cai, Cheng Wu, Jie Sheng, Jin Zhang, Yiming Wang  
Soochow University, P.R. China

**Mobility Load Balancing with Handover Minimization for 5G Small Cell Networks** ..... 1222

Khaled M. Addali<sup>1</sup>, Zhengwei Chang<sup>2</sup>, Jizhao Lu<sup>3</sup>, Rongke Liu<sup>4</sup>, Michel Kadoch<sup>1</sup>  
<sup>1</sup>University of Quebec, Canada, <sup>2</sup>State Grid Sichuan Electric Power Company, P.R. China, <sup>3</sup>State Grid Henan Electric Power Company, P.R. China, <sup>4</sup>Beihang University, P.R. China

**Outage Performance in Cooperative IoT Networks with Energy Harvesting** ..... 1228

Nouha Dahi, Nouredine Hamdi  
University Tunis El Manar, Tunisia

**Performance Analysis of Mobile IoT Networks over Composite Fading Channels** ..... 1234

Osamah S. Badarneh<sup>1</sup>, Mustafa K. Shawaqfeh<sup>1</sup>, Michel Kadoch<sup>2</sup>  
<sup>1</sup>German Jordanian University, Jordan, <sup>2</sup>École de Technologie Supérieure, Canada

**Sum-Throughput Maximisation in Multi-Antenna aided Full-Duplex WPCNs with Self-Interference** ..... 1240

Yali Zheng<sup>1</sup>, Jie Hu<sup>1</sup>, Kun Yang<sup>1,2</sup>  
<sup>1</sup>University of Electronic Science and Technology of China, P.R. China, <sup>2</sup>University of Essex, United Kingdom

**WA-6: Security in Vehicular Networks (Vehicular Symposium)**

**Session Chair:** Muhammad Imran (King Saud University, Saudi Arabia)

**Trust-Based NOMA for Resource Allocation in Vehicular Communications** ..... 1246

Hanan Idriss<sup>1</sup>, Hend Marouane<sup>2</sup>, Amel Meddeb-Makhlouf<sup>2</sup>, Ahmed Fakhfakh<sup>2</sup>, Abdel-Mehsen Ahmad<sup>3</sup>,  
Zouhair El-Bazzal<sup>3</sup>, Hussein Hijazi<sup>3</sup>  
<sup>1</sup>Digital and Numeric Research Center of Sfax, Tunisia, <sup>2</sup>National Engineering School in Sfax, Tunisia,  
<sup>3</sup>Lebanese International University, Lebanon



<b>A Model-Based and Resource-Aware Testing Framework for Parking System Payment using Blockchain</b> .....	1252
Rateb Jabbar <sup>1,2</sup> , Moez Krichen <sup>3</sup> , Mohammed Shinoy <sup>4</sup> , Mohamed Kharbeche <sup>4</sup> , Noora Fetais <sup>1</sup> , Kamel Barkaoui <sup>2</sup>	
<sup>1</sup> Qatar University, Qatar, <sup>2</sup> Conservatoire National des Arts et Meteirs, France, <sup>3</sup> University of Sfax, Tunisia, <sup>4</sup> Qatar University, Qatar	
<b>A Framework for Secure Vehicular Network using Advanced Blockchain</b> .....	1260
Vikas Hassija <sup>1</sup> , Vinay Chamola <sup>2</sup> , Vatsal Gupta <sup>1</sup> , G.S.S. Chalapathi <sup>2</sup>	
<sup>1</sup> Jaypee Institute of Information Technology, India, <sup>2</sup> BITS-Pilani, India	
<b>An Efficient Lightweight Authentication and Batch Verification Scheme for Universal Internet of Vehicles (UIoV)</b> .....	1266
Himani Sikarwar, Debasis Das	
Indian Institute of Technology Jodhpur, India	
<b>Edge Network Resource Synergy for Mobile Blockchain in Smart City</b> .....	1272
Shaoyong Guo, Yuanyuan Qi, Peng Yu, Sujie Shao, Xuesong Qiu	
Beijing University of Posts and Telecommunications, P.R. China	
<b>Cyber-Physical Risk Driven Routing Planning with Deep Reinforcement-Learning in Smart Grid Communication Networks</b> .....	1278
Zhuojun Jin <sup>1</sup> , Peng Yu <sup>1</sup> , Shao Yong Guo <sup>1</sup> , Lei Feng <sup>1</sup> , Fanqin Zhou <sup>1</sup> , Minxing Tao <sup>1</sup> , Wenjing Li <sup>1</sup> , Xue-song Qiu <sup>1</sup> , Lei Shi <sup>2</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Carlow Institute of Technology, Ireland	
<b>Security Attacks Impact for Collective Perception based Roadside Assistance: A Study of a Highway On-ramp Merging Case</b> .....	1284
Mohamed Hadded, Pierre Merdrignac, Sacha Duhamel, Oyunchimeg Shagdar	
Vedecom, France	
<b>WA-7: IoT Advances (IoT Symposium)</b>	
<b>Session Chairs:</b>	Shun-Ren Yang (National Tsing Hua University, Taiwan) and Phone Lin (National Taiwan University, Taiwan)
<b>Dictionary-Based DPCM Method for Compressing IoT Big Data</b> .....	1290
Ali Kadhum M. Al-Qurabat <sup>1</sup> , Ali Kadhum Idrees <sup>1</sup> , Chady Abou Jaoude <sup>2</sup>	
<sup>1</sup> University of Babylon, Iraq, <sup>2</sup> Antonine University, Lebanon	
<b>IoT-based Low Cost Architecture for Smart Farming</b> .....	1296
Amine Faïd, Mohamed Sadik, Essaid Sabir	
Hassan II University of Casablanca, Morocco	
<b>Leveraging Digital Twins to Enhance Performance of IoT in Disadvantaged Networks</b> .....	1303
James M. Taylor, Jr. <sup>1</sup> , Hamid R. Sharif <sup>2</sup>	
<sup>1</sup> University of Nebraska, USA, <sup>2</sup> University of Nebraska-Lincoln, USA	
<b>Towards Energy and Resource Efficient Design for Scalable mMTC with A Distributed Energy-Restricted Cluster based Transmission Scheme</b> .....	1309
Hua-Min Chen <sup>1</sup> , Jiaxin Liu <sup>1</sup> , Haoru Su <sup>1</sup> , Shaofu Lin <sup>1</sup> , JingMing Zhu <sup>2</sup> , Limin Chen <sup>2</sup>	
<sup>1</sup> Beijing University of Technology, P.R. China, <sup>2</sup> Beijing National Speed Skating Oval Operation Co., Ltd., P.R. China	

<b>An IoT-oriented Cloud Platform for Intelligent Management of Emergency Equipment</b> .....	1314
Bo Ma <sup>1</sup> , Tian Wang <sup>2</sup> , Liming Lin <sup>3</sup> , Xirong Lv <sup>3</sup> , Ying Ma <sup>4</sup>	
<sup>1</sup> Sany Heavy Industry Co., Ltd., P.R. China, <sup>2</sup> Huaqiao University, P.R. China, <sup>3</sup> Xiamen Great Power GeoInformation Technology Co., Ltd., P.R. China, <sup>4</sup> Xiamen University of Technology, P.R. China	
<b>Decision Tree and Support Vector Machine for Anomaly Detection in Water Distribution Networks</b> .....	1320
Dziri Jalal, Tahar Ezzedine	
University Tunis El Manar, Tunisia	
<b>A Research-oriented Low-cost Air Pollution Monitoring IoT Platform</b> .....	1324
Yassine Ben-Aboud <sup>1,2</sup> , Mounir Ghogho <sup>1,3</sup> , Abdellatif Kobbane <sup>2</sup>	
<sup>1</sup> International University of Rabat, Morocco, <sup>2</sup> Mohammed V University, Morocco, <sup>3</sup> University of Leeds, United Kingdom	
<b>WA-8: Emerging Topics in Wireless Networks (Wireless Nets Symposium)</b>	
<b>Session Chair:</b>	Marco Giordani (University of Padova, Italy)
<b>Uplink/Downlink Decoupled Access with Dynamic TDD in 5G HetNets</b> .....	1330
Bachir Lahad <sup>1</sup> , Marc Ibrahim <sup>1</sup> , Samer Lahoud <sup>1</sup> , Kinda Khawam <sup>2</sup> , Steven Martin <sup>2</sup>	
<sup>1</sup> Saint Joseph University of Beirut, Lebanon, <sup>2</sup> Université Paris-Saclay, France	
<b>LAMCO: A Layered Approach to Mobile Application Computation Offloading</b> .....	1336
Yousef Ballan <sup>1</sup> , Ali Ahmed <sup>2</sup> , Nilufar Baghaei <sup>3</sup>	
<sup>1</sup> University of Liverpool, United Kingdom, <sup>2</sup> Victoria University of Wellington, New Zealand, <sup>3</sup> Massey University, New Zealand	
<b>Design of Frequency-Reconfigurable Triband Dipole Antenna using Capacitive Loading</b> .....	1342
Saber Dakhli <sup>1</sup> , Moheddine Smari <sup>1</sup> , Jean-Marie Floc'h <sup>2</sup> , Fethi Choubani <sup>1</sup>	
<sup>1</sup> University of Carthage, Tunisia, <sup>2</sup> IETR, INSA Rennes, France	
<b>Implementation of Reed Solomon Encoder on Low-Latency Embedded FPGA in Flexible SoC based on ARM Processor</b> .....	1347
Hajer Saidi <sup>1</sup> , Mariem Turki <sup>1</sup> , Zied Marrakchi <sup>2</sup> , Abdulfattah Obeid <sup>3</sup> , Mohamed Abid <sup>1</sup>	
<sup>1</sup> Digital Research Center of Sfax, Tunisia, <sup>2</sup> Mentor Graphics, Tunisia, <sup>3</sup> King Abdulaziz City for Science and Technology, Saudi Arabia	
<b>Low Crosstalk and Small Size 12-channel WDM Demultiplexer based on 2D Photonic Crystal</b> .....	1353
Massoudi Radhouene <sup>1</sup> , Monia Najjar <sup>1</sup> , Nikhildeep Gupta <sup>2</sup> , Vijay Janyani <sup>3</sup>	
<sup>1</sup> University of Tunis El Manar, Tunisia, <sup>2</sup> Visvesvaraya National Institute of Technology, India, <sup>3</sup> Malaviya National Institute of Technology, India	
<b>Novel Design Superelliptic Photonic Crystal Ring Resonator based on Channel Drop Filter</b> .....	1359
Massoudi Radhouene <sup>1</sup> , Monia Najjar <sup>2</sup> , Vijay Janyani <sup>3</sup>	
<sup>1</sup> University of Tunis El Manar, Tunisia, <sup>2</sup> Malaviya National Institute of Technology, India	
<b>WA-9: Smart Text/Image/Video processing (Intelligent Network Computing Workshop)</b>	
<b>Session Chair:</b>	Lei Shi (Institute of Technology Carlow, Ireland)
<b>News Keywords Extraction Algorithm based on TextRank and Classified TF-IDF</b> .....	1364
Xiong Ao, Xin Yu, Derong Liu, Hongkang Tian	
Beijing University of Posts and Telecommunications, P.R. China	
<b>Application of Keyword Dynamic Query Software in Relational Database based on Big Data</b> .....	1370
Yandong Yu, Yuge Yao	
Jining Normal University, P.R. China	

<b>Three-Dimensional Image Analysis of the Movement Characteristics of Nunchakus Kick Technique</b> .....	1376
Qingbao Wang Baicheng Normal University, P.R. China	
<b>Relation Extraction with BERT-based Pre-trained Model</b> .....	1382
Haitao Yu <sup>1</sup> , Yi Cao <sup>2</sup> , Gang Cheng <sup>3</sup> , Ping Xie <sup>4</sup> , Yang Yang <sup>1</sup> , Peng Yu <sup>1</sup> <sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Military Representative Office of General Military Equipment Development Department Shijiazhuang, P.R. China, <sup>3</sup> PLA Academy of Military Science, P.R. China, <sup>4</sup> The 54th Research Institute of CETC, P.R. China	
<b>KSF-ST: Video Captioning based on Key Semantic Frames Extraction and Spatio-Temporal Attention Mechanism</b> .....	1388
Zhaowei Qu <sup>1</sup> , Luhan Zhang <sup>1</sup> , Xiaoru Wang <sup>1</sup> , Bingyu Cao <sup>1</sup> , Yueli Li <sup>1</sup> , Fu Li <sup>2</sup> <sup>1</sup> Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Portland State University, USA	
<b>Partial Occlusion Face Recognition Method based on Acupoints locating through Infrared Thermal Imaging</b> .....	1394
Yangyang Lian <sup>1</sup> , Zhihui Wang <sup>1</sup> , Hanqing Yuan <sup>1</sup> , Lifang Gao <sup>1</sup> , Zhuozhi Yu <sup>2</sup> , Wenwei Chen <sup>2</sup> , Yifei Xing <sup>3</sup> , Siya Xu <sup>3</sup> , Lei Feng <sup>3</sup> <sup>1</sup> State Grid Hebei Information & Telecommunication, P.R. China, <sup>2</sup> Beijing Fibrlink Communications Co., Ltd., P.R. China, <sup>3</sup> Beijing University of Posts and Telecommunications, P.R. China	
<b>WA-10: Theory &amp; Applications (5G-IoT)</b>	
<b>Session Chair:</b>	Peng Yu (Beijing University of Posts and Telecommunications, P.R. China)
<b>Overview of Network Outage Detection Technology in 5G</b> .....	1400
Yun Han <sup>1</sup> , Yun Zhong <sup>2</sup> , Hongliang Wang <sup>3</sup> <sup>1</sup> Guangdong Ocean University, P.R. China, <sup>2</sup> Haidong Middle School, P.R. China, <sup>3</sup> State Key Laboratory of High-end Server & Storage Technology Inspur Electronic Information Industry Co., Ltd., P.R. China	
<b>An Energy-efficient Frame-based Task Scheduling Algorithm for Heterogeneous Multi-core SoC in IoT Devices</b> .....	1404
Yi Yang <sup>1</sup> , Weimin Diao <sup>2</sup> <sup>1</sup> Chongqing University of Posts and Telecommunications, P.R. China, <sup>2</sup> Beihang University, P.R. China	
<b>The Base Station System based on Bidirectional LSTM Model</b> .....	1410
Xuesong Kuang <sup>1</sup> , Hongliang Wang <sup>2</sup> <sup>1</sup> Guangdong Ocean University, P.R. China, <sup>2</sup> State Key Laboratory of High-end Server & Storage Technology Inspur Electronic Information Industry Co., Ltd., P.R. China	
<b>Comparison of Acceptance in Mobile Smart Wearable Technology between SEM and DEMATEL Methods</b> .....	1413
Hung-Yi Liao <sup>1</sup> , Jih-Kuang Chen <sup>2</sup> <sup>1</sup> Shanghai Normal University, P.R. China, <sup>2</sup> Zhaoqing University, P.R. China	
<b>Ensembled Tricks for Instance Segmentation</b> .....	1418
Runze Zhang <sup>1</sup> , Liang Jin <sup>1</sup> , Yongfang Chen <sup>1</sup> , Zhenhua Guo <sup>1</sup> , Kun Zhao <sup>2</sup> , Yaqian Zhao <sup>1</sup> <sup>1</sup> State Key Laboratory of High-end Server & Storage Technology Inspur Electronic Information Industry Co., Ltd., P.R. China, <sup>2</sup> Guangdong Inspur Big Data Research Co., Ltd., P.R. China	
<b>Back Analysis of Concrete Temperature Field and Simulation of Temperature Control Measures based on Simulated Annealing Algorithm</b> .....	1422
Xuxiang Tan, Huadong Sun, Feng Nan Shandong Jiaotong University, P.R. China	

**Tunable C and L Bands Demultiplexer based on Photonic Crystal Ring Resonator** ..... 1427  
Massoudi Radhouene<sup>1</sup>, Monia Najjar<sup>1</sup>, Vijay Janyani<sup>2</sup>  
<sup>1</sup>University of Tunis El Manar, Tunisia,<sup>2</sup>Malaviya National Institute of Technology, India

**Thursday, June 18th, 2020**

**ThM-1: System Security (5G-IoT Symposium)**

**Session Chair:** Yang Xinxin (Beihang University, P.R. China)

**Research on Feature Selection of Intrusion Detection based on Deep Learning** ..... 1431

Mingyuan Xin, Yong Wang  
Heihe University, P.R. China

**An Information Security Evaluation Model Supporting Measurement Model Adaptation** ..... 1435

Jinxin Zuo, Ziyv Guo, Yueming Lu  
Beijing University of Posts and Telecommunications, P.R. China

**Spearman Correlation Coefficient Abnormal Behavior Monitoring Technology based on RNN in 5G Network for Smart City** ..... 1440

Chao Li<sup>1</sup>, Hui Yang<sup>1</sup>, Bowen Bao<sup>1</sup>, Huifeng Guo<sup>2</sup>, Yong Jiang<sup>2</sup>, Jie Zhang<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China,<sup>2</sup>Zhongxing Telecommunication Equipment Corporation, P.R. China

**Research on High Performance 4G Wireless VPN for Smart Factory based on Key Technologies of 5G Network Architecture** ..... 1443

Qibing Jin<sup>1</sup>, Qing Guo<sup>1</sup>, Mingshi Luo<sup>2</sup>, YuMing Zhang<sup>1</sup>, Wu Cai<sup>1</sup>  
<sup>1</sup>Beijing University of Chemical Technology, P.R. China,<sup>2</sup>Xi'an Shiyou University, P.R. China

**Research on Cloud Storage Verification Technology in Internet of Things Environment** ..... 1448

Xiaoyin Yi<sup>1</sup>, Jingyi Li<sup>1</sup>, Gang Peng<sup>2</sup>  
<sup>1</sup>Chongqing University of Posts and Telecommunications, P.R. China,<sup>2</sup>Chongqing Cewei Technology Co., Ltd., P.R. China

**Design and Implementation of Supply Chain Management System based on ASP.NET** ..... 1454

Xiangjun Yu<sup>1</sup>, Qiongjie Zhou<sup>2</sup>  
<sup>1</sup>Hubei Business College, P.R. China,<sup>2</sup>Wuhan Donghu University, P.R. China

**ThM-2: Low Power Wide Area Networks Technologies for IoT (LPloT Symposium)**

**Session Chairs:** Muhammad Mahtab Alam and Yannick Le Moullec  
(Tallinn University of Technology, Estonia)

**Speech Interactive Emotion Recognition System based on Random Forest** ..... 1458

Susu Yan<sup>1,2</sup>, Liang Ye<sup>1,3,4</sup>, Shuai Han<sup>1</sup>, Tian Han<sup>2,3</sup>, Yue Li<sup>5</sup>, Esko Alasaarela<sup>3</sup>  
<sup>1</sup>Harbin Institute of Technology, P.R. China,<sup>2</sup>Harbin University of Science and Technology, P.R. China,<sup>3</sup>University of Oulu, Finland,<sup>4</sup>Ministry of Public Security, P.R. China,<sup>5</sup>Heilongjiang University, P.R. China

**Dynamic Spectrum Allocation by 5G Base Station** ..... 1463

Yizhe Zhang, Dazhi He, Wen He, Yin Xu, Yunfeng Guan, Wenjun Zhang  
Shanghai Jiao Tong University, P.R. China

<b>A Offloading Optimization Scheme for Multi-UAV Aided Network in Mobile Computing</b> .....	1468
Ang Gao <sup>1,2</sup> , Qi Wang <sup>1</sup> , Yansu Hu <sup>3</sup> , Weijun Duan <sup>1,2</sup>	
<sup>1</sup> Northwestern Polytechnical University, P.R. China, <sup>2</sup> Yangtze River Delta Research Institute of NPU, P.R. China,	
<sup>3</sup> Chang'an University, P.R. China	
<b>Optical Spatial Modulation with Improved Energy Harvesting for MIMO FSO Communications</b> .....	1474
Chadi Abou-Rjeily, Azzam Mourad	
Lebanese American University, Lebanon	
<b>Jointly Optimized Echo State Network for Short-term Channel State Information Prediction of Fading Channel</b> .....	1480
Qiwu Luo <sup>1</sup> , Jian Zhou <sup>1</sup> , Yichuang Sun <sup>2</sup> , Oluyomi Simpson <sup>2</sup>	
<sup>1</sup> Central South University, P.R. China, <sup>2</sup> University of Hertfordshire, United Kingdom	
<b>A Distributed Blockchain-based Broker for Efficient Resource Provisioning in 5G Networks</b> .....	1485
Mohammed Amine Togou <sup>1</sup> , Ting Bi <sup>1</sup> , Kapal Dev <sup>2</sup> , Kevin McDonnell <sup>3</sup> , Aleksandar Milenovic <sup>3</sup> , Hitesh Tewari <sup>2</sup> , Gabriel-Miro Muntean <sup>1</sup>	
<sup>1</sup> Dublin City University, Ireland, <sup>2</sup> Trinity College Dublin, Ireland, <sup>3</sup> Huawei Technologies Co., Ireland	
<b>Coverage Analysis of NB-IoT and Sigfox: Two Estonian University Campuses as a Case Study</b> .....	1491
Nishant Poddar <sup>1</sup> , Sikandar Zulqarnain Khan <sup>2</sup> , Jakob Mass <sup>1</sup> , Satish Narayana Srirama <sup>1</sup>	
<sup>1</sup> University of Tartu, Estonia, <sup>2</sup> Tallinn University of Technology, Estonia	
<b>ThM-3: Data Networks (Big Data Symposium)</b>	
<b>Session Chair:</b>	Min Chen and Long Hu (Huazhong University of Science and Technology, P.R. China)
<b>A Novel Image Classification Model Jointing Attention and ResNet for Scratch</b> .....	1498
Shuaifei Zhao <sup>1</sup> , Lichen Qiu <sup>2</sup> , Peng Qi <sup>1</sup> , Yan Sun <sup>1</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup> Dongyuqiao Primary School, P.R. China	
<b>The Intelligent Diagnostic System for Common Diseases using the Optimized Medical Knowledge Graph</b> .....	1504
Jing Wang <sup>1</sup> , Ning Liu <sup>2</sup> , Qian Hu <sup>1</sup> , Zhichao Wu <sup>1</sup> , Wan Dong <sup>1</sup> , Yanan Shen <sup>1</sup>	
<sup>1</sup> AI Doctor Smart Healthcare Technology Ltd., P.R. China, <sup>2</sup> Chinese Academy of Sciences, P.R. China	
<b>ICZP: An Independent Circular Zones Protocol for Heterogeneous Wireless Sensor Networks (HWSNs)</b> .....	1510
Djamal Djabour, Wided Abidi, Tahar Ezzedine	
University Tunis El Manar, Tunisia	
<b>A Novel Code Stylometry-based Code Clone Detection Strategy</b> .....	1516
Wenyuan Dong <sup>1</sup> , Zhiyong Feng <sup>2</sup> , Hua Wei <sup>1</sup> , Hong Luo <sup>1</sup>	
<sup>1</sup> Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup> Dongfang Middle School, P.R. China	
<b>Hybrid Multicast Beamforming and Combiner Design of mmWave based MIMO-SWIPT System</b> .....	1522
Qingdong Yue <sup>1</sup> , Jie Hu <sup>1</sup> , Chuan Huang <sup>1</sup> , Kun Yang <sup>1,2</sup>	
<sup>1</sup> University of Electronic Science and Technology of China, P.R. China, <sup>2</sup> University of Essex, United Kingdom	
<b>Adapting to User Interest Drifts for Recommendations in Scratch</b> .....	1528
Youhua Jiang, Siyi Yan, Peng Qi, Yan Sun	
Beijing University of Posts and Telecommunication, P.R. China	

## ThM-4: Smart and Reliable Vehicular Networks (Vehicular Symposium)

**Session Chair:** Richie Leo (ZTE Corporation, P.R. China)

### **SmartFlow: An Adaptive Congestion Avoidance Protocol for Smart Transportation Systems** ..... 1535

Zahid Khan, Anis Koubaa  
Prince Sultan University, Saudi Arabia

### **Edge Computing-based Fault-Tolerant Framework: A Case Study on Vehicular Networks** ..... 1541

Asad Javed<sup>1</sup>, Avleen Malhi<sup>1</sup>, Kary Främling<sup>1,2</sup>  
<sup>1</sup>Aalto University, Finland, <sup>2</sup>Umeå University, Sweden

### **Fusion Strategy of Multi-sensor based Object Detection for Self-driving Vehicles** ..... 1549

Yanqi Li<sup>1,2</sup>, Jianwei Niu<sup>1,2,3</sup>, Zhenchao Ouyang<sup>1,2</sup>  
<sup>1</sup>Hangzhou Innovation Institute, P.R. China, <sup>2</sup>State Key Laboratory of Virtual Reality Technology and Systems, P.R. China, <sup>3</sup>Beihang University, P.R. China

### **A Vertical Handover Algorithm based on Velocity Pre-decision and Fuzzy Logic for Heterogeneous Private Network** ..... 1555

Chenguang He<sup>1,2</sup>, Qiang Yang<sup>1</sup>, Shuai Han<sup>1</sup>, Shouming Wei<sup>1,2</sup>  
<sup>1</sup>Harbin Institute of Technology, P.R. China, <sup>2</sup>Ministry of Public Security, P.R. China

### **Detecting Dark Cars in Railroad Operations using Multi-Antenna Beamforming for Long-Distance Discovery and Identification of AEI Tags** ..... 1561

Pejman Ghasemzadeh, Subharthi Banerjee, Michael Hempel, Andrew Harms, Hamid Sharif  
University of Nebraska-Lincoln, USA

### **An Adaptive Multi-clustered Scheme for Autonomous UAV Swarms** ..... 1567

Abderrahmane Lakas, Abdelkader Nasreddine Belkacem, Shamsa Al Hassani  
United Arab Emirates University, UAE

## ThM-5: Machine Learning & Communications (5G-EWNAT Workshop)

**Session Chair:** Wei Chen (Beijing Jiaotong University, P.R. China)

### **Machine Learning based Energy Saving Scheme in Wireless Access Networks** ..... 1573

Yin Gao, Jiajun Chen, Zhuang Liu, Bo Zhang, Yazhu Ke, Ruiqi Liu  
ZTE Corporation, P.R. China

### **An Efficient Multi-scale Method for Single Image Super Resolution** ..... 1579

Dehui Kong<sup>1,2</sup>, Ke Xu<sup>1,2</sup>, Fang Zhu<sup>3</sup>, Tongtong Zhu<sup>1</sup>, Hengqi Liu<sup>1</sup>, Yang Wei<sup>1</sup>, Jianjun Song<sup>1</sup>  
<sup>1</sup>ZTE Microelectronics Research Institute, P.R. China, <sup>2</sup>State Key Laboratory of Mobile Network and Mobile Multimedia Technology, P.R. China, <sup>3</sup>ZTE Corporation, P.R. China

### **CNN based HDR/WCG Characteristic Detection for Ultra-High Definition Video** ..... 1584

Yun Zhou, Xiao Hu, Xiaoqiang Guo, Xiaoyu Li, Xiao Li, Zhiping Xia  
Academy of Broadcasting Science, P.R. China

### **Design and Implementation of Intelligent Audio Broadcast Monitoring System** ..... 1590

Dingjing Zhang, Rui Fu, Tailong Niu, Lin Chang, Ying Wang, Ling Tuo  
Academy of Broadcasting Science, P.R. China

### **Construction of Big Data Monitoring Platform for Teaching Quality under Intelligent Education** ..... 1594

Fang Qin, Weijia Zeng, Lin Li, Rong Zhao  
Dalian University of Science and Technology, P.R. China

**CNN and GRU based Deep Neural Network for Electricity Theft Detection to Secure Smart Grid** ..... 1598  
Ashraf Ullah<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Omaji Samuel<sup>1</sup>, Muhammad Imran<sup>2</sup>, Muhammad Shoaib<sup>2</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>King Saud University, Saudi Arabia

## **ThA-1: Decentralized System and Blockchain (5G-IoT Symposium)**

**Session Chair:** Shaoyong Guo (Beijing University of Posts and Telecommunications, P.R. China)

**Blockchain-based Bonus-penalty Access Control Strategy for IoT Service in Cloud Radio Over Fiber Network** ..... 1603

Jiaqi Yuan<sup>1,2</sup>, Hui Yang<sup>1</sup>, Yongshen Liang<sup>1</sup>, Qiuyan Yao<sup>1</sup>, Libin Jiao<sup>2,3</sup>, Jie Zhang<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunication, P.R. China,<sup>2</sup>Science and Technology on Communication Networks Laboratory, P.R. China,<sup>3</sup>Electronics Technology Group Corporation, P.R. China

**Demonstration of Blockchain-based IoT Devices Anonymous Access Network using Zero-knowledge Proof** ..... 1607

Jiaqi Yuan<sup>1,2</sup>, Hui Yang<sup>1</sup>, Shuai Dong<sup>1</sup>, Qiuyan Yao<sup>1</sup>, Libin Jiao<sup>2,3</sup>, Jie Zhang<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunication, P.R. China,<sup>2</sup>Science and Technology on Communication Networks Laboratory, P.R. China,<sup>3</sup>Electronics Technology Group Corporation, P.R. China

**Blockchain-based Cross-domain Authentication Strategy for Trusted Access to Mobile Devices in the IoT** ..... 1610

Shuai Dong<sup>1,2</sup>, Hui Yang<sup>1</sup>, Jiaqi Yuan<sup>1</sup>, Libin Jiao<sup>2,3</sup>, Ao Yu<sup>1</sup>, Jie Zhang<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunication, P.R. China,<sup>2</sup>Science and Technology on Communication Networks Laboratory, P.R. China,<sup>3</sup>Electronics Technology Group Corporation, P.R. China

**A Decentralized Hierarchical Key Management Scheme for Grid-Organized Wireless Sensor Networks (DHKM)** ..... 1613

Samer Khasawneh<sup>1</sup>, Zhengwei Chang<sup>2</sup>, Rongke Liu<sup>3</sup>, Michel Kadoch<sup>1</sup>, Jizhao Lu<sup>4</sup>  
<sup>1</sup>École de technologie supérieure ÉTS, Canada,<sup>2</sup>State Grid Sichuan Electric Power, P.R. China,<sup>3</sup>Beihang University, P.R. China,<sup>4</sup>Grid Henan Electric Power Company, P.R. China

**Software-defined Cloud Manufacturing with Edge Computing for Industry 4.0** ..... 1618

Chen Yang<sup>1</sup>, Shulin Lan<sup>2</sup>, Weiming Shen<sup>3</sup>, Lihui Wang<sup>4</sup>, George Q. Huang<sup>5</sup>  
<sup>1</sup>Beijing Institute of Technology, P.R. China,<sup>2</sup>University of Chinese Academy of Science, P.R. China,<sup>3</sup>Huazhong University of Science and Technology, P.R. China,<sup>4</sup>KTH Royal Institute of Technology, Sweden,<sup>5</sup>University of Hong Kong, P.R. China

**A Study of Network Security Situational Awareness in Internet of Things** ..... 1624

Jingyi Li<sup>1</sup>, Xiaoyin Yi<sup>1</sup>, Shi Wei<sup>2</sup>  
<sup>1</sup>Chongqing University of Posts and Telecommunications, P.R. China,<sup>2</sup>Economy and Informatization Commission of Jiangjin District, P.R. China

## **ThA-2: Internetworking Unmanned Ground and Aerial Systems (UAVs Workshop)**

**Session Chair:** Anis Koubaa (Prince Sultan University, Saudi Arabia)

**Towards Robust Onboard Control for Quadrotors via Ultra-Wideband-based Localization** ..... 1630

Evagoras Makridis<sup>1</sup>, Themistoklis Charalambous<sup>2</sup>  
<sup>1</sup>KTH Royal Institute of Technology, Sweden,<sup>2</sup>Aalto University, Finland

**Energy-aware Collision Avoidance Stochastic Optimizer for a UAVs Set** ..... 1636

Sihem Ouahouah<sup>1,3</sup>, Jonathan Prados-Garzon<sup>1</sup>, Tarik Taleb<sup>1,2</sup>, Chafika Benzaid<sup>1</sup>  
<sup>1</sup>Aalto University, Finland,<sup>2</sup>University of Oulu, Finland,<sup>3</sup>Ecole Nationale Supérieure d'Informatique, Algeria

<b>UAV Communication Strategies in the Next Generation of Mobile Networks</b> .....	1642
Hamed Hellaoui <sup>1</sup> , Ali Chelli <sup>2</sup> , Miloud Bagaa <sup>1</sup> , Tarik Taleb <sup>1,3</sup>	
<sup>1</sup> Aalto University, Finland, <sup>2</sup> University of Agder, Norway, <sup>3</sup> University of Oulu, Finland	
<b>Effects of Digital Map on the RT-based Channel Model for UAV mmWave Communications</b> .....	1648
Qiuming Zhu <sup>1</sup> , Shan Jiang <sup>1</sup> , Cheng-Xiang Wang <sup>2,3</sup> , Boyu Hua <sup>1</sup> , Kai Mao <sup>1</sup> , Xiaomin Chen <sup>1</sup> , Weizhi Zhong <sup>1</sup>	
<sup>1</sup> Nanjing University of Aeronautics and Astronautics, P.R. China, <sup>2</sup> Southeast University, P.R. China, <sup>3</sup> Purple Mountain Laboratories, P.R. China	
<b>An Energy-Aware Joint Routing and Task Allocation Algorithm in MEC Systems Assisted by Multiple UAVs</b> .....	1654
Hui Xiao <sup>1</sup> , Zhigang Hu <sup>1</sup> , Kun Yang <sup>2,3</sup> , Yao Du <sup>3</sup> , Dongwei Chen <sup>3</sup>	
<sup>1</sup> Central South University, P.R. China, <sup>2</sup> University of Essex, United Kingdom, <sup>3</sup> University of Electronic Science and Technology of China, P.R. China	
<b>Sliding-Window based Batch Forwarding using Intra-Flow Random Linear Network Coding</b> .....	1660
Sen Ma <sup>1</sup> , Xiulian Liu <sup>2</sup> , Yan Yan <sup>1</sup> , Baoxian Zhang <sup>1</sup> , Jun Zheng <sup>3</sup>	
<sup>1</sup> University of Chinese Academy of Sciences, P.R. China, <sup>2</sup> Astronaut Center of China, P.R. China, <sup>3</sup> Southeast University, P.R. China	
<b>ThA-3: Smart Cities Symposium</b>	
<b>Session Chairs:</b>	Abdallah Khreishah (New Jersey Institute of Technology, USA) and Ala Alfuqaha (Hamad Bin Khalifa University, Qatar)
<b>Exploiting Unlabeled Data in Smart Cities using Federated Edge Learning</b> .....	1666
Abdullatif Albaseer, Bekir Sait Ciftler, Mohamed Abdallah, Ala Al-Fuqaha Hamad Bin Khalifa University, Qatar	
<b>Securing Smart Grid Communication using Ethereum Smart Contracts</b> .....	1672
Raphaelle Akhras <sup>1</sup> , Wassim El-Hajj <sup>1</sup> , Michel Majdalani <sup>2</sup> , Hazem Hajj <sup>1</sup> , Rabih Jabr <sup>1</sup> , Khaled Shaban <sup>3</sup>	
<sup>1</sup> American University of Beirut, Lebanon, <sup>2</sup> McGill University, Canada, <sup>3</sup> Qatar University, Qatar	
<b>Vision-based Indoor Positioning Method by Joint using 2D Images and 3D Point Cloud Map</b> .....	1679
Lin Ma <sup>1</sup> , Han Jiang <sup>1</sup> , Danyang Qin <sup>2</sup> , Xuezhi Tan <sup>1</sup>	
<sup>1</sup> Harbin Institute of Technology, P.R. China, <sup>2</sup> Heilongjiang University, P.R. China	
<b>On the Social Network Centrality Principle for Human Centric Efficiency</b> .....	1685
Katerina Papanikolaou <sup>1</sup> , Constandinos X. Mavromoustakis <sup>2</sup> , George Mastorakis <sup>3</sup> , Jordi Mongay Batalla <sup>4</sup> , Ciprian Dobre <sup>5</sup> , Konstantinos Katzis <sup>1</sup>	
<sup>1</sup> European University Cyprus, Cyprus, <sup>2</sup> University of Nicosia, Cyprus, <sup>3</sup> University Agios Nikolaos, Greece, <sup>4</sup> National Institute of Telecommunications and University of Technology, Poland, <sup>5</sup> National Institute for Research and Development in Informatics Bucharest, Romania	
<b>Mobility Modeling through Mobile Data: Generating an Optimized and Open Dataset Respecting Privacy</b> .....	1689
Héber H. Arcolezzi <sup>1</sup> , Jean-François Couchot <sup>1</sup> , Oumaya Baala <sup>1</sup> , Jean-Michel Contet <sup>2</sup> , Bechara Al Bouna <sup>3</sup> , Xiaokui Xiao <sup>4</sup>	
<sup>1</sup> University Bourgogne Franche-Comté, P.R. China, <sup>2</sup> Orange Labs, France, <sup>3</sup> Antonine University, Lebanon, <sup>4</sup> National University of Singapore, Singapore	
<b>Machine Learning Application to Priority Scheduling in Smart Microgrids</b> .....	1695
Aicha Dridi <sup>1</sup> , Hassine Moun gla <sup>1</sup> , Hossam Afifi <sup>1</sup> , Jordi Badosa <sup>2</sup> , Florence Ossart <sup>3</sup> , A.E. Kamal <sup>4</sup>	
<sup>1</sup> Institut Polytechnique de Paris, France, <sup>2</sup> Institut Polytechnique de Paris, France, <sup>3</sup> GEEPS, Centrale-Supelec, France, <sup>4</sup> Iowa State University, USA	



**Electric Power Quality Disturbances Classification based on Temporal-Spectral Images and Deep Convolutional Neural Networks** ..... 1701  
Mohamed Aymane Ahajjam<sup>1,2</sup>, Daniel Bonilla Licea<sup>1</sup>, Mounir Ghogho<sup>1,3</sup>, Abdellatif Kobbane<sup>2</sup>  
<sup>1</sup>International University of Rabat, Morocco, <sup>2</sup>Mohammed V University, Morocco, <sup>3</sup>University of Leeds, United Kingdom

#### **ThA-4: Physical Layer Security (Security Symposium)**

**Session Chair:** Elias Yacoub (Qatar University, Qatar)

**Friendly Jammer against an Adaptive Eavesdropper in a Relay-aided Network** ..... 1707  
J.E. Giti<sup>1,2</sup>, A. Sakzad<sup>1</sup>, B. Srinivasan<sup>1</sup>, J. Kamruzzaman<sup>3</sup>, R. Gaire<sup>2</sup>  
<sup>1</sup>Monash University, Australia, <sup>2</sup>Data61|CSIRO, Australia, <sup>3</sup>Federation University, Australia

**Securing a Power Management Chain for Smart Grids** ..... 1713  
Rim Aloulou<sup>1</sup>, Amel Meddeb-Makhlouf<sup>2</sup>, Bilel Gassara<sup>1</sup>, Ahmed Fakhfakh<sup>1</sup>  
<sup>1</sup>Digital Research Center of Sfax, Tunisia, <sup>2</sup>ENET'COM, Tunisia

**Secure Performance Analysis for Full-Duplex Cooperative NOMA System in the Presence of Multiple Eavesdroppers** ..... 1719  
Nesrine Zaghdoud<sup>1,2</sup>, Adel Ben Mnaouer<sup>2</sup>, Wided Hadj Alouane<sup>1</sup>, Hatem Boujemaa<sup>1</sup>, Farid Touati<sup>3</sup>  
<sup>1</sup>University of Carthage, Tunisia, <sup>2</sup>Canadian University Dubai, UAE, <sup>3</sup>Qatar University, Qatar

**Secrecy Performance Analysis of Multi-Antenna NOMA System with AF/DF relaying under External and Internal Eavesdropping Scenarios** ..... 1726  
Nesrine Zaghdoud<sup>1,2</sup>, Adel Ben Mnaouer<sup>2</sup>, Wided Hadj Alouane<sup>1</sup>, Hatem Boujemaa<sup>1</sup>, Farid Touati<sup>3</sup>  
<sup>1</sup>University of Carthage, Tunisia, <sup>2</sup>Canadian University Dubai, UAE, <sup>3</sup>Qatar University, Qatar

**Robust Statistics Evidence based Secure Cooperative Spectrum Sensing for Cognitive Radio Networks** ..... 1733  
Oluyomi Simpson, Yichuang Sun  
University of Hertfordshire, United Kingdom

**Physical Layer Anti-jamming Technique using Massive Planar Antenna Arrays** ..... 1740  
Mahdi Chehimi<sup>1</sup>, Elias Yaacoub<sup>2</sup>, Ali Chehab<sup>1</sup>, Mohammed Al-Husseini<sup>3</sup>  
<sup>1</sup>American University of Beirut, Lebanon, <sup>2</sup>Qatar University, Qatar, <sup>3</sup>Lebanese Center for Studies & Research, Lebanon

#### **ThA-5: Mobile Computing (MC Symposium)**

**Session Chair:** Bechir Hamdaoui (Oregon State University, USA)

**CAFT: Congestion-Aware Fault-Tolerant Load Balancing for Three-Tier Clos Data Centers** ..... 1746  
Sultan Alanazi, Bechir Hamdaoui  
Oregon State University, USA

**Bert: Scalable Source Routed Multicast for Cloud Data Centers** ..... 1752  
Jarallah Alqahtani, Bechir Hamdaoui  
Oregon State University, USA

**RSU-Empowered Resource Pooling for Task Scheduling in Vehicular Fog Computing** ..... 1758  
Chaogang Tang<sup>1</sup>, Chunsheng Zhu<sup>2,3</sup>, Xianglin Wei<sup>4</sup>, Wei Chen<sup>1</sup>, Joel J.P.C. Rodrigues<sup>5,6</sup>  
<sup>1</sup>China University of Mining and Technology, P.R. China, <sup>2</sup>Southern University of Science and Technology, P.R. China, <sup>3</sup>Peng Cheng Laboratory, P.R. China, <sup>4</sup>National University of Defense Technology, P.R. China, <sup>5</sup>Federal University of Piau , Brazil, <sup>6</sup>Instituto de Telecomunica es, Portugal

**Service Continuity for CCAM Platform in 5G-CARMEN** ..... 1764  
Hamid R. Barzegar, Van Thanh Le, Nabil El Ioini, Claus Pahl  
Free University of Bozen-Bolzano, Italy

**CE-D2D: Collaborative and Popularity-aware Proactive Chunks Caching in Edge Networks** ..... 1770  
Emna Baccour<sup>1</sup>, Aiman Erbad<sup>2</sup>, Amr Mohamed<sup>2</sup>, Mohsen Guizani<sup>2</sup>, Mounir Hamdi<sup>1</sup>  
<sup>1</sup>Hamad Bin Khalifa University, Qatar, <sup>2</sup>Qatar University, Qatar

**An Efficient LSI based Multi-keyword Ranked Search Algorithm on Encrypted Data in Cloud Environment** ..... 1777  
Debasis Das, Sumit Kalra  
Indian Institute of Technology Jodhpur, India

**ThA-6: Data Analysis and Intelligence (Big Data Symposium)**  
**Session Chair:** Khalid Elgazzar (University of Ontario Institute of Technology, Canada)

**A Neural Network-based Sentiment Analysis Scheme for Tang Poetry** ..... 1783  
Yongrui Tang<sup>1</sup>, Xumei Wang<sup>2</sup>, Peng Qi<sup>1</sup>, Yan Sun<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup>Wuhan Huaxia University of Technology, P.R. China

**A Game Battle Platform based on Web-API for Artificial Intelligence Education** ..... 1789  
Xiaofei Han, Junwei Zou, Wei Ren, Yan Sun  
Beijing University of Posts and Telecommunication, P.R. China

**A Novel Music Emotion Recognition Model for Scratch-generated Music** ..... 1794  
Zijing Gao<sup>1</sup>, Lichen Qiu<sup>2</sup>, Peng Qi<sup>1</sup>, Yan Sun<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup>Dongyuqiao Primary School, P.R. China

**Siamese-Based BiLSTM Network for Scratch Source Code Similarity Measuring** ..... 1800  
Lingxi Zhang<sup>1</sup>, Zhiyong Feng<sup>2</sup>, Wei Ren<sup>1</sup>, Hong Luo<sup>1</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup>Dongfang Middle School, P.R. China

**Optimizing Global Channel Matching for Multi-Hop Uplink NOMA-Assisted Cellular IoT with Cooperative Relay** ..... 1806  
Diya Ran<sup>1</sup>, Zhixiang Yang<sup>1</sup>, Lei Feng<sup>1</sup>, Wenjing Li<sup>1</sup>, Qinghai Ou<sup>2</sup>, Mohamed Cheriet<sup>3</sup>  
<sup>1</sup>Beijing University of Posts and Telecommunications, P.R. China, <sup>2</sup>Beijing Fibrlink Communications Co., Ltd., P.R. China, <sup>3</sup>University of Quebec, Canada

**ThA-7: Mob-Comp & Crowd Management (Crowd Management Symposium)**  
**Session Chairs:** Nizar Zorba (Qatar University, Qatar) and  
Hossam Hassanein (Queen's University, Canada)

**Location Privacy-preserving Mobile Crowd Sensing with Anonymous Reputation** ..... 1812  
Arthur Mille<sup>1</sup>, Lutful Karim<sup>2</sup>, Jalal Almhana<sup>1</sup>, Nargis Khan<sup>2</sup>  
<sup>1</sup>Moncton University, Canada, <sup>2</sup>Seneca College, Canada

**Multiview Topological Data Analysis for Crowdsourced Service Supply-demand Gap Prediction** ..... 1818  
Ahmed Ben Said, Abdelkarim Erradi  
Qatar University, Qatar

<b>FScaler: Automatic Resource Scaling of Containers in Fog Clusters using Reinforcement Learning</b> .....	1824
Hani Sami <sup>1</sup> , Azzam Mourad <sup>2</sup> , Hadi Otrok <sup>3</sup> , Jamal Bentahar <sup>1</sup>	
<sup>1</sup> Concordia University, Canada, <sup>2</sup> Lebanese American University, Lebanon, <sup>3</sup> Khalifa University, UAE	
<b>Context-Aware RPL-Based Mobile Crowd Sensing and Routing Protocol for Smart City Networks</b> .....	1830
Yahya Al Sawafi, Abderezak Touzene, Khaled Day, Nasser Alzeidi	
Sultan Qaboos University, Oman	
<b>A Blockchain based Framework for Secure Data Offloading in Tactile Internet Environment</b> .....	1836
Vikas Hassija <sup>1</sup> , Vinay Chamola <sup>2</sup> , Vatsal Gupta <sup>1</sup> , G.S.S. Chalapathi <sup>2</sup>	
<sup>1</sup> Jaypee Institute of Information Technology, India, <sup>2</sup> BITS-Pilani, India	
<b>Prioritized S-ALOHA for URLLC</b> .....	1842
Shubham Pandey <sup>1</sup> , Kartikey Shandilya <sup>2</sup> , Satyam Agarwal <sup>1</sup>	
<sup>1</sup> Indian Institute of Technology Ropar, India, <sup>2</sup> Jaypee Institute of Information Technology, India	

## Friday, June 19th, 2020

### FrM-1: Exciting Technologies in B5G Era (5G-EWNAT Workshop)

**Session Chair:** Richie Leo (ZTE Corporation, P.R. China)

<b>A Modified Off-grid SBL Channel Estimation and Transmission Strategy for RIS-Assisted Wireless Communication Systems</b> .....	1848
Mengnan Jian, Yajun Zhao	
ZTE Corporation, P.R. China	
<b>Contention based Massive Access Scheme for B5G: A Compressive Sensing Method</b> .....	1854
Yanna Bai <sup>1</sup> , Wei Chen <sup>1,2</sup> , Bo Ai <sup>1,2</sup> , Zhangdui Zhong <sup>1,2</sup>	
<sup>1</sup> Beijing Jiaotong University, P.R. China, <sup>2</sup> Beijing Engineering Research Center of High-speed Railway Broadband Mobile Communications, P.R. China	
<b>QoS Assurance in IAB Network</b> .....	1860
Lin Chen, Xueying Diao, Jie Chen, Ruiqi Liu	
ZTE Corporation, P.R. China	
<b>NLOS OAM-MIMO Transmission: Misaligned Channel Analysis and Pre-processing Scheme Design</b> .....	1866
Mengnan Jian	
ZTE Corporation, P.R. China	
<b>A New Lower Cost UL Split Option for Ultra-low Latency 5G Fronthaul</b> .....	1872
Hadjer Touati <sup>1</sup> , Hind Castel-Taleb <sup>1</sup> , Badii Jouaber <sup>1</sup> , Sara Akbarzadeh <sup>2</sup>	
<sup>1</sup> Institut Polytechnique de Paris, France, <sup>2</sup> Davidson Consulting, France	
<b>Joint User-Channel Assignment and Power Allocation for Non-Orthogonal Multiple Access in a 5G Heterogeneous Ultra-Dense Networks</b> .....	1879
Amel Khodmi <sup>1</sup> , Sonia Ben Rejeb <sup>1</sup> , Nazim Agoulmine <sup>2</sup> , Zied Choukair <sup>1</sup>	
<sup>1</sup> Higher School of Communication of Tunis, Tunisia, <sup>2</sup> University of Evry Val Essonne, France	

## FrM-2: Secure Health (Secure-eH-mH in IoT Workshop)

**Session Chair:** Khalid Abualsaud (Qatar University, Qatar)

### **A New Wearable ECG Monitor Evaluation and Experimental Analysis: Proof of Concept** ..... 1885

Khalid Abualsaud<sup>1</sup>, Muhammad E.H. Chowdhury<sup>1</sup>, Abdurrazzak Gehani<sup>2</sup>, Elias Yaacoub<sup>1</sup>, Tamer Khattab<sup>1</sup>,  
Jamal Hammad<sup>2</sup>

<sup>1</sup>Qatar University, Qatar, <sup>2</sup>Al-Ahli Hospital, Qatar

### **Medical IoT: A Comprehensive Survey of Different Encryption and Security Techniques** ..... 1891

Suleiman K. Kharroub, Khalid Abualsaud, Mohsen Guizani

Qatar University, Qatar

### **EEG-based Analysis Study for Patients Receiving Intravenous Antibiotic Medication** ..... 1897

Zina Chkirbene<sup>1</sup>, Abeer Z. Al-Marridi<sup>1</sup>, Alaa Awad Abdellatif<sup>1</sup>, Amr Mohamed<sup>1</sup>, Aiman Erbad<sup>1</sup>,  
Mark Dennis O'Connor<sup>2</sup>, James Laughton<sup>2</sup>, Anthony Villacorte<sup>2</sup>, Johansen Menez<sup>2</sup>

<sup>1</sup>Qatar University, Qatar, <sup>2</sup>Hamad Medical Corporation, Qatar

### **Smart Health Monitoring for Seizure Detection using Mobile Edge Computing** ..... 1903

Zien Sheikh Ali, Nandhini Subramanian, Aiman Erbad

Qatar University, Qatar

### **Wearable-sensors based Activity Recognition for Smart Human Healthcare using Internet of Things** ..... 1909

Ning Hu<sup>1</sup>, Shen Su<sup>1</sup>, Chang Tang<sup>2</sup>, Lulu Wang<sup>3</sup>

<sup>1</sup>Guangzhou University, P.R. China, <sup>2</sup>China University of Geosciences, P.R. China, <sup>3</sup>The Affiliated Huaian Hospital of Xuzhou  
Medical University, P.R. China

### **A Secure Three-factor Authentication and Biometrics-based Key Agreement Scheme for TMIS with User Anonymity** ..... 1916

Amal Sammoud<sup>1</sup>, Mohamed Aymen Chalouf<sup>2</sup>, Omessaad Hamdi<sup>3</sup>, Nicolas Montavont<sup>4</sup>, Ammar Bouallegue<sup>1</sup>

<sup>1</sup>SysCom, Tunisia, <sup>2</sup>University of Rennes 1, France, <sup>3</sup>IEEE Member, France, <sup>4</sup>IMT Atlantique, France

## FrM-3: Communications in Vehicular Networks (Vehicular Symposium)

**Session Chair:** Azzam Mourad (Lebanese American University, Lebanon)

### **Mitigating the Effects of Multipath Propagation in Vehicular Ad Hoc Networks** ..... 1922

Tulio A. Lima, Paulo V.G. Farias, Jacir L. Bordim

University of Brasília, Brazil

### **Multi-Tier Location-Based Joint Channel Assignment and Power Control Architecture for Mobile Ad-Hoc Networks** ..... 1928

Konstantinos N. Amouris

MOBITEK, USA

### **Impact of Interference on Visible Light Communication Performance in a Vehicular Platoon** ..... 1935

Rami Khoder<sup>1,2</sup>, Rola Naja<sup>1,2</sup>, Samir Tohme<sup>2</sup>

<sup>1</sup>Lebanese University, Lebanon, <sup>2</sup>University of Versailles

### **HARQ Feedback Optimization Techniques for Improved Reliability in Cellular Vehicle to Everything** ..... 1940

Renata G. Leibel, Efstathios Katranaras, Guillaume Vivier

Sequans Communications

**Simulation Environment of a Communication System using CDMA at 77 GHz** ..... 1946  
Maximilian Lübke, Jonas Fuchs, Victor Shatov, Anand Dubey, Robert Weigel, Fabian Lurz  
Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

**Interference Mitigation based on NOMA for Scheduling Algorithm in V2X Environments** ..... 1952  
Emna Bouhamed Rigane, Hend Marouane, Ala Trabelsi, Faouzi Zarai  
Sfax University, Tunisia

**Context-Aware Communication for V2V Collision Avoidance Applications** ..... 1958  
Ameni Chtourou, Pierre Merdrignac, Oyunchimeg Shagdar  
Vedecom, France

## **FrM-4: Big Data and AI-Driven IoT Applications (5G-IoT Symposium)**

**Session Chair:** Fanqin Zhou (Beijing University of Posts and Telecommunications, P.R. China)

**An Intelligent Dimming Algorithm of Streetlight based on Fuzzy Neural Network** ..... 1964  
Yunpeng Xue, Yan Zhang, Peng Shuxue  
Beihang University, P.R. China

**Method of Electronic Component Location, Grasping and Inserting based on Machine Vision** ..... 1968  
Bin Xue<sup>1</sup>, Chang Sun<sup>2</sup>, Huihui Chu<sup>1</sup>, Qingsen Meng<sup>1</sup>, Shuanben Jiao<sup>2</sup>  
<sup>1</sup>Qingdao Binhai University, P.R. China, <sup>2</sup>Qingdao Zhongzhuang Vision Automation System Control Co., Ltd., P.R. China

**Application of Improved BP Algorithm in Prediction of Axial Tension Performance and Crack Width Control Ability of UHPC** ..... 1972  
Xuxiang Tan, Huadong Sun, Feng Nan  
Shandong Jiaotong University, P.R. China

**An Image Recognition Algorithm of Soybean Diseases and Insect Pests based on Migration Learning and Deep Convolution Network** ..... 1977  
Mingyuan Xin, Yong Wang  
Heihe University, P.R. China

**PCB Defect Recognition and Elimination based on Secondary Error and Statistical Histogram** ..... 1981  
Rui Li<sup>1</sup>, Bin Xue<sup>1</sup>, Kun Zhao<sup>2</sup>, Huihui Chu<sup>1</sup>, Benshuang Jiao<sup>2</sup>  
<sup>1</sup>Binhai University, P.R. China, <sup>2</sup>Qingdao Zhongzhuang Vision Automation System Control Co., Ltd., P.R. China

**Intelligent Monitoring Platform for Urban Pollution in Liaoning Province based on Big Data** ..... 1985  
Weijia Zeng, Fang Qin, Xuming Lu, Nan Bai  
Dalian University of Science and Technology, P.R. China

## **FrM-5: Applications of IoT Technologies I (5G-IoT Symposium)**

**Session Chair:** Yan Zhang (Beihang University, P.R. China)

**User Behavioral Preference Analysis based on Location Information** ..... 1990  
Youmin Zhu<sup>1</sup>, Yanchun Tan<sup>1</sup>, Yunhui Zhu<sup>2</sup>  
<sup>1</sup>Guangdong Ocean University, P.R. China, <sup>2</sup>Guangzhou University, P.R. China

**A Parallel Acceleration Method in Panoramic Video Mosaic System based on 5G Internet of Things** ..... 1995  
Yan Zhang, Yunpeng Xue, Peng Shuxue  
Beihang University, P.R. China

<b>Research on Plant Diseases and Insect Pests Monitoring Technology under the Background of Internet of Things Technology</b> .....	1999
Linquan Fang Yunnan Innovation Institute · BUAA, P.R. China	
<b>Real-time Health Monitoring System based on Wearable Devices</b> .....	2002
Chuqing Liu, Guichen Chen, Xueguang Yuan, Yang'an Zhang, Zhenyu Xiao Beijing University of Posts and Telecommunications, P.R. China	
<b>IoT Health Monitoring Systems Overview for an Elderly Population</b> .....	2005
Khelil Guizani, Sghaier Guizani Alfaisal University, Saudi Arabia	
 <b>FrM-6: Quantum Communications (QC Workshop)</b>	
<b>Session Chair:</b>	Shahid Mumtaz (Instituto de Telecomunicações, Portugal)
<b>Quantum Homomorphic Encryption based on Quantum Obfuscation</b> .....	2010
Yuan-jing Zhang, Tao Shang, Jian-wei Liu, Wei Wu Beihang University, P.R. China	
<b>Routing and Key Resource Allocation in SDN-based Quantum Satellite Networks</b> .....	2016
Yan Wang, Yongli Zhao, Wenzheng Chen, Kai Dong, Xiaosong Yu, Jie Zhang Beijing University of Posts and Telecommunications, P.R. China	
<b>Residual-adaptive Key Provisioning in Quantum-Key-Distribution Enhanced Internet of Things (QIoT)</b> .....	2022
Xiangyu Meng, Xiaosong Yu, Wenzheng Chen, Yongli Zhao, Jie Zhang Beijing University of Posts and Telecommunications, P.R. China	
<b>Measurement-Device-Independent QKD based on Orbital Angular Momentum with Dual Detectors</b> .....	2028
Hai-zheng Sun, Tao Shang, Jian-wei Liu Beihang University, P.R. China	
<b>Performance of Lattice Reduction Aided Equalization for MIMO and Phased Array FBMC System</b> .....	2033
Jihed Ghodhbane <sup>1</sup> , Noureddine Boujnah <sup>2</sup> , Ridha Bouallegue <sup>1</sup> <sup>1</sup> INNOV'COM Research Lab, Tunisia, <sup>2</sup> Waterford Institute of Technology, Ireland	
 <b>FrM-7: Applications (Big Data Symposium)</b>	
<b>Session Chair:</b>	Chadi Abou Rjeily (Lebanese American University, Lebanon)
<b>AutoTrain: An Efficient Auto-training System for Small-scale Image Classification</b> .....	2039
Shaoyao Yi, Junwei Zou, Wei Ren, Hong Luo Beijing University of Posts and Telecommunication, P.R. China	
<b>An Automatic Analysis Tool based on Computational Thinking for BlockPy Programs</b> .....	2045
Can Xu <sup>1</sup> , Zhiyong Feng <sup>2</sup> , Peng Qi <sup>1</sup> , Yan Sun <sup>1</sup> <sup>1</sup> Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup> Dongfang Middle School, P.R. China	
<b>A Novel Text Features Jointing Model for Review Spam Filtering of Chinese</b> .....	2051
Faxin Zhang <sup>1</sup> , Lichen Qiu <sup>2</sup> , Peng Qi <sup>1</sup> , Hong Luo <sup>1</sup> <sup>1</sup> Beijing University of Posts and Telecommunication, P.R. China, <sup>2</sup> Dongyuqiao Primary School, P.R. China	

**Joint Extraction of Symptoms and Details in Chinese Medical Records using the Overlapping Mechanism** ..... 2057  
Qian Hu<sup>1</sup>, Wan Dong<sup>1</sup>, Ning Liu<sup>2</sup>, Jing Wang<sup>1</sup>, Yanan Shen<sup>1</sup>, Zhichao Wu<sup>1</sup>  
<sup>1</sup>AI Doctor Smart Healthcare Technology Ltd., P.R. China, <sup>2</sup>Chinese Academy of Sciences, P.R. China

## **FrA-1: Applications of IoT Technologies II (5G-IoT Symposium)**

**Session Chair:** Lei Feng (Beijing University of Posts and Telecommunications, P.R. China)

**Inheritance and Promotion of Sports Health Culture based on Campus Informatization** ..... 2063  
Dongsheng Wang  
Henan College of Industry & Information Technology, P.R. China

**Application Research of Computer-based Corpus of TCM in Vocational Colleges English Teaching** ..... 2067  
Jing Yu<sup>1</sup>, Lulu Zhong<sup>2</sup>, Min Zhong<sup>1</sup>, Yawei Yu<sup>1</sup>  
<sup>1</sup>Jiangxi University of Traditional Chinese Medicine, P.R. China, <sup>2</sup>Kunming University of Science and Technology, P.R. China

**Exploration of Computer-based English writing Teaching Mode in Higher Vocational Colleges from the Perspective of "Production-oriented Approach"** ..... 2071  
Jing Yu<sup>1</sup>, Wanli Feng<sup>2</sup>, Tengda Li<sup>1</sup>, Yawei Yu<sup>1</sup>  
<sup>1</sup>Jiangxi University of Traditional Chinese Medicine, P.R. China, <sup>2</sup>University of Electronic Science and Technology of China, P.R. China

**Research and Practice of Microcomputer Principle and Interface Technology Course in College Teaching** ..... 2075  
Yufang Zhu  
Guangdong University of Foreign Studies, P.R. China

**Chain Drugstore Management System based on Internet** ..... 2079  
Yufang Zhu  
Guangdong University of Foreign Studies, P.R. China

**Revised IPA Method for Citizen Satisfaction of Smart City Development** ..... 2083  
Jih-Kuang Chen  
Zhaoqing University, P.R. China

## **FrA-2: Next Generation Networking (NGSN Symposium)**

**Session Chair:** Sameh Sorour (Queen's University, Canada)

**A Collaborative Multi-Metric Interface Ranking Scheme for Named Data Networks** ..... 2088  
Boubakr Nour<sup>1</sup>, Hakima Khelifi<sup>1</sup>, Rasheed Hussain<sup>2</sup>, Hassine Moun gla<sup>3,4</sup>, Safdar H. Bouk<sup>5</sup>  
<sup>1</sup>Beijing Institute of Technology, P.R. China, <sup>2</sup>Innopolis University, Russia, <sup>3</sup>University of Paris Descartes, France, <sup>4</sup>Nano-Innov CEA Saclay, France, <sup>5</sup>Daegu Gyeongbuk Institute of Science and Technology, Korea

**A Label-based Producer Mobility Support in 5G-enabled ICN Networks** ..... 2094  
Oussama Serhane<sup>1</sup>, Khadidja Yahyaoui<sup>1</sup>, Boubakr Nour<sup>2</sup>, Hassine Moun gla<sup>3,4</sup>  
<sup>1</sup>Université Mustapha Stambouli, Algeria, <sup>2</sup>Beijing Institute of Technology, P.R. China, <sup>3</sup>Université de Paris, France, <sup>4</sup>Institut Polytechnique de Paris, France

**Hybrid Decision based Deep Reinforcement Learning for Energy Harvesting Enabled Mobile Edge Computing** ..... 2100  
Jing Zhang, Jun Du, Jian Wang, Yuan Shen  
Tsinghua University, P.R. China

**Traffic Behavior in Cloud Data Centers: A Survey** ..... 2106  
Jarallah Alqahtani, Sultan Alanazi, Bechir Hamdaoui  
Oregon State University, USA

**Federated Learning for RSS Fingerprint-based Localization: A Privacy-Preserving Crowdsourcing Method** ..... 2112  
Bekir Sait Ciftler, Abdullatif Albaseer, Nouredine Lasla, Mohamed Abdallah  
Hamad Bin Khalifa University, Qatar

**Adaptive Reinforcement Routing in Software Defined Vehicular Networks** ..... 2118  
Ankur Nahar, Debasis Das  
Indian Institute of Technology Jodhpur, India

**FrA-3: Vehicular & Traffic (General Symposium)**  
**Session Chair:** Nidal Nasser (Alfaisal University, Saudi Arabia)

**Electric Load Forecasting using EEMD and Machine Learning Techniques** ..... 2124  
Aqdas Naz<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Adia Khalid<sup>1</sup>, Muhammad Shoaib<sup>2</sup>, Muhammad Imran<sup>2</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>King Saud University, Saudi Arabia

**TFPMS: Transactions Filtering Pattern Matching Scheme for Vehicular Networks based on Blockchain** ..... 2128  
Muhammad Zohaib Iftikhar<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Sakeena Javaid<sup>1</sup>, Muhammad Imran<sup>2</sup>, Nidal Nasser<sup>3</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>King Saud University, Saudi Arabia,<sup>3</sup>Alfaisal University, Saudi Arabia

**An Incentive Scheme for VANETs based on Traffic Event Validation using Blockchain** ..... 2133  
Muhammad Sohaib Iftikhar<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Omaji Samuel<sup>1</sup>, Muhammad Shoaib<sup>2</sup>, Muhammad Imran<sup>2</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>King Saud University, Saudi Arabia

**Electricity Theft Detection using Pipeline in Machine Learning** ..... 2138  
Mubbashra Anwar<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Adia Khalid<sup>1</sup>, Muhammad Imran<sup>2</sup>, Muhammad Shoaib<sup>2</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>King Saud University, Saudi Arabia

**Efficient Data Trading and Storage in Internet of Vehicles using Consortium Blockchain** ..... 2143  
Ayesha Sadiq<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Omaji Samuel<sup>1</sup>, Adia Khalid<sup>1</sup>, Noman Haider<sup>2</sup>, Muhammad Imran<sup>3</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>University of Technology Sydney, Australia,  
<sup>3</sup>King Saud University, Saudi Arabia

**Conditional Anonymity enabled Blockchain-based Ad Dissemination in Vehicular Ad-hoc Network** ..... 2149  
Muhammad Umar Javed<sup>1</sup>, Abid Jamal<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Noman Haider<sup>2</sup>, Muhammad Imran<sup>3</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>University of Technology Sydney, Australia,  
<sup>3</sup>King Saud University, Saudi Arabia

**FrA-4: Energy Efficient Networking for IoT (E2N-IoT Workshop)**  
**Session Chair:** Adel Ben Mnaouer (Canadian University Dubai, UAE)

**Study of Nature Inspired Power-aware Wake-Up Scheduling Mechanisms in WSN** ..... 2154  
Lamia Fourati<sup>1</sup>, Sarrah El-Kaffel<sup>1</sup>, Adel Ben Mnaouer<sup>2</sup>, Farid Touati<sup>3</sup>  
<sup>1</sup>Sfax University, Tunisia,<sup>2</sup>Canadian University Dubai, UAE,<sup>3</sup>Qatar University, Qatar



<b>Secrecy Performance Analysis of Cooperative NOMA System with Multiple DF Relays</b> .....	2160
Nesrine Zaghoud <sup>1,2</sup> , Adel Ben Mnaouer <sup>2</sup> , Hatem Boujemaa <sup>1</sup> , Farid Touati <sup>3</sup>	
<sup>1</sup> University of Carthage, Tunisia, <sup>2</sup> Canadian University Dubai, UAE, <sup>3</sup> Qatar University, Qatar	
<b>An Autonomous Multi-Variable Outdoor Air Quality Mapping Wireless Sensors IoT Node for Qatar</b> .....	2164
Hasan Tariq <sup>1</sup> , Abderrazak Abdaoui <sup>1</sup> , Farid Touati <sup>1</sup> , Mohammed Abdulla E. Al-Hitmi <sup>1</sup> , Damiano Crescini <sup>2</sup> , Adel Ben Mnaouer <sup>3</sup>	
<sup>1</sup> Qatar University, Qatar, <sup>2</sup> Brescia University, Italy, <sup>3</sup> Canadian University Dubai, UAE	
<b>Energy Efficient Real time Outdoor Air Quality Monitoring System</b> .....	2170
Abderrazak Abdaoui <sup>1</sup> , Sabbir H.M. Ahmad <sup>1</sup> , Hasan Tariq <sup>1</sup> , Farid Touati <sup>1</sup> , Adel Ben Mnaouer <sup>2</sup> , Mohammed Al-Hitmi <sup>1</sup>	
<sup>1</sup> Qatar University, Qatar, <sup>2</sup> Canadian University of Dubai, UAE	
<b>Real Time Application of Malware Patching on Decentralized IoT Systems through Disease Spread Analysis</b> .....	2177
Nadra Guizani <sup>1</sup> , Arif Ghafoor <sup>2</sup>	
<sup>1</sup> Washington State University, USA, <sup>2</sup> Purdue University, USA	
<b>FrA-5: Applications of IoT Technologies III (5G-IoT Symposium)</b>	
<b>Session Chair:</b>	Tao Hong (Beihang University, P.R. China)
<b>Application of Exercise Intervention Project in Mass Fitness under the Background of Information Age</b> .....	2182
Dongsheng Wang	
Henan College of Industry & Information Technology, P.R. China	
<b>Design and Implementation of Early Warning System based on Dairy Cattle Activity Detection</b> .....	2186
Zuliang Wang <sup>1</sup> , Yaqiang Liu <sup>2</sup>	
<sup>1</sup> Xijing University, P.R. China, <sup>2</sup> Beijing Andawell Science & Technology Co., Ltd., P.R. China	
<b>Design and Implementation of Kiwifruit Seedling Tracing System based on QR Code and Electronic Label</b> .....	2190
Zuliang Wang, Chuangle Cao, Hongtao Yu	
Xijing University, P.R. China	
<b>Design and Implementation of Kiwi Fruit Cold Storage Management System based on RFID</b> .....	2194
Ting Zhang <sup>1</sup> , Chuangle Cao <sup>1</sup> , Yaqiang Liu <sup>2</sup> , Hongtao Yu <sup>1</sup>	
<sup>1</sup> Xijing University, P.R. China, <sup>2</sup> Beijing Andawell Science & Technology Co., Ltd., P.R. China	
<b>Design and Implementation of Dairy Food Tracking System based on RFID</b> .....	2199
Ting Zhang <sup>1</sup> , Chuangle Cao <sup>1</sup> , Hongtao Yu <sup>1</sup> , Yaqiang Liu <sup>2</sup>	
<sup>1</sup> Xijing University, P.R. China, <sup>2</sup> Beijing Andawell Science & Technology Co., Ltd., P.R. China	
<b>Robust Text-independent Speaker recognition with Short Utterances using Gaussian Mixture Models</b> .....	2204
Rania Chakroun <sup>1,3</sup> , Mondher Frikha <sup>1,2</sup>	
<sup>1</sup> Advanced Technologies for Image and Signal Processing, Tunisia, <sup>2</sup> National School of Electronics and Telecommunications of Sfax, Tunisia, <sup>3</sup> National School of Engineering of Sfax, Tunisia	

## FrA-6: IoT Security & Trust (General Symposium)

**Session Chair:** Chadi Abou Rjeily (Lebanese American University, Lebanon)

- Blockchain based Decentralized Trust Management Framework** ..... 2210  
Omar Ait Oualhaj, Amr Mohamed, Mohsen Guizani, Aiman Erbad  
Qatar University, Qatar
- Towards Trust-Aware IoT Hashing Offloading in Mobile Edge Computing** ..... 2216  
Rania Islambouli, Zahraa Sweidan, Azzam Mourad, Chadi Abou-Rjeily  
Lebanese American University, Lebanon
- A Novel Cooperative Link Selection Mechanism for Enhancing the Robustness in Scale-free IoT Networks** ..... 2222  
Muhammad Awais Khan<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Sakeena Javaid<sup>1</sup>, Adia Khalid<sup>1</sup>, Nidal Nasser<sup>2</sup>, Muhammad Imran<sup>3</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>Alfaisal University, Saudi Arabia,<sup>3</sup>King Saud University, Saudi Arabia
- Biometric-Based Blockchain EHR System (BBEHR)** ..... 2228  
Mohammed Al Baqari, Ezedin Barka  
United Arab Emirates University, UAE
- Secure Energy Trading for Electric Vehicles using Consortium Blockchain and k-Nearest Neighbor** ..... 2235  
Tehreem Ashfaq<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Muhammad Umar Javed<sup>1</sup>, Muhammad Imran<sup>3</sup>, Noman Haider<sup>2</sup>, Nidal Nasser<sup>4</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>King Saud University, Saudi Arabia,<sup>3</sup>University of Technology Sydney, Australia,<sup>4</sup>Alfaisal University, Saudi Arabia
- Robustness Optimization of Scale-Free IoT Networks** ..... 2240  
Muhammad Usman<sup>1</sup>, Nadeem Javaid<sup>1</sup>, Adia Khalid<sup>1</sup>, Nidal Nasser<sup>2</sup>, Muhammad Imran<sup>3</sup>  
<sup>1</sup>COMSATS Institute of Information Technology, Pakistan,<sup>2</sup>Alfaisal University, Saudi Arabia,<sup>3</sup>King Saud University, Saudi Arabia