

July 4(Tue.) ~ July 7(Fri.), 2017  
Milan, Italy

## The Ninth International Conference on Ubiquitous and Future Networks

<http://www.icufn.org>

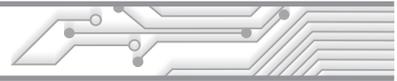
### Final Program



### ICUFN 2017 Patrons

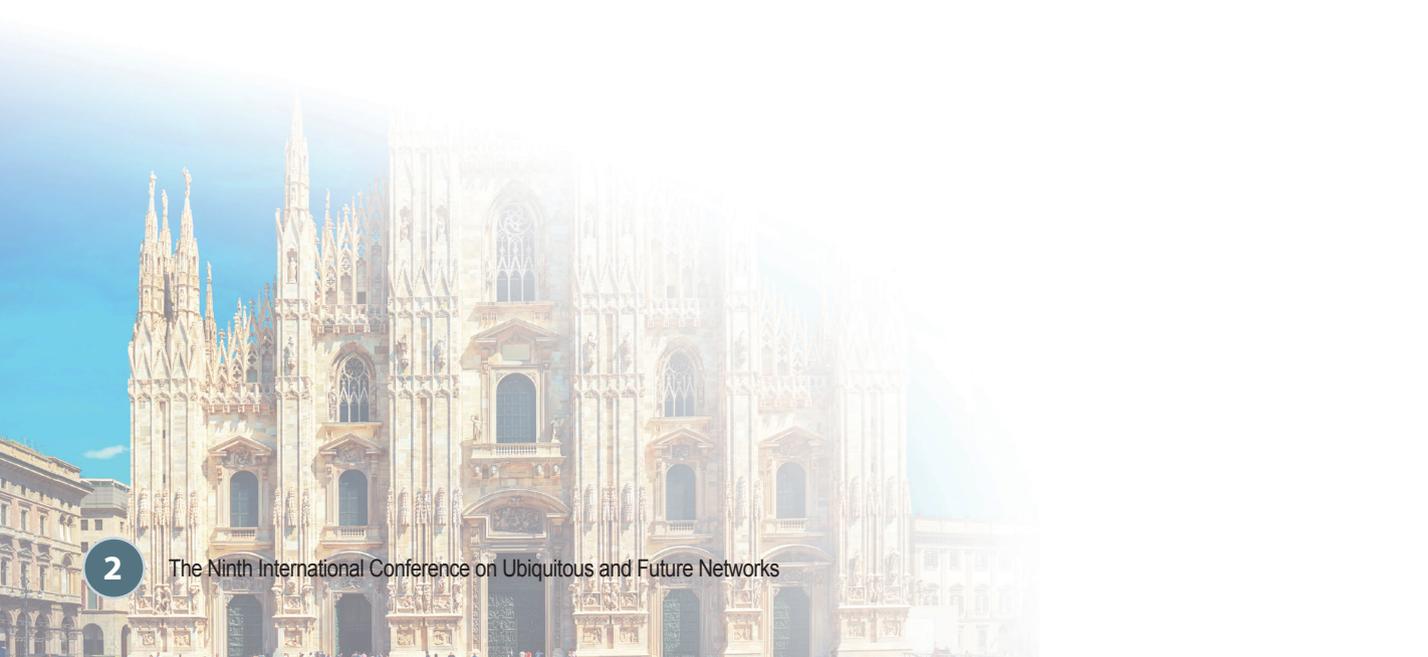


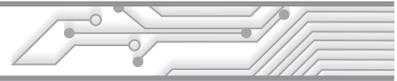
UWB Wireless Communication Research Center (Inha University), Next Generation RFID/USN Reserch Center (Yonsei University), LED Convergence Research Center (Kookmin University), Center for ICT & Automotive Convergence (Kyungpook National University), Multi Screen Service Forum, Society Safety System Forum



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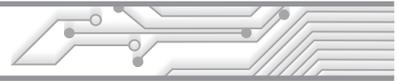
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### Message from Organizing Chairs

On behalf of the organizing committees, we would like to take this opportunity to express our excitement at hosting ICUFN2017, organized by the Korean Institute of Communications and Information Sciences (KICS) and technically co-sponsored by IEEE Communications Society (ComSoC) and IEICE-CS, in Milan, Italy on July 2017. This is the second time the European Union hosts ICUFN since 2009. With nearly 10 years of history, the ICUFN conference has served as the premier international forum to provide a great opportunity for the exchange of the state-of-the-art research advances in ubiquitous technologies and to expand the research community.

We would like to welcome you to Milan. Milan is a city in Italy, capital of the Lombardy region, and the largest metropolitan area in Italy. The population of the Metropolitan City of Milan is 3,209,000. Milan is the second richest city in the European Union, after Paris. It is Italy's main industrial and financial centre and one of the most significant globally. Milan is an Alpha leading global city, with strengths in the arts, commerce, design, education, entertainment, fashion, finance,

healthcare, media, services, research, and tourism. The city is a major world fashion and design capital, well known for several international events and fairs, including Milan Fashion Week and the Milan Furniture Fair. Milan's museums, theatres and landmarks (including the Duomo, Cathedral of Milan, the Castle (Castello Sforzesco), the Pinacoteca di Brera (Art Museum) and Leonardo da Vinci paintings such as The Last Supper, a UNESCO world heritage site) attract over 9 million visitors annually. Because of its location and easy public transport services, Milan can be used as a base to see the rest of the North and Central Italy, notably the lake district. Lakes Como, Maggiore, Lugano and Garda are all easy day trips from Milan. By using the high-speed train you can reach in short time the beautiful cities of Venice, Rome, Florence, and Perugia.

ICUFN is a truly international annual conference! Our TPC team consists of members from many countries around the world. Thanks to the great efforts of the technical program committee chairs, professors Hwangnam Kim, Xin WANG, Suguru Kameda, and Kun Yang, ICUFN 2017 is packed with an excellent mix of technical sessions. On behalf of the ICUFN steering committee and on behalf of all attendees, we thank the workshops chairs, professors Joel Rodrigues, Ki-Hyung Kim, and Yonghoon Choi, all members of ICUFN 2017, and workshop organizing committees for producing such an excellent program. We do hope you will take this unique opportunity to attend the workshop sessions and technical sessions, meet the authors, and foster greater collaboration ties with other researchers. In addition, if you have extra time, please do not miss the chance to tour around Milan. The Organizing Committee has been working diligently to make this conference a great success and most enjoyable. We have prepared an exciting program for you.

We look forward to seeing you in Milan in 2017! We also look forward to your active participation and support in the future.



**Yeong Min Jang**

Kookmin Univ., Korea



**Gianluca Reali**

Univ. of Perugia, Italy



**C. K. Toh**

National Tsing Hua Univ., Taiwan



**Zary Segall**

KTH, Sweden



**Takeo Fujii**

Univ. of Electro-Comms, Japan



### Message from TPC Chairs

We are delighted to welcome you all to Milan, Italy, from July 4 to 7, 2017, at the ninth International Conference on Ubiquitous and Future Networks (ICUFN). ICUFN has addressed all aspects of computing, networking, communications and their convergence since 2009. This ICUFN 2017 will be also a successful conference covering a wide range of topics on ubiquitous and future network technologies.

This year we have received 536 paper submissions electronically from 40 countries in the world. Many of the papers were submitted from the Asia/Pacific region, and also the increasing number of submissions was made from Europe, USA and Latin America. A rigorous review process has followed in which all papers received three or more independent reviews. After the reviews, we have selected 228 technical papers for presentation at the conference with the acceptance ratio of about 43%. The accepted technical papers were organized into 44 technical sessions. In particular, authors from a particular country, such as Korea, account for less than 47% of oral presentations.

The program is designed to provide a broad range of wireless and wired communications network technologies, including cognitive radios, wireless sensor networks, Internet of Things (IoT), broadband wireless communications, future network issues, mobile multimedia networking, and other important technologies. Along with the contributions of prominent authors from around the world, we believe that this year's valuable and exciting program were made possible by the dedication of technical program members. We are indebted to all of the TPC members for their active participation and precious time. We also would like to thank our sponsors, KICS and IEEE Communications Society, for their kind support of this successful event. We extend our sincere thanks to the Organizing Committee Chairs, Prof. Yeong Min Jang, Prof. Gianluca Reali, Prof. C. K. Toh, Prof. Zary Segall, and Prof. Takeo Fujii, for their continued support and guidance. We hope that all of you will enjoy the splendid program of ICUFN 2017 as well as the beautiful scenery and charm of Milan.

Sincerely



**Hwangnam Kim**  
Korea Univ., Korea



**Xin WANG**  
Fudan Univ., China



**Suguru Kameda**  
Tohoku Univ., Japan



**Kun Yang**  
Univ. of Essex, UK



## ICUFN 2017 Program at a Glance

Room	Giada	Turchese	Quarzo	Cristallo
<b>July 4, 2017 (Tuesday)</b>				
09:40 ~ 18:00	Registration			
10:20 ~ 11:40	1A Special Session (3)	1B DroneCAN I (4)	1C Localization I (3)	1D Internet of Things I (5)
11:40 ~ 12:50	Lunch Break			
12:50 ~ 14:30	2A Future Internet (5)	2B DroneCAN II (5)	2C Optical Wireless LED (5)	2D RFID & QR code (5)
14:30 ~ 14:40	Session Break			
14:40 ~ 16:00	3A Wireless Sensor Network I (4)	3B Intelligent Vehicles I (4)	3C Network (4)	3D Machine Learning (4)
16:00 ~ 16:15	Coffee Break			
16:15 ~ 18:00	4A Wireless Sensor Network II (5)	4B Intelligent Vehicles II (5)	4C 5G/4G & WPAN I (5)	4D Trusted Applications (5)
Room	Giada	Turchese	Quarzo	Madreperla
<b>July 5, 2017 (Wednesday)</b>				
09:40 ~ 11:00	5A Wireless Communication Network I (5)	5B 5G/4G & WPAN II (5)	5C E-health (4)	5D Ubiquitous Computing (4)
11:00 ~ 11:10	Session Break			
11:10 ~ 11:30	Opening:	Professor Yeong Min Jang (OC Chairs, Kookmin University, Korea)		
	Welcome address:	Professor Youze Cho (President of KICS, Kyungpook National University, Korea)		
		Professor Pascal LORENZ (Honorary Conference Chairs, University of Haute Alsace, France)		
11:30 ~ 12:30	Keynote Speech I: Realization of Human Bond Communication using CONASENSE Prof. Ramjee Prasad (Aarhus University, Denmark)  Keynote Speech II: Industry 4.0: How is Data Quality Important? Professor Ilyoung Chong (HUFS, Korea)			
12:30 ~ 13:40	Lunch Break			
13:40 ~ 15:10	6A Wireless Communication Network II (4)	6B 5G/4G & WPAN III (3)	6C Localization II (3)	6D QoE/QoS (4)
15:10 ~ 15:20	Session Break			
15:20 ~ 16:20	7A Poster (7)	7B Poster (6)	7C Poster (7)	7D Poster (7)
16:20 ~ 16:40	Coffee Break			
16:40 ~ 17:50	8A Wireless Communication Network III (3)	8B 5G/4G & WPAN IV (3)	8C SDN I (3)	8D Optical Wireless (3)
18:30 ~ 20:00	Welcome Reception			



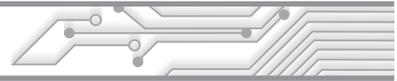
## ICUFN 2017 Program at a Glance

Room	Giada	Turchese	Quarzo	Cristallo
<b>July 6, 2017 (Thursday)</b>				
09:40 ~ 10:50	9A Wireless Communication Network IV (3)	9B 5G/4G & WPAN V (4)	9C SDN II (3)	9D Machine Learning (2)
10:50 ~ 11:00	Session Break			
11:00 ~ 12:00	10A Poster (6)	10B Poster (7)	10C Poster (6)	10D Poster (7)
12:00 ~ 13:30	Lunch Break			
13:30 ~ 15:30	11A Wireless Communication Network V (4)	11B Big Data & Machine Learning (5)	11C Security I (5)	11D Internet of Things II (5)
15:30 ~ 15:50	Coffee Break			
15:50 ~ 17:50	12A Ad-hoc Network (5)	12B Cognitive Radio (6)	12C Security II (4)	12D Internet of Things III (5)
18:30 ~ 20:30	Banquet			

Room	Giada	Turchese	Quarzo	Cristallo
<b>July 7, 2017 (Friday)</b>				
09:20 ~ 11:10	13A Mobile Network (4)	13B Network Management (5)		

\* The number in parenthesis indicates the number of papers per session





## Technical Sessions

**July 4, 2017 (Tuesday)**

[10:20 ~ 11:40]

### 1A: Special Session

Chair: Su Min Kim (Korea Polytechnic University, Korea)

#### 1A-1: Clustering of User Activities Based on Spiking Neural Networks

Hesham Amin (Umm Al-Qura University, Saudi Arabia & Aswan University, Egypt), Wael Deabes (Umm Al-Qura University, Saudi Arabia & Mansoura University, Egypt), Kheireddine Bouazza (Umm Al-Qura University, Saudi Arabia)

#### 1A-2: An Evaluation of Quality Metrics for 360 Videos

Huyen Tran (The University of Aizu, Japan), Nam Pham Ngoc, Cuong Manh Bui and Minh Hong Pham (Hanoi University of Science and Technology, Vietnam), Truong Cong Thang (The University of Aizu, Japan)

#### 1A-3: Virtual Full-Duplex Relay Selection in Relay-Assisted Cognitive Radio Networks

Su Min Kim and Junsu Kim (Korea Polytechnic University, Korea)

[10:20 ~ 11:40]

### 1B: DroneCAN I

Chair: Hwangnam Kim (Korea University, Korea)

#### 1B-1: D-MUNS: Distributed Multiple UAVs' Network Simulator

Woong Gyu La, Seongjoon Park and Hwangnam Kim (Korea University, Korea)

#### 1B-2: Enabling Drone as a Service: oneM2M-based UAV/Drone Management System

Sung-Chan Choi, Nak-Myoung Sung, Jong-Hong Park, Il-Yeop Ahn and Jaeho Kim (Korea Electronics Technology Institute (KETI), Korea)

#### 1B-3: Analysis of Dynamic Cluster Head Selection for Mission-Oriented Flying Ad Hoc Network

Jong-Hong Park, Sung-Chan Choi, Hassen Redwan and Jaeho Kim (Korea Electronics Technology Institute (KETI), Korea)

#### 1B-4: Secrecy Outage Probability of UAV-Aided Selective Relaying Networks

Hongwu Liu and Kyung Sup Kwak (Inha University, Korea)

[10:20 ~ 11:40]

### 1C: Localization I

Chair: Eisuke Kudoh (Tohoku Institute of Technology, Japan)

#### 1C-1: Design of Life-Context for User-centric Service in Mobile Environments

Byeongkwan Kang, Myeong-in Choi, Seung Hwan Kim, Seonki Jeon, Sanghoon Lee and Sehyun Park (Chung-Ang University, Korea)

#### 1C-2: Indoor Localization Using Magnetic Field Anomalies and Inertial Measurement Units Based on Monte Carlo Localization

Haftu Wedajo Fentaw and Tae-Hyong Kim (Kumoh National Institute of Technology, Korea)

#### 1C-3: Optimized Access Point Selection with Mobility Prediction Using Hidden Markov Model for Wireless Network

Khong-Lim Yap and Yung-Wey Chong (Universiti Sains Malaysia, Malaysia)

[10:20 ~ 11:40]

### 1D: Internet of Things I

Chair: Jianlin Guo (Mitsubishi Electronic Research Laboratories, USA)

#### 1D-1: A Smart Remote Elderly Monitoring System Based on IoT Technologies

V. Mighali, L. Patrono, and M. L. Stefanizzi (University of Salento, Italy), Joel J. P. C. Rodrigues (National Institute of Telecommunications (Inatel), University of Fortaleza (Unifor), Brazil), Petar Solic (University of Split, Croatia)

#### 1D-2: Exploiting Interoperable Microservices in Web Objects Enabled Internet of Things

Muhammad Aslam Jarwar, Sajjad Ali, Muhammad Golam Kibria, Sunil Kumar and Il Young Chong (Hankuk University of Foreign Studies, Korea)

#### 1D-3: Web Objects Based Energy Efficiency for Smart Home IoT Service Provisioning

Muhammad Golam Kibria, Muhammad Aslam Jarwar, Sajjad Ali, Sunil Kumar and Il Young Chong (Hankuk University of Foreign Studies, Korea)

#### 1D-4: A Robust and Lightweight Name Resolution Approach for IoT Data in ICN

Lijun Dong and Guoqiang Wang (Futurewei Technologies Inc., USA)

#### 1D-5: Lightweight Things-Server Interaction Using Acoustic Signal Distortion Detection in IoT

Seongseop Kim, Kiho Choi, Jeonghun Cho and Daejin Park (Kyungpook National University, Korea)

[12:50 ~ 14:30]

### 2A: Future Internet

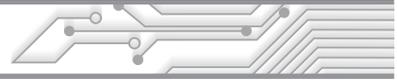
Chair: Su Min Kim (Korea Polytechnic University, Korea)

#### 2A-1: Implementation and Performance Evaluation of Keyword-Based Content Retrieval

Toshihiko Kurita and Junichi Suga (Fujitsu Laboratories LTD., Japan), Akira Ito (Fujitsu Laboratories of America, USA)

#### 2A-2: BlockNDN: A Bitcoin Blockchain Decentralized System over Named Data Networking

Tong Jin, Xiang Zhang, Yirui Liu and Kai Lei (Peking University, China)



## Technical Sessions

### 2A-3: ROI-Based Forwarding Strategy for Named Data Delay Tolerant Networking

*Li Wang, Ru Li and Bo Cui (Inner Mongolia University, China)*

### 2A-4: multiFIA - Multi-dimensional Future Internet Architecture

*Seung-Joon Seok (Kyungnam University, Korea), Muhammad Afaq (Jeju National University, Korea), Kyungbaek Kim and Deokjai Choi (Chonnam National University, Korea), Youn-Hee Han (Korea University of Technology and Education, Korea), Woojin Seok (Korea Institute of Science and Technology Information, Korea), Wang-Cheol Song (Jeju National University, Korea)*

### 2A-5: IProIoT: an In-network Processing Framework for IoT Using Information Centric Networking

*Qian Wang, Brian Lee, Niall Murray and Yuansong Qiao (Athlone Institute of Technology, Ireland)*

[12:50 ~ 14:30]

### 2B: DroneCAN II

*Chair: Hwangnam Kim (Korea University, Korea)*

#### 2B-1: Invariant Kalman Filter Application to Optical Flow Based Visual Odometry for UAVs

*James Goppert, Scott Yantek and Inseok Hwang (Purdue University, USA)*

#### 2B-2: Conceptual Multicopter Sizing and Performance Analysis via Component Database

*Minwoo Kim, Heejin Joo and Byungwook Jang (Korea Aerospace Research Institute, Korea)*

#### 2B-3: Design of Surveillance Drone with X-ray Camera

*IR Camera and Metal Detector, Muhammad Hamza, Amir Jehangir and Talha Ahmad (NUST Islamabad, Pakistan), Ahmed Sohail and Mohammad Naeem (Frequency Allocation Board, Pakistan)*

#### 2B-4: Air-Ground Channel Model Selection Method for UAS Communications Using Digital Elevation Data

*Young-Ho Jung, Youngeun Kang and Kibeom Son (Korea Aerospace University, Korea), Hee Wook Kim and Kwangjae Lim (Electronics and Telecommunications Research Institute, Korea)*

#### 2B-5: Voice Enabled Smart Drone Control

*Abdur Razzaq Fayjie, Doukhi Oualid, Amir Ramezani and Deok-Jin Lee (Kunsan National University, Korea)*

[12:50 ~ 14:30]

### 2C: Optical Wireless LED

*Chair: Yeong Min Jang (Kookmin University, Korea)*

#### 2C-1: Introduction of Optical Camera Communication for Internet of Vehicles (IoV)

*Amirul Islam, Md. Tanvir Hossan and Yeong Min Jang (Kookmin University, Korea)*

#### 2C-2: Simplified Photogrammetry Using Optical Camera Communication for Indoor Positioning

*Md. Tanvir Hossan, Mostafa Zaman Chowdhury, Amirul Islam and Yeong Min Jang (Kookmin University, Korea)*

#### 2C-3: A Power Analysis Model for outdoor long-distance visible light communication

*Quanrun Chen (Shanghai institute of technical physics of Chinese Academy of Sciences & University of Chinese Academy of Sciences, China), Weibo Zheng, Tao Zhang, Wennan Cui and Zhao Cui (Shanghai institute of technical physics of Chinese Academy of Sciences, China)*

#### 2C-4: Improvement of Data Rate in Image Sensor Communications Using Dual Cameras

*Duy Thong Nguyen, Ki-Doo Kim and Youngil Park (Kookmin University, Korea)*

#### 2C-5: Design Considerations of Ultra Dense 5G Network in Millimetre Wave Band

*Naser Al-Falahy (University of Salford, United Kingdom, University of Anbar, Iraq), Omar Y. K. Alani (University of Salford, United Kingdom)*

[12:50 ~ 14:30]

### 2D: RFID & QR code

*Chair: Surinder Singh (Sant Longowal Institute of Engineering & Technology, Longowal, India)*

#### 2D-1: DORMS: Design of multi-Objective Optimized RPL and MAC Protocols for Wireless Sensor Network Applications

*Al-Khateeb Anwar and Jun-Kyoung Kim (Politecnico di Torino, Italy)*

#### 2D-2: State-of-Charge Estimation to Improve Energy Conservation and Extend Battery Life of Wireless Sensor Network Nodes

*Vanessa Quintero, Claudio Estevez and Marcos Orchard (Department of Electrical Engineering Universidad de Chile, Chile)*

#### 2D-3: Recent MAC Protocols for Mobility-Aware Wireless Sensor Networks - A Survey and Future Directions

*Syed Wajahat Abbas Kazmi, Adrian Kacso and Roland Wismueller (University of Siegen, Germany)*

#### 2D-4: A 256 Bit Implementation of ECC-RFID Based System Using Shamir Secret Sharing Scheme and Keccak Hash Function

*Ayad Al-adhami (Plymouth University, United Kingdom, University of Technology, Baghdad), Marcel Ambroze (Plymouth University, United Kingdom), Ingo Stengel (Plymouth University, United Kingdom, University of Applied Sciences, Germany), Martin Tomlinson (Plymouth University, United Kingdom)*

#### 2D-5: Electromagnetic Characterization of SNR Variation in Passive Gen2 RFID System

*Maja Škiljo, Petar Šolić, Zoran Blažević (University of Split, Croatia), Luigi Patrono (University of Salento, Italy), Joel J. P. C. Rodrigues (National Institute of Telecommunications (Inatel), Brazil, Instituto de Telecomunicações, Portugal, University of Fortaleza (Unifor), Brazil)*



## Technical Sessions

[14:40~16:00]

### 3A: Wireless Sensor Network I

Chair: Edoardo S. Biagioni (University of Hawaii at Manoa, USA)

#### 3A-1: Parent Node Discovery Time Reduction Algorithm for Low-Power Wireless Sensor Networks

Kota Tsuchie, Taketsugu Yao, Yuki Kubo, Nobuyuki Nakamura and Masanori Nozaki (Oki Electric Industry Co., Ltd., Japan)

#### 3A-2: The Impact of Critical Node Elimination on the Latency of Wireless Sensor Networks

Behnam Ojaghi Kahjogh (TOBB University of Economics and Technology, Turkey), Universitat Politècnica de Catalunya - BarcelonaTECH (UPC), Spain), Ilker Demirkol (Universitat Politècnica de Catalunya - BarcelonaTECH (UPC), Spain.), Davide Careglio and Jordi Domingo-Pascual (Universitat Politècnica de Catalunya - BarcelonaTECH (UPC), Spain)

#### 3A-3: Integration of Energy Aware WSNs in Cloud Computing Using NDN Approach

Hafnaoui TALEB (University of Batna 2, Algeria & University of Haute Alsace, France), Sofiane HAMRIOUI (University of Haute Alsace, France), Pascal LORENZ (University of Haute Alsace, France), Azeddine BILAMI (University of Batna 2, Algeria)

#### 3A-4: Optimal Power Control for Wireless Power Transfer System: A Deterministic Approach

Minchae Jung, Youngrok Jang and Sooyong Choi (Yonsei University, Korea)

[14:40~16:00]

### 3B: Intelligent Vehicles I

Chair: Ben Senouci (ECE Paris, France)

#### 3B-1: A Hardware Skin-Segmentation IP for Vision Based Smart ADAS Through an FPGA Prototyping

B.Senouci and H.Rouis (ECE-Paris, France), D.S.Han (Kyungpook National University, Korea), E.Bourennane (University of Burgundy, France)

#### 3B-2: A Distance-based Event-driven Broadcast (DEB) Mechanism for V2V Safety Communications

Odongo Steven Eyobu and Jhihoon Joo (Kyungpook National University, Korea), Ben Senouci (ECE-Paris, France), Dong Seog Han (Kyungpook National University, Korea)

#### 3B-3: Rear Object Detection Method Based on Optical Flow and Vehicle Information for Moving Vehicle

Yun-Won Choi and Yun Su Chung (ETRI, Korea), Soo-In Lee (ETRI, Korea), Suk-Gyu Lee (Yeungnam University, Korea)

#### 3B-4: Cross Layer Approach for Efficient Dissemination of Emergency Messages in VANETs

Mahadev A Gawas, Palash Hurkat, Varun Goyal and Lucy J. Gudino (Birla Institute of Technology and Science(BITS) Pilani K.K.Birla Goa Campus, India)

[14:40~16:00]

### 3C: Network

Chair: Anwar Al-Khateeb (Politecnico Di Torino, Italy)

#### 3C-1: Green Radio and Energy Efficient Architecture for Next Generation Cellular Networks

S. R. Abdollahi (University of Science and Technology of Mazandaran, Behshar, Iran.), H. S. Al-Raweshidy, and T. J. Owen (Brunel University London, UK)

#### 3C-2: Efficient Data Reconstruction in Sensor Networks Using Optimal Locally Recoverable Codes

Pavan Kumar C (VIT University, India), Selvakumar R (VIT University, India)

#### 3C-3: SVD Detection Analysis in Cognitive Mobile Radio Networks, Pablo Palacios

Alberto Castro, Cesar Azurdia and Claudio Estevez (Universidad de Chile, Chile)

#### 3C-4: User Pairing Schemes Based on Channel Quality Indicator for Uplink Non-Orthogonal Multiple Access

Fahri Wisnu Murti and Soo Young Shin (Kumoh National Institute of Technology, Korea)

[14:40~16:00]

### 3D: Machine Learning

Chair: Junhee Seok (Korea University, Korea)

#### 3D-1: Forgery Image Detection of Gaussian Filtering by Support Vector Machine Using Edge Characteristics

Kang Hyeon RHEE (Chosun University, Korea)

#### 3D-2: Euclidean Distance Based Label Noise Cleaning

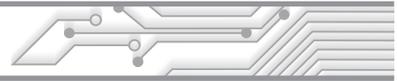
Muhammad Ammar Malik and Moonsoo Kang (Chosun University)

#### 3D-3: Performance of Deep Learning Computation with TensorFlow Software Library in GPU-Capable Multi-Core Computing Platforms

Young Jong Mo and Joongheon Kim (Chung-Ang University, Korea), Jong-Kook Kim (Korea University, Korea), Aziz Mohaisen (State University of New York at Buffalo (SUNY Buffalo), USA), Woojoo Lee (Myongji University, Korea)

#### 3D-4: Performance Comparison of Blind and Non-Blind Channel Equalizers Using Artificial Neural Networks

Sarvraj S Ranhotra, Atul Kumar and Maurizio Magarini (Informazione e Bioingegneri, Italy), Amit Mishra (thapar university, India)



## Technical Sessions

[16:15~18:00]

### 4A: Wireless Sensor Network II

Chair: Junsu Kim (Korea Polytechnic University, Korea)

#### 4A-1: GRCS: A Cluster-based Geographic Routing Protocol for WSNs

Manel Khelifi (University A.mira, University M.S.Benyahia, Algeria), Slimane Bourouais and Othman Lounis (University M.S.Benyahia, Algeria), Samira Moussaoui (USTHB University, Algeria)

#### 4A-2: Multiple Information Collection with Frequency Offset Compensation by Utilizing Physical Wireless Parameter Conversion Sensor Network (PHY-C SN)

Koji Kakinuma and Takeo Fujii (The University of Electro-Communications, Japan), Osamu Takyu (Shinshu University, Japan), Mai Ohta (Fukuoka University, Japan)

#### 4A-3: Implementation of Optimal Greenhouse Control: Multiple Influences Approach

Dong hee Noh, Su-Yong An and JaeYoung Kim (Electronics and Telecommunications Research Institute, Korea)

#### 4A-4: MMSE Location Estimation Using Multiple Items of Sensed Information in Indoor Environments

Eisuke KUDOH, Junpei WATANABE and Yusei HIRATSUKA (Tohoku Institute of Technology, Japan)

#### 4A-5: p-BORE: Prioritized Beacon Repetition and Contention Window Selection Based MAC Protocol in Underwater Wireless Sensor Networks

Eunbae Moon, Sungwon Lee, Muhammad Azfar Yaqub and Dongkyun Kim (Kyungpook National University, Korea)

[16:15~18:00]

### 4B: Intelligent Vehicles II

Chair: Ben Senouci (ECE Paris, France)

#### 4B-1: Real-Time Vehicle Detection Using Deep Learning Scheme on Embedded System

Ju-seok Shin, Ung-Tae Kim, Deok-Kwon Lee and Sang-Jun Park (Erae Group R&D Center, Korea), Se-Jin Oh and Tae-Jin Yun (Kyungwoon University, Korea)

#### 4B-2: Real-Time Lane Detection and Tracking System Using Simple Filter and Kalman Filter

Deok-Kwon Lee, Juseok Shin, Je-Han Jung and Sang-Jun Park (Erae Group R&D Center, Korea), Se-Jin Oh (Kyoungwoon University, Korea), In-Soo Lee (Kyungpook National University, Korea)

#### 4B-3: An Automated Testing Method for AUTOSAR Software Components Based on SiL Simulation

Sooyong Jeong and Woojin Lee (Kyungpook National University, Korea)

#### 4B-4: Analysis of V2V Communication for ADAS

Mukoe Cheong and Youngseok Lee (Sungkyunkwan University, Korea), Weijin Park (AI Lab. Acryl inc., Korea), Ikjun Yeom (Sungkyunkwan University, Korea)

### 4B-5: Objects Detection and Recognition in Smart Vehicle Applications: Point Cloud Based Approach

Quentin Cabanes and Ben Senouci (ECE-Paris, France)

[16:15~18:00]

### 4C: 5G/4G & WPAN I

Chair: Yean-Fu Wen (National Taipei University, Taiwan)

#### 4C-1: VP-FLMS: A Novel Variable Power Fractional LMS Algorithm

Shujaat Khan (Korea Advanced Institute of Science and Technology (KAIST), Iqra University, Pakistan), Muhammad Usman (Iqra University, Defence View, Pakistan), Imran Naseem (Karachi Institute of Economics and Technology, Pakistan, The University of Western Australia, Australia), Roberto Togneri (The University of Western Australia, Australia), Mohammed Bennamoun (The University of Western Australia, Australia)

#### 4C-2: System Level Simulation for 5G Cellular Communication Systems

Sangjin Cho, Seungyeob Chae and Minjoong Rim (Dongguk University, Korea), Chung G. Kang (Korea University, Korea)

#### 4C-3: A Novel Mobility Aware Downlink Scheduling Algorithm for LTE-A Networks

Önem Yıldız and Radosveta Sokullu (Ege University, Turkey)

#### 4C-4: Dynamical Cloud Hosts Assignment to Achieve Cost-Effectiveness in Cloud Radio Access Networks

Frank Yeong-Sung Lin and Chiu-Han Hsiao (National Taiwan University, Taiwan), Yean-Fu Wen (National Taipei University, Taiwan), Po-Chuan Chien (National Taiwan University, Taiwan)

#### 4C-5: Teaching 5G Networks Using the ONOS SDN Controller

Christos J Bouras (Computer Technology Institute & Press "Diophantus", Greece), Anastasia Kolliay and Andreas Papazois (University of Patras, Greece)

[16:15~18:00]

### 4D: Trusted Applications

Chair: Sungchang Lee, Korea Aerospace University, Korea

#### 4D-1: Segment-Hashing Based Trustworthy Video Audience Measurement Framework for MPEG-DASH

Nakyoung Kim, Hyeontaek Oh and Jun Kyun Choi (KAIST, Korea), Jinhong Yang (HECAS, Korea)

#### 4D-2: Objectification of Feedback Based Trust Evaluation Considering Social Relationship in Sharing Economy

Jaewon Ahn, Hyeontaek Oh and Hong-Shik Park (Korea Advanced Institute of Science and Technology, Korea)

#### 4D-3: Perceived Risk, Role, and Objectified Trustworthiness Information in the Sharing Economy

Young Seog Yoon (ETRI, Korea), Hyun-Woo Lee (ETRI, Korea)



## Technical Sessions

### 4D-4: A MOGA-Markov Chain Optimized Ranking Algorithm for Wireless Access Networks in Heterogeneous Environment

*Qazi Zia Ullah (COMSATS Institute of Information Technology & Bahria University, Pakistan), Farman Ullah (COMSATS Institute of Information Technology, Pakistan), Fazal Wahab Karam (COMSATS Institute of Information Technology, Pakistan), Shahzad Hassan (Bahria University, Pakistan), Sungchang Lee (Korea Aerospace University, Korea)*

### 4D-5: Trusted Cross-Domain Metadata Model for Context Aware Services

*Hoan-Suk Choi (Hanbat National University, Korea), Nae-Soo Kim (Electronics and Telecommunications Research Institute, Korea), Woo-Seop Rhee (Hanbat National University, Korea)*

## July 5, 2017 (Wednesday)

[09:40~11:00]

### 5A: Wireless Communication Network I

*Chair: Seokjoo Shin (Chosun University, Korea)*

#### 5A-1: Directional Random Routing for Enhancing Source-Location Privacy in Wireless Sensor Networks

*Amod Pudasaini, Ningombam Devarani Devi, Suk-seung Hwang and Seokjoo Shin (Chosun University, Korea)*

#### 5A-2: DL CSI Acquisition and Feedback in FDD Massive MIMO via Path Aligning

*Xiliang Luo, Xiaoyu Zhang and Penghao Cai (ShanghaiTech University, China), Cong Shen (University of Science and Technology of China, China), Die Hu (Fudan University, China), Hua Qian (Chinese Academy of Sciences, China)*

#### 5A-3: Congestion Control Routing Using Optimal Channel Assignment Mechanism in Wireless Mesh Network

*Arslang Musaddiq, Yousaf Bin Zikria, Rashid Ali, Illa Ul Rasool and Sung Won Kim (Yeungnam University, Korea)*

#### 5A-4: Experimental Evaluation of Transmission Timing Control Method for QZSS Short Message Synchronized SS-CDMA Communication

*Kei OHYA and Suguru KAMEDA (Tohoku University, Japan), Hiroshi Oguma (Toyama College, Japan), Noriharu Suematsu (Tohoku University, Japan)*

#### 5A-5: Reliable Communication Framework for Time-Critical Wireless Industrial Control Networks

*Thanmayee Karimireddy and Sijing Zhang (University of Bedfordshire, United Kingdom)*

[09:40~11:00]

### 5B: 5G/4G & WPAN II

*Chair: Hiroyuki Otsuka (Kogakuin University, Japan)*

#### 5B-1: WR-OFDM System and OOB Spectrum Comparison

*Changyoung An, Byeongjae Kim and Heung-Gyoon Ryu (Chungbuk National University, Korea)*

#### 5B-2: Random Access Technique for 5G Millimeter-Wave Cellular Systems with Multiple Beams

*Jasper Meynard P. Arana (Adamson University, Philippines), Khan Mohammed Saquiband and Yong Soo Cho (Chung-Ang University, Korea)*

#### 5B-3: Interference Modelling for Soft Frequency Reuse in Irregular Heterogeneous Cellular Networks

*Achonu Adejo (Newcastle University, United Kingdom & Federal University of Technology Minna, Nigeria), Said Boussakta and Jeffrey Neasham (Newcastle University, United Kingdom)*

#### 5B-4: Efficient PTS Scheme with Adaptive Selection Method for Dominant Samples in OFDM Systems

*Kang-Seok Lee and Jong-Seon No (Seoul National University, Korea)*

#### 5B-5: A Power Allocation Scheme for D2D Communication with Enhanced Throughput, Yuh-Shyan Chen (National Taipei University, Taiwan), Chih-Shun Hsu (Shih Hsin University, Taiwan), Nan-Chin Ho (National Taipei University, Taiwan)

[09:40~11:00]

### 5C: E-health

*Chair: Adriana Alexandru (National Institute for R&D in Informatics, Romania)*

#### 5C-1: Photonic Crystal Fiber Sensor Based on Sensing Ring for Different Blood Components: Design and Analysis

*Surinder Singh (Sant Longowal Institution of Engineering and Technology, India), Veerpal Kaur (Sant Longowal Institution of Engineering and Technology, India)*

#### 5C-2: Opportunities Brought by Big Data in Providing Silver Digital Patients with ICT-based Services That Support Independent Living and Lifelong Learning

*Marilena Ianculescu (University Valahia Targoviste, Romania), Adriana Alexandru (University Valahia Targoviste, Romania), Eleonora Tudora (University Valahia Targoviste, Romania)*

#### 5C-3: Movement Detection and Analysis of Resistance Exercises for Smart Fitness Platform

*Cheolhyo Lee (Electronics and Telecommunications Research Institute, Korea)*

#### 5C-4: Improved MAC Access Under IEEE 802.15.6 WBAN Standard

*Leila Issaoui, Asma Horrich, Kaouther Sethom (University of Carthage, Tunisia)*



## Technical Sessions

[09:40~11:00]

### 5D: Ubiquitous Computing

Chair: Seong-Ho Jeong (Hankuk University of Foreign Studies, Korea)

#### 5D-1: Determination of Soil Suitability for Agriculture Farming Using Microwave Analysis

Lakhvinder Singh Solanki and Surinder Singh (Sant Longowal Institute of Engg. & Tech, India), Nandini Garg (Sant Longowal Institute of Engg. & Tech., India)

#### 5D-2: A Fast Joining Scheme Based on Channel Quality for IEEE802.15.4e TSCH in Severe Interference Environment

Jae-Young Kim, Sang-Hwa Chung and YuVin Ha (Pusan National University, Korea)

#### 5D-3: Ship Location Detection Using Wireless Sensor Networks with Cooperative Nodes

Ajib Setyo Arifin and Teguh Samudra Firdaus (Universitas Indonesia, Indonesia)

#### 5D-4: Adaptive Channel Quality Estimation Method for Enhanced Time Slotted Channel Hopping on Wireless Sensor Networks

Kihoon Jeon and Sang-Hwa Chung (Pusan National University, Korea)

[13:40~15:10]

### 6A: Wireless Communication Network II

Chair: Hyunggon Park (Ewha Womans University, Korea)

#### 6A-1: A Mobility Link Service in NDN Face to Support Consumer Mobility Service

JungHwan Cha, Ju-Ho Choi, Ji-Yong Kim and Sung-Gi Min (Korea University, Korea), Youn-Hee Han (Korea University of Technology and Education, Korea)

#### 6A-2: Coexistence Issues of 2300-2400 MHz Band LTE Signals and 2400-2500 MHz Band Wi-Fi Systems

Elisa Ricci (University of Rome Tor Vergata, Italy), Manuela Vaser (University of Rome Tor Vergata, Italy), Giuseppe Pierri, Elio Restuccia and Gianmarco Fusco (Istituto Superiore delle Comunicazioni e delle Tecnologie dell'Informazione (ISCOM), Italy)

#### 6A-3: Guaranteed Timely Delivery of Control Packets for Reliable Industrial Wireless Networks in Industry 4.0 Era

Thanmayee Karimireddy and Sijing Zhang (University of Bedfordshire, United Kingdom)

#### 6A-4: An Architecture of IPTV Networks Based on Network Coding

Minhae Kwon and Jungmin Kwon (Ewha Womans University, Korea), Byungchul Park (University of Toronto, Canada), Hyunggon Park (Ewha Womans University, Korea)

[13:40~15:10]

### 6B: 5G/4G & WPAN III

Chair: Surinder Singh (Sant Longowal Institute of Engineering & Technology, Longowal, India)

#### 6B-1: Teaching Network Security in Mobile 5G Using ONOS SDN Controller

Christos J Bouras (Computer Technology Institute & Press "Diophantus", Patras, Greece, University of Patras, Greece), Anastasia Koliay and Andreas Papazois (University of Patras, Greece)

#### 6B-2: Dynamic Resource Allocation Using Reinforcement Learning for LTE-U and WiFi in the Unlicensed Spectrum

Ying-Ying Liu and Sang-Jo Yoo (Inha University, Korea)

#### 6B-3: Combination of Spatial Modulation and Non-Orthogonal Multiple Access Using Hybrid Detection Scheme

Rahmat Faddli Siregar, Fahri Wisnu Murti and Soo Young Shin (Kumoh National Institute of Technology, Korea)

[13:40~15:10]

### 6C: Localization II

Chair: Deepika Kripanithi ((R. V. College of Engineering, India)

#### 6C-1: Passive Extended Double-Sided Two-Way Ranging Algorithm for UWB Positioning, Kristóf Attila Horváth

Gergely Ill and Akos Milánkovich (Budapest University of Technology and Economics, Hungary)

#### 6C-2: Design & Development of Location Identification Using RFID with WiFi Positioning Systems

Deepika K (R. V. College of Engineering, India), Usha J (Affiliated to Visvesvaraya Technological University, India)

#### 6C-3: RSS Bias Compensation in BLE Beacon Based Positioning System

Hyuckjin Choi, Heetae Jin and Suk Chan Kim (Pusan National University, Korea)

[13:40~15:10]

### 6D: QoE/QoS

Chair: Omar Radwan (Brunel University London, United Kingdom)

#### 6D-1: QoE-Aware and Cost-Efficient Home Energy Management Under Dynamic Electricity Prices

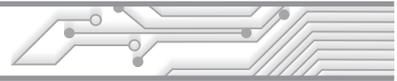
Mingfu Li and Cheng-Wei Jiang (Chang Gung University, Taiwan)

#### 6D-2: Efficient Video Streaming Rate Control Based on a Deadline-Sensitive Selection of SVC Layers

Andrés Sanhueza (University of Chile, Chile), Hugo Méric (NIC Chile Research Labs, France), Claudio Estevez (Universidad de Chile, Chile)

#### 6D-3: Study on a Migration Scheme by Fuzzy-Logic-Based Learning and Decision Approach for QoS in Cloud Computing

A-young Son and Eui-Nam Huh (Kyung Hee University, Korea)



## Technical Sessions

### 6D-4: An Architectural Model for Managing Quality of Experience of Web Services

Omar Radwan (Brunel University London, United Kingdom)

[15:20~16:20]

### 7A: Poster

Chair: Junbeom Hur (Korea University, Korea)

#### 7A-1: Supervised Temporal Link Prediction Using Time Series of Similarity Measures

Alper Özcan and Şule Gündüz Öğüdücü (Istanbul Technical University, Turkey)

#### 7A-2: Machine Learning-based Network Modeling: An Artificial Neural Network Model vs a Theoretical Inspired Model

Josep Carner and Albert Mestres, Eduard Alarcón and Albert Cabellos (Universitat Politècnica de Catalunya, Spain)

#### 7A-3: Disease and Pest Prediction IoT System in Orchard: A Preliminary Study

Heamin Lee, Aekyung Moon, Kiyoung Moon and Youngjae Lee (Electronics and Telecommunications Research Institute, Korea)

#### 7A-4: Relay Location Considering In-Band Emission for OFDMA-based D2D Overlay Systems

Sujin Kim, Soyi Kim, Seungyeob Chae, Sangjin Cho, Eulhyeon Go, and Minjoong Rim (Dongguk University, Korea)

#### 7A-5: Kinect Depth Sensor for Computer Vision Applications in Autonomous Vehicles

Eric Niyonsaba and Jong-Wook Jang (Dong-Eui University, Korea)

#### 7A-6: A Study on the Fabrication and Electrical Characteristics of Barometric Sensors for USN

Sung-Hyun Park (Dong-eui University, Korea), Han-Bai Park (Institute of Korea Environmental Technology Company, Korea)

#### 7A-7: Device-free Activity Recognition Using CSI & Big Data Analysis: A Survey

Sang-Chul Kim (Kookmin University, Korea) 10A-5: Device-free Activity Recognition Using CSI & Big Data Analysis: A Survey Sang-Chul Kim (Kookmin University, Korea)

[15:20~16:20]

### 7B: Poster

Chair: Junbeom Hur (Korea University, Korea)

#### 7B-1: A Novel Optical Body Area Network for Transmission of Multiple Patient Vital Signs

Durai Rajan Dhatchayeni, Willy Anugrah Cahyadi, Shivani Rajendra Teli and Yeon-Ho Chung (Pukyong National University, Korea)

#### 7B-2: IoT-based Data Transmitting System Using a UWB and RFID System in Smart Warehouse

Youngjae Lee, Jinhong Kim, Kiyoung Moon and Heamin Lee (Electronics and Telecommunications Research Institute (ETRI), Korea)

#### 7B-3: Performance Analysis of Fading Reduction Using the Diversity Antenna and 2x2 Smart Antenna for 802.11p WAVE V2V Communication

Jun-Ho Kim, Tae-Seok Lee, Tae-Geon Jung and Hak-Lim Ko (Hoseo University, Korea), Tae-Hoon Yang, Hwang Jin-Kyu and Cho Sung-Min (INFAC Elecs, Korea)

#### 7B-4: Trustworthy Gateway System Providing IoT Trust Domain of Smart Home

Eungha Kim and Changsup Keum (ETRI, Korea)

#### 7B-5: Performance Evaluation of OFDM-based 256- And 1024-QAM in Multipath Fading Propagation Conditions

Tomoki Ota, Mitsutoshi Nakamura, and Hiroyuki Otsuka (Kogakuin University, Japan)

#### 7B-6: Implementation of MHN Enhanced Mobile Backhaul System

Dae-Soon Cho, Junhyeong Kim, Il-Gyu Kim (Electronics and Telecommunication Research Institute, Korea)

[15:20~16:20]

### 7C: Poster

Chair: Junbeom Hur (Korea University, Korea)

#### 7C-1: A compressed sensing technique for OFDM channel estimation using full-band training symbols

Huang Chang Lee (Chang Gung University, Taiwan, Chang Gung Memorial Hospital Taiwan.), Pin-Yuan Chen (Chang Gung Memorial Hospital, Taiwan, Chang Gung University, Taiwan.), Cihun-Siyong Gong (Chang Gung University, Taiwan, Chang Gung Memorial Hospital, Taiwan)

#### 7C-2: Alzheimer Disease Classification Based on TSVM and Kernel SVM

Saruar Alam (Chosun University, Korea), Moonsoo Kang (Chosun University, Korea), Goo-Rak Kwon (Chosun University, Korea),

#### 7C-3: Effect of Soil Properties on Hop Count Distribution in Wireless Underground Sensor Networks

Dung Le The and Seong Gon Choi (Chungbuk National University, Korea)

#### 7C-4: Slice Architecture for 5G Core Network

Young-il Choi and Noik Park (ETRI, Korea)

#### 7C-5: PM10 Density Forecast Model Using Long Short Term Memory

Jung Hwan Park, Seong Joon Yoo, Kyung-Joong, Kim, Yeong Hyeon Gu and Keon-Hoon Lee (Sejong Univ, Korea), U-Hyon Son (R&D Amway Korea, Korea)

#### 7C-6: A Research on Dynamic Service Function Chaining Based on Reinforcement Learning Using Resource Usage

Sang il Kim and Hwa Sung Kim (KwangWoon University, Korea)

#### 7C-7: Performance Analysis of Manifold Learning Methods for Radio Map Construction

Quang Tung Thai, ChangSup Keum and Kisook Chung (Electronics and Telecommunications Research Institute (ETRI), Korea)



## Technical Sessions

[15:20~16:20]

### 7D: Poster

Chair: Junbeom Hur (Korea University, Korea)

#### 7D-1: 3D Beamforming Effect for Backhaul Link in Time-Division Relaying

Ryota Nakao (Kogakuin University, Japan), Jun Mashino, Satoshi Suyama and Yukihiko Okumura (NTT DOCOMO INC., Japan), Hiroyuki Otsuka (Kogakuin University, Japan)

#### 7D-2: Cloud-based Biometrics Processing for Privacy-Preserving Identification

Changhee Hahn, Hyungjune Shin and Junbeom Hur (Korea University, Korea)

#### 7D-3: Design and Implementation of YANG Based Wireless Access Point Controller Using RPC

Gyewan An and Sungwon Lee (Kyung Hee University, Korea)

#### 7D-4: A COORDINATED OPERATION ACCESS SCHEME FOR 5G CELLULAR SYSTEMS

Luis A. Vasquez-Toledo and Domingo Lara-Rodríguez (CINVESTAV, Mexico)

#### 7D-5: Design of Smart Shoe Box Based on IOT

Dae-Jea Cho and Ye-Rin Jeong (Andong National University, Korea)

#### 7D-6: Impact of Hello Interval and Link Change Ratio on Throughput in MANETS

Neung-Um Park, Geon-Hwan Kim and You-Ze Cho (Kyungpook National University, Korea)

#### 7D-7: A Prediction-based Mobility Support in the Content-Centric Mobile Networks

Nazib Abdun Nasir and Seong-Ho Jeong (Hankuk University of Foreign Studies, Korea)

[16:40~17:50]

### 8A: Wireless Communication Network III

Chair: Seyedreza Abdollahi (Brunel University, United Kingdom)

#### 8A-1: Location Service in Mobile Edge Computing

Evelina Pencheva, Ivaylo Atanasov, Kiril Kashev and Vencislav Trifonov (Technical University of Sofia, Bulgaria)

#### 8A-2: An Effective Technique for Preventing Cross-Connection Errors in Dense Loosely-Coupled Wireless Charging Pad Environments

Nam Yoon Kim (Dea Duk University, Korea), Jinsung Cho (Kyung Hee University, Korea) Chang-Woo Kim (Kyung Hee University, Korea)

#### 8A-3: Implementation of Network Coding Algorithm for Single Queue with Single Memory Devices

Jungmin, Sun Woo Cho, Sujin Kim, Yoonji Park and Hyunggon Park (Ewha Womans University, Korea)

[16:40~17:50]

### 8B: 5G/4G & WPAN IV

Chair: In-Gul Jang (ETRI, Korea)

#### 8B-1: Generating a Service Broker Framework for Service Selection and SLA-based Provisioning Within Network Environments

Imane HADDAR (STRS Institut National des Postes et T'el'ecomunications, Rabat), Brahim RAOUYANE (Hassan II University, Casablanca), Mostafa BELLAFKIH (STRS Institut National des Postes et T'el'ecomunications, Rabat)

#### 8B-2: The Impact of Base Station Antennas Configuration on the Performance of Millimetre Wave 5G Networks

Naser Al-Falahy (University of Salford, United Kingdom, University of Anbar, Iraq), Omar Y. K. Alani (University of Salford, United Kingdom)

#### 8B-3: Low Latency IFFT Design for OFDM Systems Supporting Full-Duplex FDD

In-Gul Jang, Gweon-Do Jo (Electronics & Telecommunications Research Institute, Korea)

[16:40~17:50]

### 8C: SDN I

Chair: Hiroshi Oguma (National Institute of Technology, Toyama College, Japan)

#### 8C-1: Feasibility Study of Expansion of OpenFlow Network Using Satellite Communication to Wide Area

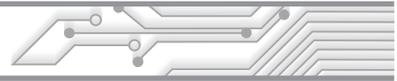
Nagahiro Yoshino (Toyama College, Japan, Tohoku University, Japan), Hiroshi Oguma (Toyama College, Japan), Suguru Kameda and Noriharu Suematsu (Tohoku University, Japan)

#### 8C-2: Fog Server Deployment Considering Network Topology and Flow State in Local Area Networks

Jung-Hoon Lee, Sang-Hwa Chung and Won-Suk Kim (Pusan National University, Korea)

#### 8C-3: Enabling SDN Application Development Using a NETCONF Mediator Layer Simulator

Alexandru Stancu (POLITEHNICA University of Bucharest, Romania), Alexandru Avram (Ceragon Networks, Romania), Martin Skorupski (highstreet technologies, Berlin, Germany), Alexandru Vulpe and Simona Halunga (POLITEHNICA University of Bucharest, Romania)



## Technical Sessions

[16:40~17:50]

### 8D: Optical Wireless

Chair: Cihun-Siyong Gong (Chang Gung University, Taiwan)

#### 8D-1: Inter-frame Gap Compensation and Data Rate Enhancement in Image Sensor Communications Using Constant-power PAM

Duy Thong Nguyen and Youngil Park (Kookmin University, Korea)

#### 8D-2: Challenges Issues for OCC Based Android Camera 2 API

Phuoc Nguyen, Nam Tuan Le and Yeong Min Jang (Kookmin University, Korea)

#### 8D-3: MQTT Protocol for Connected OCC Small Cells

ThanhLuan Vu, Trang Nguyen and Yeong Min Jang (Kookmin University, Korea)

## July 6, 2017 (Thursday)

[09:40~10:50]

### 9A: Wireless Communication Network IV

Chair: Kae Won Choi (Sungkyunkwan University, Korea)

#### 9A-1: Study of Bandwidth Estimation on Wireless Networks for DASH

Van-Huy Vu (Thai Nguyen University, Vietnam), Tein Yaw Chung (Yuan Ze University, Taiwan)

#### 9A-2: Stateless and Predictive Geographic Multicast Scheme in Flying Ad-hoc Networks

Hassen Redwan, Sungchan Choi, Jaeho Kim and Jong-Hong Park (Korea Electronics Technology Institute (KETI), Korea)

#### 9A-3: Coverage Probability of Distributed Wireless Power Transfer System

Kae Won Choi, Lorenz Ginting, Dedi Setiawan, Arif Abdul Aziz and Dong In Kim (Sungkyunkwan University, Korea)

[09:40~10:50]

### 9B: 5G/4G & WPAN V

Chair: Pascal LORENZ (University of Haute Alsace, France)

#### 9B-1: Handover Cell Selection Using User Mobility Information in a 5G SDN-based Network

Jiseong Lee and Younghwan Yoo (Pusan National University, Korea)

#### 9B-2: The Virtualized MPTCP Proxy Performance in Cellular Network

Sunyoung Chung, Seonghoon Moon and Songkuk Kim (Yonsei University, Korea)

#### 9B-3: Full-Duplex Generalized Spatial Modulation: A Compressed Sensing-Based Signal Detection

Bang Chul Jung and Jeonghong Park (Chungnam National University, Korea), Tae Won Ban and Woongsup Lee (Gyeongsang National University, Korea), Jongmin Kim (Korea Science Academy of KAIST, Korea)

### 9B-4: Optimal Transmit Power Configuration for Soft Frequency Reuse in Irregular Cellular Networks

Achonu Adejo (Newcastle University, United Kingdom & Federal University of Technology Minna, Nigeria), Jamal Hussein and Said Boussakta (Newcastle University, United Kingdom)

[09:40~10:50]

### 9C: SDN II

Chair: Yean-Fu Wen (National Taipei University, Taiwan)

#### 9C-1: Energy and Latency Optimization in Software Defined Wireless Networks

Behnam Ojaghi Kahjogh (TOBB University of Economics and Technology, Turkey), Greg Bernstein (Grotto Networking, USA)

#### 9C-2: Path Restoration in Source Routed Software Defined Networks

Saumya Hegde and Shashidhar G. Koolagudi (NITK, India), Swapan Bhattacharya (Jadavpur University, India)

#### 9C-3: A Cache-Node Selection Mechanism for Data Replication and Service Composition Within Cloud-Based Systems

Ismaeel Al Ridhawi (American University of the Middle East (AUM), Kuwait), Yousif Al Ridhawi (University of Ottawa, Canada)

[09:40~10:50]

### 9D: Machine Learning

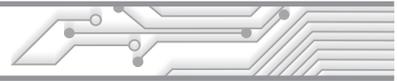
Chair: Sunwoong Choi (Kookmin University, Korea)

#### 9D-1: Classification of Food Powders Using Handheld NIR Spectrometer

Hanjong You (Kookmin University, Korea), Youngsik Kim and Jae Hyung Lee (Stratio, Inc., USA), Sunwoong Choi (Kookmin University, Korea)

#### 9D-2: Classification of Various Daily Behaviors Using Deep Learning and Smart Watch

Min-Cheol Kwon, MinChul Ju and Sunwoong Choi (Kookmin University, Korea)



## Technical Sessions

[11:00~12:00]

### 10A: Poster

Chair: Dae Jin Kim (Chonnam National University, Korea)

#### 10A-1: Selected Data Utilization Technique for the PAPR Reduction of FBMC-OQAM Signals

Ji-Hyun Moon and Ye-Ri Nam (Ewha Womans University, Korea), Eun-Ji Choi (Universitat Duisburg-Essen, Germany), Bing-Yuan Chen and Jeong-Ho Kim (Ewha Womans University, Korea)

#### 10A-2: Pothole Detection System Using 2D LiDAR and Camera

Byeong-ho Kang and Su-il Choi (honnam National University, Korea)

#### 10A-3: Implementation of OpenAirInterface Control Software for 4G Network

Seawon Koh and Sungwon Lee (Kyung Hee University, Korea)

#### 10A-4: Bit Alignment Scheme for Mobile Receiver in Molecular Communication

Qian Wu (Shanghai University, Tongji University, China), Lin Lin (Tongji University, China), Zhan Luo (Shanghai University, China), Hao Yan (Shanghai Jiao Tong University, China)

#### 10A-5: A Comparison of RESTful vs. SOAP Web Services in Actuator Networks

Sehrish Malik and Do-Hyeun Kim (Jeju National University, Korea)

#### 10A-6: Dynamic Routing Influence on Secure Enterprise Network Based on DMVPN

Gebera Akele Tizazu and Abraham Belay Berhe (Information Network Security Agency, Ethiopia), Ki-Hyung Kim (Ajou University, Korea)

[11:00~12:00]

### 10B: Poster

Chair: Dae Jin Kim (Chonnam National University, Korea)

#### 10B-1: An IoT-based Smart Electric Heating Control System: Design and Implementation

Ivan Ganchev (University of Limerick, Ireland, University of Plovdiv "Paisii Hilendarski", Bulgaria), Zhanlin Ji (University of Limerick, Ireland, North China University of Science and Technology, China), Máirtín O'Droma (University of Limerick, Ireland)

#### 10B-2: DisCO: A Distributed and Concurrent Offloading Framework for Mobile Edge Cloud Computing

Kwangman KO (Sangji University, Korea), Yunsik Son (Dongguk University, Korea), Soongho Kim (Joongbu University, Korea), Yangsun Lee (Seokyeong University, Korea)

#### 10B-3: Low Collision Random Access Using Grouping Nodes in Underwater Communications

Jongmin An, Hyeonsu Kim, Hojun Lee and Jeahak Chung (Inha Univ, Korea)

#### 10B-4: Tire Location Registration Algorithm Using Inter Frame Spacing Pattern in TPMS

Chu Kyun Bae, Sol Lim, Seung Gi Kim and Dae Jin Kim (Chonnam National University, Korea)

#### 10B-5: ICN-based Service Discovery Mechanism for Microservice Architecture

KimBao Long, HyunSik Yang and YoungHan Kim (Soongsil University, Korea)

#### 10B-6: Implementation of Color-Space-Based Wearable Visual-MIMO System

Tae-Ho Kwon, Jai-Eun Kim, Jung-Hun Oh and Ki-Doo Kim (Kookmin University, Korea)

#### 10B-7: MDA Approach Towards a Unified Application Development Framework

Eyob Alemu Buba and Abraham Belay Berhe (Information Network Security Agency, Ethiopia), Ki-Hyung Kim (Ajou University, Korea)

[11:00~12:00]

### 10C: Poster

Chair: Dae Jin Kim (Chonnam National University, Korea)

#### 10C-1: LTE-TDD Interference Analysis in Spatial, Time and Frequency Domain

Deok Won Yun and Won Cheol Lee (Soongsil University, Korea)

#### 10C-2: Performance Improvement of MHN-Enhanced Uplink with Frequency Offset Compensation

Seung Nam Choi and Ilgyu Kim (Electronics and Telecommunications Research Institute, Korea)

#### 10C-3: Communication Protocol for Bidirectional TPMS

Seunggi Kim, Youngmin Ko, Chul-kyun Bae and Dae Jin Kim (Chonnam National University, Korea)

#### 10C-4: Real-time Direction-finding System Using Time-modulated Array and USRP

Sangjoon Lee (Kookmin University, Korea), Hyungoo Yoon (Myongji College, Korea), Byung-jun Jang (Kookmin Univ, Korea)

#### 10C-5: An Experimental Study of Security for Service Function Chaining

Nguyen Van Ca, Vu Vu, Kyoungjae Sun and younghan Kim (Soongsil University, Korea)

#### 10C-6: Adaptive Power Saving Algorithm for 802.11 Mobile Access Points

Woo Hyuk Jung and Seung Hyong Rhee (Invited Paper) (Kwangwoon University, Korea)

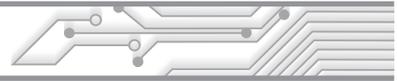
[11:00~12:00]

### 10D: Poster

Chair: Dae Jin Kim (Chonnam National University, Korea)

#### 10D-1: A Simple Detection Method for Spatially Modulated Optical Wireless Communication

Junghyun Kim, Gidong Sa, Seongjae Moon and Youngwoo Kim (Korea Photonics Technology Institute (KOPTI), Korea), Seonghun Hong (Chonnam National University, Korea)



## Technical Sessions

### 10D-2: Fast Handoff by Multi-Beacon Listening in IEEE 802.11 WLAN Networks

*Youngjun Kim, Hyungoo Choi, Kiwon Hong, Mingyu Joo and Jinwoo Park (Korea University, Korea)*

### 10D-3: Overlay Coding in Vehicle Visible Light Communication Using Multiple Exposures

*Trong-Hop Do and Myungsik Yoo (Soongsil University, Korea)*

### 10D-4: Spatial-Modulated Physical-Layer Network Coding in Two-Way Relay Networks with Convolutional Codes

*Eunmi Chu, Jae Sook Yoo and Bang Chul Jung (Chungnam National University, Korea)*

### 10D-5: Industrial Control System Security Framework for Ethiopia

*Abraham Belay Berhe and Gebere Akele Tizazu (Information Network Security Agency, Ethiopia), Ki-Hyung Kim (Ajou University, Korea)*

### 10D-6: Design of Microgrid Web Services for Microgrid Applications

*Youngmee Shin, Wanki Park and Ilwoo Lee (Electronics and Telecommunications Research Institute, Korea)*

### 10D-7: Preventive Energy Safety Using ICT Cooperative Prediction Models

*Yoonmee Doh, Eunju Lee, Chunggho Lee and Youngbag Moon (Electronics and Telecommunications Research Institute, Korea), Junghoon Kim (Korea Gas Safety Corporation, Korea)*

[13:30~15:30]

### 11A: Wireless Communication Network V

*Chair: Seyedreza Abdollahi (Brunel University, United Kingdom)*

#### 11A-1: Efficient Depth-Based Scheduling MAC Protocol for Underwater Sensor Networks

*Faisal Alfouzan, Alireza Shahrabi, Seyed Mohammad Ghoreysbi and Tuleen Boutaleb (Glasgow Caledonian University, United Kingdom)*

#### 11A-2: Improved Throughput for Wireless Backhaul Networks Configured in a Linear Array of Wireless Relays

*JU WOOK JANG and BONG KEOL SHIN (Sogang University, Korea)*

#### 11A-3: A Channel Bonding MAC Protocol for IEEE 802.11ac WLANs

*Yen-Da Chen (Department of Computer Information and Network Engineering, Lunghwa University of Science and Technology, Taiwan), Chia Chuang and Kuei-Ping Shih (Tamkang University, Taiwan)*

#### 11A-4: Oscillation of Molecular Machines with Enzymes

*Qian Wu (Shanghai University, Tongji University, China), Feiyan Li (Shanghai University, China), Lin Lin (Tongji University, China), Hao Yan (Shanghai Jiao Tong University, China), Fuqiang Liu (Tongji University, China)*

[13:30~15:30]

### 11B: Big Data & Machine Learning

*Chair: Wan-Sup Cho (Chungbuk National University, Korea)*

#### 11B-1: Using Association Analysis to Find Diseases Related to Childhood Obesity

*Seullam Kim and Yoon-Ju An, Kyung-Hee Lee, Seung-Hyun Jung and Wan-Sup Cho (Chungbuk National University, Korea)*

#### 11B-2: The Moving Patterns for the Medical Treatment of High Cost Patients in South Korea

*Sujin Jung, Penhchet Dara, Kyung-Hee Lee and Wan-Sup Cho (Chungbuk National University, Korea)*

#### 11B-3: Video Streaming Strategy Based on Feedback Control Loop Theory in Cloud Platform

*Rahma Gharsallaoui and Mohamed Hamdi (Sup'Com, University of Carthage, Tunisia), Tai-Hoon Kim (Sungshin W. University, Korea)*

#### 11B-4: Semantic Hashtag Relation Classification Using Co-occurrence Word Information

*Sungwon Seo, Jong-Kook Kim and Lynn Choi (Korea University, Korea)*

#### 11B-5: Machine Learning on Merging Static and Dynamic Features to Identify Malicious Mobile Apps

*Ming-Yang Su, Jer-Yuan Chang and Kek-Tung Fung (Ming Chuan University, Taiwan)*

[13:30~15:30]

### 11C: Security I

*Chair: Ahmed Abd El-Latif (Menoufia University, Egypt)*

#### 11C-1: Differentially Private Queries in Crowdsourced Databases for Net Neutrality Violations Detection

*Maria Silvia Abba Legnazzi (Politecnico di Milano, Italy), Cristina E.M. Rottondi (Dalle Molle Institute for Artificial Intelligence (IDSIA), Switzerland), Giacomo Verticale (University of Lugano (USI) - University of Applied Science and Arts of Southern Switzerland (SUPSI), Switzerland)*

#### 11C-2: Defense Against Jamming Attacks in Wide-band Radios Using Cyclic Spectral Analysis and Compressed Sensing

*Tassadaq Nawaz and Lucio Marcenaro (University of Genova, Italy), Carlo S Regazzoni (Carlos III University of Madrid, Italy)*

#### 11C-3: An Approach to Integrate Quantum Key Distribution Technology into Standard Secure Communication Applications

*Yoshimichi Tanizawa, Ririka Takahashi, Hideaki Sato and Alexander R. Dixon (Toshiba Corporation, Japan)*

#### 11C-4: Blockchain Based Approach to Enhance Big Data Authentication in Distributed Environment

*Nazri Abdullah and Anne Håkansson (KTH Royal Institute of Technology, Sweden), Esmiralda Moradian (Stockholm University, Sweden)*

#### 11C-5: Impact of Security on Bandwidth and Latency in IEEE 802.11ac Client-to-Server WLAN

*Samad S. Kolahi and A.A. Almtrook (Unitec Institute of Technology, New Zealand)*



## Technical Sessions

[13:30~15:30]

### 11D: Internet of Things II

Chair: Hwangnam Kim (Korea University, Korea)

#### 11D-1: Self-Transmission Control in IoT over Heterogeneous Wireless Networks

Jianlin Guo, Philip Orlik (Mitsubishi Electric Research Laboratories, USA)

#### 11D-2: Optimized Implementation of Chaskey MAC on 16-bit MSP430

Garam Lee (Pusan National University, Korea), Hwajeong Seo (Hansung University, Seoul, Korea), Taehwan Park and Ho Won Kim (Pusan National University, Korea)

#### 11D-3: Federated Policy Management Engine for Reliable Cloud Computing

Faraz Fatemi Moghaddam (Georg-August-Universität, Germany), Philipp Wieder (Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen (GWDG), Germany), Ramin Yahyapour (Georg-August-Universität, Germany)

#### 11D-4: Framework for Automated Functional Testing of P2P-based M2M Applications

Besfort Shala, Patrick Wacht, Ulrich Trick and Armin Lehmann (Frankfurt University of Applied Sciences, Germany), Besfort Shala, Bogdan Ghita, Stavros Shialeles (University of Plymouth, UK)

#### 11D-5: Data-centric Middleware Based Digital Twin Platform for Dependable Cyber-Physical Systems

Seongjin Yun, Jun-Hong Park and Won-Tae Kim (KOREATECH university, Korea)

[15:50~17:50]

### 12A: Ad-hoc Network

Chair: Dung Le The (Chungbuk National University, Korea)

#### 12A-1: A Counting-Based Broadcast Model of Emergency Message Dissemination in VANETs

Irvanda Kurniadi Virdaus, Moonsoo Kang, Seokjoo Shin, Chung Ghiu Lee and Jae-Young Pyun (Chosun University, Korea)

#### 12A-2: Study of Connectivity Probability in Wireless Ad Hoc Networks Under Nakagami-m Fading Channel

Fantian Zeng, Chunxiao Li, Anran Zhen and Jun Sun (Yangzhou University, China), Zhi Liu (Waseda University Japan)

#### 12A-3: A Greedy and Neighbor Aware Data Forwarding Protocol in Named Data MANETs

Bo Cui and Ru Li (Inner Mongolia University, China)

#### 12A-4: A Path Analysis of Two-level Hierarchical Road Aware Routing in VANETs

Muhammad Tahir Abbas and Wang-Cheol Song (Jeju National University, Korea)

#### 12A-5: Integration of Big Data for Querying CAN Bus Data from Connected Car

Lionel Nkenyereye and Jong-Wook Jang (Dong-Eui University, Korea)

[15:50~17:50]

### 12B: Cognitive Radio

Chair: Yun Hee Kim (Kyung Hee University, Korea)

#### 12B-1: A Calibration for the Modulated Wideband Converter Using Sinusoids with Unknown Phases

Jeong Park, Jehyuk Jang and Heung-No Lee (Gwangju Institute of Science and Technology (GIST), Korea)

#### 12B-2: Measurement-based Spectrum Database with Mesh Clustering

Rei Hasegawa and Takeo Fujii (The University of Electro-Communications, Japan)

#### 12B-3: Instantaneous and Statistical Resource Allocation for Wireless Powered One-Way Relaying with Multiple Antennas

Gerardo Sacarello, Jooheum Yoon, Yeonjin Jeong and Yun Hee Kim (Kyung Hee University, Korea)

#### 12B-4: Robust Channel Selection Method Under Home Electronics-derived Electromagnetic Wave Interference

Mai Ohta (Fukuoka University, Japan), Osamu Takyu (Shinshu University, Japan), Takeo Fujii (The University of Electro-Communications, Japan), Makoto Taromaru (Fukuoka University, Japan)

#### 12B-5: Spectrum Sensing and Access Through Mutual Cooperation Among a Pair of Secondary Users

Jagadeeshchandra Shetty and Jamadagni H.S. (Indian Institute of science, India)

#### 12B-6: Complete Balance Equation and Blocked Probability for Secondary Radio Limited Access Scheme in Cognitive Radio Networks

Lei Zhang (Hubei Polytechnic University, China)

[15:50~17:50]

### 12C: Security II

Chair: Ahmed Abd El-Latif (Menoufia University, Egypt)

#### 12C-1: Impact of IPsec Security on VoIP in Different Environments

Samad S. Kolahi, Keysha Mudaliar, Cheng Zhang and Zhizhong Gu (Unitec Institute of Technology, New Zealand)

#### 12C-2: Efficient Implementation of Simeck Family Block Cipher on 16-bit MSP430

Taehwan Park (Pusan National University, Korea), Hwajeong Seo (Hansung University, Korea), Garam Lee and Ho Won Kim (Pusan National University, Korea)

#### 12C-3: Efficient Chaotic Nonlinear Component for Secure Cryptosystems

Jialiang Peng (Heilongjiang University, China), Ahmed Abd El-Latif (Menoufia University, Egypt), Akram Belazi (Universit'e de Tunis El Manar, Tunis), Zbigniew Kotulski (Warsaw University of Technology, Poland)



## Technical Sessions

### 12C-4: Locap: Privacy-Preserving Location Proximity Protocol

*Kyung Choi and Mihui Kim (Hankyong National University, Korea)*

[15:50~17:50]

### 12D: Internet of Things III

*Chair: Ismaeel Al Ridhawi (American University of the Middle East & University of Ottawa, Kuwait)*

#### 12D-1: Study of Plant Emotion Using Music and Motion Detection in Internet of Things

*Tein-Yaw Chung, Chih-Shien Fang and Yi-Tung Hsieh (Yuan Ze University, Taiwan), Fong-Ching Yuan (Yuan-Ze University, Taiwan)*

#### 12D-2: Minimizing Delay in IoT Systems Through Collaborative Fog-to-Fog (F2F) Communication

*Wassim Masri, Ismaeel Al Ridhawi, Nour Mostafa and Pardis Pourghomi (American University of the Middle East (AUM), Kuwait)*

#### 12D-3: Pharmaceutical Tablet Classification Using a Portable Spectrometer with Combinations of Visible and Near-Infrared Spectra

*Kyung-Jin Baik (Kookmin University, Korea), Jae Hyung Lee and Youngsik Kim (Stratio, Inc., USA), Byung-Jun Jang (Kookmin Univ, Korea)*

#### 12D-4: The Implications of Using Social Networking Sites for the Academic and the Non-academic Staffs in Two Indonesian Private Universities

*Joice Yulinda Luke (Bina Nusantara University, Indonesia), Isana Sri Christina Meranga (Pelita Harapan University, Indonesia)*

#### 12D-5: A Multi-Factors Security Key Generation Mechanism for IoT

*Kan Siew Leong, Paul Loh Ruen Chze, Ang Khoon Wee, Elizabeth Sim and Kan Ee May (Nanyang Polytechnic, Singapore)*

## July 7, 2017 (Friday)

[09:20~11:10]

### 13A: Mobile Network

*Chair: Edoardo S. Biagioni (University of Hawaii at Manoa, USA)*

#### 13A-1: An Adaptive Mechanism to Resolve the DSR Cached Route Reply Storm of Multi-hop Wireless Networks

*Sanghyun Ahn (University of Seoul, Korea), Chong-kwon Kim (Seoul National University, Korea)*

#### 13A-2: Mobility and Address Freedom in AllNet

*Edoardo S. Biagioni (University of Hawaii at Manoa, USA)*

#### 13A-3: Will Wi-Fi Replace Cellular Technology?

*Jeonghoon Mo, Sunsik Kim and Hansol Kim (Yonsei University, Korea)*

#### 13A-4: Partial Pilot Transmission for Self-Interference Channel Estimation in Full-Duplex MIMO Systems

*Kyungsik Min (Yonsei University, Korea), Sangjoon Park (Wonkwang University, Korea), Sooyong Choi (Yonsei University, Korea)*

[09:20~11:10]

### 13B: Network Management

*Chair: Feng Liu (Shanghai Maritime University, P.R. China)*

#### 13B-1: Experimental Evaluation of the Feedback Loop Effects in Digital Predistortion of a Radio-over-Fiber System

*Carlos Mateo, Pedro L. Carro, Paloma Garcia-Ducar, Jesús de Mingo and Iñigo Salinas (University of Zaragoza, Spain)*

#### 13B-2: Optimal State Scheduling for Three-Hop Directed Cascaded Networks with Time Division Duplexing

*Feng Liu, Conggai Li, Yanli Xu and Liansun Zeng (Shanghai Maritime University, China)*

#### 13B-3: Abnormal Behavior-Based Detection of Shodan and Censys-Like Scanning

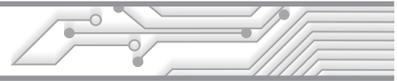
*Seungwoon Lee, Seung-Hun Shin and Byeong-hee Roh (Ajou University, Korea)*

#### 13B-4: Trend Analyses of Authentication in Peer Aware Communication (PAC)

*Yonghun Kim, Nhu-Ngoc Dao, Junwook Lee, and Sungrae Cho (Chung-Ang University, Korea)*

#### 13B-5: On the Antenna Efficiency of Coexisting Networks with Broadcast and Point-to-point Channels

*Feng Liu, Dengfei Kang, Conggai Li and Liansun Zeng (Shanghai Maritime University, China)*



## Venue

### Hotel Meliá Milano

#### Venue Website

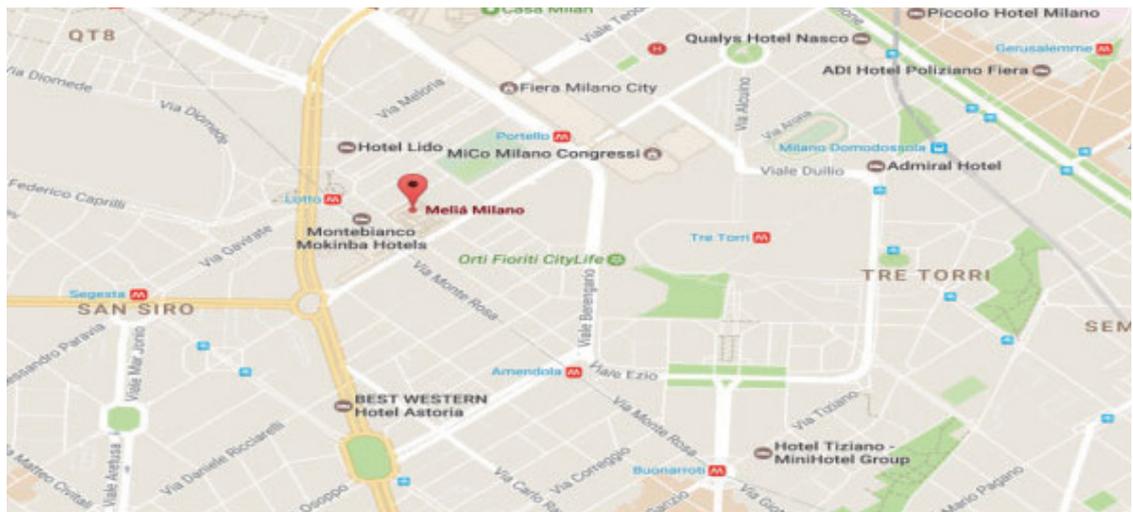
<https://www.melia.com/en/hotels/italy/milan/melia-milano/index.html>

#### Hotel information

The Meliá Milano is located in one of the most dynamic and fastest-growing districts in Milan, a meeting point between the ultra-modern MiCo Congress Centre, San Siro stadium and City-Life, the new urban space designed by Isozaki, Libeskind and Hadid. The hotel was founded by the Escarrer family and transformed the former Alemagna factory with a design by Álvaro Sans Cañada and Luis Moreno de Cala into a most comfortable and elegant space in which the visual and emotional experiences of the old blend perfectly with the latest trends.

Just a 2-minute walk from Lotto Metro Stop. San Siro Football Stadium is less than 2 km away. Meliá Milano is 700 m from MiCo Milano Congressi exhibition centre. It is located next to the new CityLife district and is 8 metro stops from both Milan Cathedral and Rho Fiera Milano. Fiera Milano City is a great choice for travelers interested in museums, culture and city walks.

**Address: Via Masaccio 19, Milan**



#### Contact Information

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