

2016 Eighth International Conference on Ubiquitous and Future Networks (ICUFN 2016)

**Vienna, Austria
5-8 July 2016**

Pages 1-536



**IEEE Catalog Number: CFP1687G-POD
ISBN: 978-1-4673-9992-0**

**Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1687G-POD
ISBN (Print-On-Demand):	978-1-4673-9992-0
ISBN (Online):	978-1-4673-9991-3
ISSN:	2165-8528

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com



Technical Sessions

July 5, 2016 (Tuesday)

14:45~16:15

Session 1A : 5G/6G Mobile Communications I

Chair: Haneul Ko (Korea University, Korea)

[1A-1] Preamble Design Technique for Millimeter-Wave Cellular Systems Using Zadoff-Chu Sequences....1

Dae Gen Han (Chung-Ang University, Korea), Yeong Jun Kim (LG Electronics, Korea), and Yong Soo Cho (Chung-Ang University, Korea)

[1A-2] Adaptive Control CRE Technique for eICIC in HetNet....4

Norihiro Naganuma and Sho Nakazawa (Kogakuin University, Japan), Satoshi Suyama and Yukihiko Okumura (NTT DOCOMO INC, Japan), and Hiroyuki Otsuka (Kogakuin University, Japan)

[1A-3] Throughput Improvement by Transmitter-side Three-Dimensional Beamforming in Mobile Systems....7

Ryota Nakao, Sho Nakazawa, and Hiroyuki Otsuka (Kogakuin University, Japan)

[1A-4] Small Cell Offloading Algorithm Based on the Social Context....10

Hye-Rim Cheon (Ajou University, Korea), Seung-Que Lee (Electronics and Telecommunication Research Institute, Korea), and Jae-Hyun Kim (Ajou University, Korea)

[1A-5] Performance of Analog and Digital Modulation Schemes Under Sweep Jamming....13

Dong-Yeol Choi, Won-Kyung Kim, and Jae-Hyun Kim (Ajou University, Korea), and Huirae Cho (National Security Research Institute, Korea)

Session 1B : Cognitive Radio Communication and Network

Chair: Won Cheol Lee (Soongsil University, Korea)

[1B-1] EEF Criterion Based User Selection for Cooperative Spectrum Sensing in Cognitive Radio Network....16

Aleksandra Stefanovska (Chongqing Univ. of Posts and Telecommunications, The Republic of Macedonia), Kai Gao and Bin Shen (Chongqing Univ. of Posts and Telecommunications, China)

[1B-2] An Efficient Power Allocation Scheme for Multiple TVWS Devices Based on the Location Probability....22

Hyung Min Chang, Chuyen Khoa Huynh, and Won Cheol Lee (Soongsil University, Korea)

[1B-3] Study of a Multi-relay Scheme and Co-channel Interference within an Underlay Cognitive Radio Network....25

Jamal Hussein (Newcastle University, UK), Salama Ikki (Lakehead University, Canada), and Said Boussakta, Charalampos Tsimenidis, and Yasir Al-Mathehaji (Newcastle University, UK)

[1B-4] Primary Receiver-Aware Opportunistic Broadcasting in Cognitive Radio Ad Hoc Networks....30

Yasir Al-Mathehaji, Said Boussakta, Martin Johnston, and Jamal Hussein (Newcastle University, UK)

[1B-5] Throughput of an opportunistic spectrum access scheme under a frame structure....36

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

Session 1C : Optical-Wireless LED I

Chair: Yeong Min Jang (Koomin University, Korea)

[1C-1] Performance Analysis of a Generalized Color Modulation Under the Channel Model for High-rate PD Communication....42

Jai-Eun Kim, Ji-Won Kim, and Ki-Doo Kim (Kookmin University, Korea)

[1C-2] Visible Light Communication based Vehicle Positioning using a Rolling Shutter CMOS Sensor....48

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

[1C-3] Performance Evaluation of High-Speed Visible Light Communication Combining Low-Speed Image Sensor and Polygon Mirror In an Outdoor Environment....51

Yoshihito Imai, Tadashi Ebihara, Koichi Mizutani, and Naoto Wakatsuki (University of Tsukuba, Japan)

[1C-4] The High-efficiency LED Driver for Visible Light Communication Applications....56

Yu-Chen Lee, Jyun-Liang Lai, and Chueh-Hao Yu (Industrial Technology Research Institute, Taiwan), and Cihun-Siyong Alex Gong (Chang Gung University & Chang Gung Memorial Hospital, Taiwan)

Session 1D : Intelligent Vehicles

Chair: Dong Seog Han (Kyungpook National University, Korea)

[1D-1] Software-in-the-Loop Simulation for Early-Stage Testing of AUTOSAR Software Component....59

Sooyong Jeong, Yongsu Kwak, and Woo Jin Lee (Kyungpook National University, Korea)

[1D-2] Development of passenger safety system based on the moving object detection and test result on the real vehicle....64

Kwang-Yong Kim, Yun-Won Choi (ETRI, Korea), Jeong Hyun Kim (Kyung Chang, Korea), and Mi-Ryung Park and Soo-In Lee (ETRI, Korea)

[1D-3] A Request Based Adaptive Beacon Rate Control Scheme for Vehicular Ad-hoc Networks....67

Gwanghyeon Kim, Sungwon Lee, Hyeongcheol Park, and Dongkyun Kim (Kyungpook National University, Korea)

[1D-4] Fast and Reliable Tracking Algorithm for On-Road Vehicle Detection Systems....70

Jang Woon Baek, Byung-Gil Han, Hyunwoo Kang, Yoonsu Chung, and Su-In Lee (ETRI, Korea)

[1D-5] Measurement Based V2V Path Loss Analysis in Urban NLOS Scenarios....73

Jihoon Joo, Odongo Steven Eyobu, and Dong Seog Han (Kyungpook National University, Korea), and Hong-Jong Jeong (Wayties Inc., Korea)



Technical Sessions

Session 1E : DroneCAN

Chair: Hwangnam Kim (Korea University, Korea)

[1E-1] Devising Geographic Diffusion for Drone Networks....76

Jiyeon Lee, Kangho Kim, Hyunsoo Kim, and Hwangnam Kim (Korea University, Korea)

[1E-2] Information Propagation Modeling in a Drone Network using Disease Epidemic Models....79

Yoojoong Kim, Jong-Kook Kim, and Junhee Seok (Korea University, Korea), and Byoung Du Kim (Victoria University, New Zealand)

[1E-3] Research on Potential of Sound-based Direction Sensing for Drones....82

Ha Young Shin, Jongtaek Jung, and Hwangnam Kim (Korea University, Korea)

[1E-4] Camera-GPS-IMU Sensor Fusion for Autonomous Flying....85

Yongseok Lee, Jaemin Yoon, Hyunsoo Yang, Changu Kim, and Dongjun Lee (Seoul National University, Korea)

[1E-5] Spatial Retreat of Net-Drones under Communication Failure....89

Jin-Hyeok Kang and Kyung-Joon Park[~] (DGIST, Korea)

July 5, 2016 (Tuesday)

16:30~18:00

Session 2A : 5G/6G Mobile Communications II

Chair: Hwangnam Kim (Korea University, Korea)

[2A-1] Tactical Beamforming Against High-Power Reactive Jammer....92

Sung-Ho Lim, Sungmin Han, Jaeseok Lee, and Ji-Woong Choi (Daegu Gyeongbuk Institute of Science & Technology (DGIST), Korea)

[2A-2] Joint Hierarchical Modulation and Network Coding for Asymmetric Data Rate Transmission Over Multiple-Access Relay Channel....96

Dongho You, Ye Hoon Lee, Seung Ho Choi, and Dong Ho Kim (Seoul National University of Science and Technology (SeoulTech), Korea), and Sunghyun Cho (Hanyang University, Korea)

[2A-3] Random Access Success Probability in Full-duplex Radio Networks....99

Sungmin Han, Jaeseok Lee, and Ji-Woong Choi (DGIST, Korea)

[2A-4] Optimal Placement of Service Function in Service Function Chaining....102

Haneul Ko, Dongeun Suh, Hosung Baek, and Sangheon Park (Korea University, Korea), and Jiyoung Kwak (ETRI, Korea)

[2A-5] Asymptotic Performance Comparison of Concatenated Codes with Different Inner Decoding Schemes in Frequency-Hopping Spread Spectrum Packet Radio Networks....106

Ye Hoon Lee and Dong Ho Kim (Seoul National University of Science and Technology, Korea), and Sunghyun Cho (Hanyang University, Korea)

Session 2B : Big Data

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

[2B-1] Consideration of Manufacturing Data to Apply Machine Learning Methods for Predictive Manufacturing....109

Ji-Hyeong Han and Su-Young Chi (Electronics and Telecommunications Research Institute, Korea)

[2B-2] Integrative Manufacturing Data Visualization Using Calendar View Map....114

Doung Chankhihort, Sung Soo Choi, Gyu Jung Lee, Byung Mook Im, Da-Mi Ahn, Eun-Suk Choi, and Aziz Nasridinov (Chungbuk National University, Korea), Sun-Ok Kwon, Sang-Hyun Lee, Jeong-Tae Kang, and Kyu-Tae Park (YURA Co., Ltd., Korea), and Kwan-Hee Yoo (Chungbuk National University, Korea)

[2B-3] An Implementation of a High Throughput Data Ingestion System for Machine Logs in Manufacturing Industry....117

Jaehui Park and Su-young Chi (Electronics and Telecommunications Research Institute, Korea)

[2B-4] Data Integration and Arrangement in the Shop Floor Based-On Time Stamp: An Illustrative Study of CNC Machining....121

Rockwon Kim and Su-young Chi (ETRI, Korea), and Wan C. Yoon (KAIST, Korea)

[2B-5] A Comparative Study of Video Recommender Systems in Big Data Era....125

Seong-Eun Hong and Hwa-Jong Kim (Kangwon National University, Korea)

Session 2C : Optical-Wireless LED II

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

[2C-1] Flicker-Free Spatial-PSK Modulation Scheme for Vehicular Image Sensor Communications....128

Trang Nguyen, Nam Tuan Le, Mohammad Arif Hossain, Chang Hyun Hong, Amirul Islam, and Yeong Min Jang (Kookmin University, Korea)

[2C-2] Interference Mitigation Technique for Time-of-Flight (ToF) Camera....134

Amirul Islam, Mohammad Arif Hossain, and Yeong Min Jang (Kookmin University, Korea)

[2C-3] Performance Evaluation of MIMO Optical Camera Communications Based Rolling Shutter Image Sensor....140

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

[2C-4] Adaptive Rate Scheduling for ITLinQ under Fast Fading in D2D Networks....145

Yeon Joon Choi, Kyungmin Lee, and Sang-Hyo Kim (Sungkyunkwan University, Korea)

Session 2D : Intelligent Vehicles & DroneCAN

Chair: Dong Seog Han (Kyungpook National University, Korea)

[2D-1] Multi-Drone Control and Network Self-Recovery for



Technical Sessions

Flying Ad Hoc Networks....148

Geon-Hwan Kim, Jae-Choong Nam, Imtiaz Mahmud, and You-Ze Cho (Kyungpook National University, Korea)

[2D-2] Improved Drone Reliability Using a Robot Operating System....151

Haegeon Jeong, Jeonseong Baik, Sewoong Min, and Kyungtae Kang (Hanyang University, Korea)

[2D-3] Vehicle Visualization System on the iOS Devices Using VANETs....154

Naoto Tanaka and Taku Noguchi (Ritsumeikan University, Japan)

[2D-4] A Tool Breakage Detection System using Load Signals of Spindle Motors in CNC Machines....160

Hyeon Sung Cho, Ji-hyeong Han, and Su-young Chi (ETRI, Korea), and Kwan-Hee Yoo (Chungbuk National University, Korea)

[2D-5] Data Integration for Clinical Decision Support....164

Yuchae Jung and Yong Ik Yoon (Sookmyung Women's University, Korea)

Session 2E : Special Invited Session

Chair: Kyung-Joon Park (DGIST, Korea)

[2E-1] TCP Congestion Window Tuning for Satellite Communication Using Cross-Layer Approach....167

Jong-Mu Kim, Seung-Yong Lee, and Jae-Hyun Kim (Ajou University, Korea)

[2E-2] Optimal Scheduling of Energy Storage System for Self-Sustainable Base Station Operation Considering Battery Wear-out Cost....170

Yohan Choi and Hongseok Kim (Sogang University, Korea)

[2E-3] Load-Aware Association with AP for Internet-Connected Vehicles....173

Youngmi Baek and Sang Hyuk Son (DGIST, Korea)

[2E-4] BER Analysis of CAN Under BPSK Passband CAN-HD Interference....178

Eunmin Choi, Sungmin Han, and Jaeseok Lee (DGIST, Korea), Suwon Kang (GCT Semiconductor, Inc., USA), and Ji-Woong Choi (DGIST, Korea)

[2E-5] Performance Analysis of Relayed-Broadcasting with Probabilistic Flooding in WLANs....181

Young Boo Kim and Eun-Chan Park (Dongguk University, Korea)

July 6, 2016 (Wednesday)

09:40~11:00

Session 3A : Wireless Sensor Network I

Chair: Nestor Michael C. Tiglaio (University of the Philippines, Philippines)

[3A-1] PSR-based ANC Protocol in Energy Harvesting Bidirectional Networks....187

MinChul Ju and Jung Hun Oh (Kookmin University, Korea), and Kyu-Sung Hwang (Kyungil University, Korea)

[3A-2] Receiver Beacon Transmission Interval Design for Multi-Stage Wireless Sensor Networks....192

Tomokazu Moriyama, Taiki Nakayama, and Takeo Fujii (The University of Electro-Communications, Japan)

[3A-3] Simulation Study of Maximum Amount Shortest Path Routing in Wireless Sensor Networks Using Ns-3....198

Alberto Gallegos, Taku Noguchi, Tomoko Izumi, and Yoshio Nakatani (Ritsumeikan University, Japan)

Session 3B : Security I

Chair: Feliksas Kuliesius (Vilnius University, Lithuania)

[3B-1] High Accessible Virtual Keyboards for Preventing Key-Logging....205

Wooguik Pak, Youngrok Cha, and Sunki Yeo (Keimyung University, Korea)

[3B-2] A Routing Method Designed for a Quantum Key Distribution Network....208

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

[3B-3] Ticket-based Authentication Protocol for Underwater Wireless Sensor Network....215

Chae-Won Yun, Jae-Hoon Lee, Okyeon Yi, and Soo-Hyun Park (Kookmin University, Korea)

Session 3C : Visible Light Communications

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

[3C-1] Secure Communication with Beamforming and Jamming in Time-Varying Channels....218

Heejung Yu and Waqas Khalid (Yeungnam University, Korea)

[3C-2] High-Speed 2x2 MIMO-OFDM Visible Light Communication Employing Phosphorescent LED....222

I-Cheng Lu and Yen-Liang Liu (Industrial Technology Research Institute, Taiwan), and Chih-Han Lai (National Chiao-Tung University, Taiwan)

[3C-3] Uplink Bidirectional Efficient Multiuser Visible Light Communications Using TDD and Diversity Techniques....225

Samrat Vikramaditya Tiwari, Atul Sewaiwar, and Yeon-Ho Chung (Pukyong National University, Korea)

[3C-4] A 10.7 Km Visible Light Communications Experiment....231

Zhang Minglun, Yuan Xueguang, and Huang Yongqing (Beijing University of Posts and Telecommunications, P.R. China)

Session 3D : Cognitive Radio I

Chair: Won Cheol Lee (Soongsil University, Korea)

[3D-1] Exact Quickest Spectrum Sensing Algorithms for Eigenvalue-Based Change Detection....235

Martijn Arts, Andreas Bollig, and Rudolf Mathar (RWTH Aachen University, Germany)

[3D-2] Performance Limits of Cooperative Eigenvalue-Based Spectrum Sensing Under Noise Calibration Uncertainty....241

Martijn Arts and Rudolf Mathar (RWTH Aachen University, Germany)

[3D-3] The Future of Spectrum Sensing....247

Johanna Vartiainen (University of Oulu, Finland), Marko Höyhtyä (VTT Technical research Centre of Finland, Finland), Risto Vuohtoniemi, and Vidhya L. Ramani (University of Oulu, Finland)

[3D-4] Joint Optimal Access and Sensing Policy on Distributed Cognitive Radio Networks with Channel Aggregation....253

Sangdon Park, Jaedeok Kim, Ganguk Hwang, and Jun Kyun Choi (KAIST, Korea)

Session 3E : Wireless Communications I

Chair: Tae Won Ban (Gyeongsang National University, Korea)

[3E-1] Outage Probability of Macrodiversity system in the presence of Gamma long term fading Rayleigh short term fading and Nakagami-m CCI....259

Dusan Stefanovic (Collage of Applied technical Sciences, Serbia) and Caslav Stefanovic (University of Pristina, Serbia)

[3E-2] Mixed RF/FSO Two-Way Relaying System Under Generalized FSO Channel with Pointing Error....264

Lei Kong, Wei Xu, Hua Zhang, and Chunming Zhao (Southeast University, P.R. China)

[3E-3] On the DoF of Co-existing 2x2 X Channel and 2x2 Interference Channel....270

Cong Li, Feng Liu, and Liansun Zeng (Shanghai Maritime University, P.R. China)

[3E-4] Exact BER Performance Analysis of Incremental Relaying over Rayleigh Fading Channels....273

Özgür Özdemir (Selcuk University, Turkey)

July 6, 2016 (Wednesday)

13:40~15:10

Session 4A : Wireless Communications I

Chair: Takeo Fujii (The University of Electro-Communications, Japan)

[4A-1] RFID Sensor Network Based Pervasive Computing....277

Jetendra Joshi, Abhinandan Bhargava, Urijit kurulkar, Joshitha Reddy, Amrit Bagga, Abhinav Goel, and Pranith Reddy (NIIT University, India)

[4A-2] A General-Purpose Service-Oriented Middleware Model for WSN....283

Atif Naseer, Basem Y Alkazemi, and Hossam I Aldoobi (Umm Al-Qura University, Saudi Arabia)

[4A-3] Fractal Clustering and Similarity Measure: Two New Approaches for Reducing Energy Consumption in Wireless Sensor Networks....288

Fernando R. Almeida Jr. and Angelo Brayner (UNIFOR, Brazil), Joel J.P.C. Rodrigues (UNIFOR & Inatel, Brazil & Universidade da Beira Interior, Portugal), and Jose E. Bessa Maia (UECE, Brazil)

[4A-4] A Sub-interval-based Scheduling Algorithm in Duty-cycled Wireless Sensor Networks....294

Thi-Nga Dao and Seokhoon Yoon (University of Ulsan, Korea)

Session 4B : MIMO I

Chair: Joon-Sang Park (Hongik University, Korea)

[4B-1] Performance Analysis for Pilot Decontamination of Massive MIMO Using Alternating Projection....297

Yiliang Chen, Rong Ran, and Seongkeun Oh (Ajou University, Korea)

[4B-2] The Achievable Sum Rate of Large-Scale Fading in Multi-pair AF Massive MIMO Systems....301

Yang Liu (Yangzhou University, P.R. China), Jie Ding (Yangzhou University & Beihang University, P.R. China), Jing Yang, and Qiqing Yang (Yangzhou University, P.R. China)

[4B-3] Training Design and Two-stage Channel Estimation for Correlated Two-way MIMO Relay Systems....307

Huiming Chen and Wong Hing Lam (University of Hong Kong, P.R. China)

[4B-4] Achievable Rate Analysis for Multi-Pair Two-Way Amplify-and-Forward MIMO System in Ricean Fading....313

Caihong Xu (Yangzhou University, P.R. China), Jing Yang (Yangzhou University & Southeast University, P.R. China), Lei Zhou, and Yuren Du (Yangzhou University, P.R. China)

Session 4C : Channel/Source Codes

Chair: Hsu-Feng Hsiao (National Chiao Tung University, Taiwan)

[4C-1] Cognitive HF Communication System with Adaptive Complementary Codes....319

Johanna Vartiainen, Pekka Pirinen, and Risto Vuohtoniemi (University of Oulu, Finland)

[4C-2] Generation of Cyclically Permutable Codes by Galois Field Fourier Transform....322

Ting-Ya Yang, Houshou Chen, and Kuo-Cheng Chung (National Chung Hsing University, Taiwan)

[4C-3] Nonuniform Overlapped Rateless Codes for Streaming over Error Prone Channels....326

Yu-Shu Chang and Hsu-Feng Hsiao (National Chiao Tung University, Taiwan)

[4C-4] Construction and Complement Circuit of a Quantum Stabilizer Code with Length 7....332

Duc Manh Nguyen and Sunghwan Kim (University of Ulsan, Korea)

Session 4D : Ubiquitous Systems

Chair: Hyukjoon Lee (Kwangju University, Korea)

[4D-1] Smart City Interoperability Framework Based on City Infrastructure Model and Service Prioritization....337

Jae-young Ahn, Jun Seob Lee, and Hyoung Jun Kim (ETRI, Korea), and Dae Joon Hwang (SungKyunKwan University, Korea)

[4D-2] Picture Puzzle Augmented Reality System for Infants Creativity....343

Yeon-Jae Oh (Sunchon National University, Korea), Young-Sang Suh (Sunchon National University & Chonnam National University, Korea), and Eung-Kon Kim (Sunchon National University, Korea)

[4D-3] An Empirical Study of Applying a Reflective-



Technical Sessions

Distributed Memory for Automation Systems....347

Takashi Sakakura and Mitsuteru Shiba (Mitsubishi Electric Corporation, Japan), and Tatsuji Munaka (Tokai University, Japan)

[4D-4] Effect of Bounded Rationality on Tradeoff Between Systemic Risks & Economic Efficiency in Networks....353

V. Marbukh (National Institute of Standards and Technology, USA)

Session 4E : Wireless Communications II

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

[4E-1] Complexity Reduced Blind Diversity at Low IF Band for Indoor Reception....356

Sungwon Hong (Kyungpook National University, Korea), Donghoon Lee (Samsung Electronics Co., Ltd., Korea), and Dong Seog Han (Kyungpook National University, Korea)

[4E-2] Antenna Selection with Decoupling Network for Small Receiving Monopole Array in a Correlated MIMO System....359

Affum Emmanuel Ampoma and Guangjun Wen (University of Electronic Science and Technology of China, P.R. China)

[4E-3] 100 Gb/s PDM-DQPSK Optical Label Switching System with Spectral Amplitude Code Labels....365

Aboagye Adjaye Isaac, Cao Yongsheng, Chen Fushen, and Jin Wang (University of Electronic Science and Technology of China, P.R. China)

[4E-4] Signal Detection with Parallel Orthogonal Matching Pursuit in Multi-User Spatial Modulation Systems....371

Jeonghong Park and Bang Chul Jung (Chungnam National University, Korea), Tae-Won Ban (Gyeongsang National University, Korea), and Jong Min Kim (Korea Science Academy of KAIST, Korea)

July 6, 2016 (Wednesday)

15:20~16:20

Session 5A : Poster

Chair: Joon-Sang Park (Hongik University, Korea)

[5A-1] Design and Implementation of a Transmitter on Embedded Multicore DSP Systems....374

Chan-Bok Jeong and Hyekyung Jwa (Electronics and Telecommunication Research Institute, Korea), and Hyeon-Deok Bae (Chungbuk National University, Korea)

[5A-2] Integrated Community Service Platform System Linked to Smart Home and Smart City....380

Eungha Kim and Changsup Keum (Electronics and Telecommunication Research Institute, Korea)

[5A-3] The Mobile Edge Intelligence Services Based on the Space-Specific Ontology....383

HyunKyung Yoo and Changsup Keum (Electronics and Telecommunication Research Institute, Korea)

[5A-4] A Design of Smart Docent Service Using Hybrid Recommenders....386

Ki-Sook Chung, Thai Quang Tung, and Chang-sup Keum (Electronics

and Telecommunication Research Institute, Korea)

[5A-5] Software Monitoring System for Register Marker Detection....390

Sang-Chul Kim (Kookmin University, Korea)

Session 5B : Poster

Chair: Joon-Sang Park (Hongik University, Korea)

[5B-1] Design of a Collision-free Backoff Method to Improve the IEEE 802.11 DCF....395

Xiaoying Lei (Yangzhou University, China) and Seung Hyong Rhee (Kwangwoon University, Korea)

[5B-2] Adaptive Access Class Barring for Machine-Type Communications in LTE-A....398

Jihun Moon (University of Suwon, Korea) and Yujin Lim (Sookmyung Women's University, Korea)

[5B-3] Joint Power Allocation and Relay Selection for Two-Way Relaying with Digital Network Coding....403

Thinh Phu Do and Yun Hee Kim (Kyung Hee University, Korea)

[5B-4] Improvement of Key Exchange Protocol to prevent Man-in-the-middle Attack in the Satellite Environment....408

In-A Song and Young-Seok Lee (Kunsan National University, Korea)

[5B-5] Content-Centric Distribution in Wireless Networks....414

Mahfuzur Rahman Bosunia and Seong-Ho Jeong (Hankuk University of Foreign Studies, Korea)

[5B-6] Test Node-Based WCL Algorithm for Wireless Sensor Networks....418

Kwang-Yul Kim and Yoan Shin (Soongsil University, Korea)

Session 5C : Poster

Chair: Joon-Sang Park (Hongik University, Korea)

[5C-1] Indoor Navigation for an Automatic Guided Vehicle with Beacon based Relative Distance Estimation....424

Jae-Ho Lee, Uk-Jin JANG, and Youn-Sik Hong (Incheon National University, Korea)

[5C-2] Android Forensics Analysis: Private Chat on Social Messenger....430

G. B. Satrya, P. T. Daely, and S. Y. Shin (Kumoh National Institute of Technology, Korea)

[5C-3] Cascaded Learning System for SR Noise Induced Spectrum Sensing in Cognitive Radio Network....436

Reda Haftu Tasew and Soo Young Shin (Kumoh National Institute of Technology, Korea)

[5C-4] Design and Implementation of IoT Planner: Device Interaction Service for IoT....441

Seung Woo Kum, Sung-hyun Kim, Young Ran Jeon, Jaewon Moon, and Tae-Boem Lim (Korea Electronics Technology Institute, Korea)

[5C-5] A location-based interactive model for Internet of Things and Cloud (IoT-cloud)....444

Thanh Dinh and Younghwan Kim (Soongsil University, Korea), and Hyukjoon Lee (Kwangwoon University, Korea)

[5C-6] Pixel to Signal Conversion Based Invisible Image Sensor Communication....448

Mohammad Arif Hossain, Amirul Islam, and Yeong Min Jang
(Kookmin University, Korea)

Session 5D : Poster

Chair: Joon-Sang Park (Hongik University, Korea)

[5D-1] A Simple Approach to Share Users' Own Healthcare Data with a Mobile Phone....453

Hyunsoo Kim, Hyeon Song, Soobin Lee, Hyangjung Kim, and Inkwang Song (NEOFECT Co., Ltd., Korea)

[5D-2] Performance Evaluation of In-Memory Computing on Scale-Up and Scale-Out Cluster....456

Taekyung Yoo, Minsub Yim, Ilgyun Jeong, Yunsu Lee, and Seung-Tae Chun (Datastreams Corp., Korea)

[5D-3] Turbo Equalization for Covert Communication in Underwater Channel....462

Tae-Seok Ahn, Ji-Won Jung, and Ha-Hyun Sung (Korea Maritime and Ocean University, Korea), Dong-Won Lee and Tae-Doo Park (Hanwha Corporation, Korea)

[5D-4] A Network-Aware Adaptive Streaming for Improving the Video Quality....465

Dongchil Kim, Chang Mo Yang, Chai-Jong Song, and Sungjoo Park (Korea Electronics Technology Institute, Korea)

[5D-5] K-NN based Positioning Performance Estimation for Fingerprinting Localization....468

Jooyoung Kim, Myungin Ji, Ju-il Jeon, Sangjoon Park, and Youngsu Cho (Electronics & Telecommunication Research Institute (ETRI), Korea)

[5D-6] Hybrid Modulation Scheme for Indoor Image Sensor Communication System Using Smartphone and LEDs....471

Chang Hyun Hong, Mohammad Arif Hossain, Trang Nguyen, and Yeong Min Jang (Kookmin University, Korea)

Session 5E : Poster

Chair: Joon-Sang Park (Hongik University, Korea)

[5E-1] An Efficient FTN Decoding Method Using Separation Of LDPC Decoding Symbol....475

Ha-Hyun Sung and Ji-Won Jung (Korea Maritime and Ocean University, Korea)

[5E-2] A Packet Scheduling Scheme for Seamless Transmission of Life Media Contents....478

Sungjoo Park, Dongchil Kim, Chang Mo Yang, and Chai-Jong Song (Korea Electronics Technology Institute, Korea)

[5E-3] Design and Implementation of the Car Multimedia Data Transmission System Using Ethernet AVB....481

An, Donghun (INFACELECS Co. Ltd., Korea)

[5E-4] QoS-Based AMC and Dynamic SINR Margin Scheduling in Wireless Multimedia Transmission Systems....484

Sungkyung Kim, Kyung Sook Kim, Dae Ik Kim, and Jee-Hyeon Na (Electronics and Telecommunications Research Institute, Korea)

[5E-5] Testbed for Analyzing Performance Degradation of MIMO-OFDM WLAN due to WPAN Interferer Using USRP....487

Hyungoo Yoon (Myongji College, Korea), Jin-Soo Park, and Byung-Jun Jang (Kookmin University, Korea)

July 6, 2016 (Wednesday)

16:40~17:50

Session 6A : Resource Allocation

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

[6A-1] Cooperative Spectrum Sharing with Space Time Block Coding and Non-orthogonal Multiple Access....490

Md Fazlul Kader and Soo Young Shin (Kumoh National Institute of Technology, Korea)

[6A-2] A Convex Optimization for Sum Rate Maximization in a MIMO Cognitive Radio Network....495

Hieu V. Nguyen, Van-Dinh Nguyen, Hyeon Min Kim, and Oh-Soon Shin (Soongsil University, Korea)

[6A-3] Coalition based Low-Complexity Algorithm for Nash Bargaining Solution....498

Jisoo Choi, Seunghyun Jung, and Hyunggon Park (Ewha Womans University, Korea)

Session 6B : MIMO II

Chair: Joon-Sang Park (Hongik University, Korea)

[6B-1] A Study on Turbo Equalization for MIMO System based on LDPC codes....501

Chang-uk Baek and Ji-won Jung (Korea Maritime and Ocean University, Korea)

[6B-2] A Study on MIMO-FTN Scheme based on Layered Space Time Code using Turbo Codes....505

Gun-Woong Park and Ji-won Jung (Korea Maritime and Ocean University, Korea)

[6B-3] MIMO-HFM: Acoustic System Design for Reliability and High Data Rate in Underwater Sensor Networks....508

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

Session 6C : Internet of Things I

Chair: Kwan-Hee Yoo (Chungbuk National University, Korea)

[6C-1] Social Correlation Group Generation Mechanism in Social IoT Environment....514

Deok-Hee Kang, Hoan-Suk Choi, and Woo-Seop Rhee (Hanbat National University, Korea)

[6C-2] RISE: Role-based Internet of Things Service Environment....520

Hoan-Suk Choi, Deok-Hee Kang, and Woo-Seop Rhee (Hanbat National University, Korea)

[6C-3] Knowledge Creation Model in WoO Enabled Smart Ageing IoT Service Platform....526

Muhammad Golam Kibria and Ilyoung Chong (Hankuk University of Foreign Studies, Korea)

Session 6D : Cognitive Radio II

Chair: Magdy Bayoumi (University of Louisiana, USA)

[6D-1] Single-channel Blind Identification Based Advanced Energy Detection for Cognitive Radio....532

Hang LIU and Takeo FUJII (The University of Electro-Communications, Japan)

[6D-2] Different Weighted Fusion Scheme for Cooperative Spectrum Sensing using Normal Factor Graph....537

Guman Kanwar Shekhawat and Purnendu Karmakar (The LNMIIT, India)

[6D-3] On Sub-Nyquist Spectrum Sensing for Wideband Cognitive Radios....543

Mohamed Shaban and Magdy Bayoumi (University of Louisiana at Lafayette, USA)

Session 6E : Wireless Communications III

Chair: Tae Won Ban (Gyeongsang National University, Korea)

[6E-1] Novel Channel Estimation Scheme for Backhaul System based on LTE-Advanced....549

Myeonghun Chu, Jihye Lee, Soonho Kwon, Sangmi Moon, and Intae Hwang (Chonnam National University, Korea)

[6E-2] Channel Equalizer Performance Analysis for Hybrid 3DTV in ATSC 3.0 Standard....554

Sol Lim and Dae Jin Kim (Chonnam National University, Korea), Sung-Hoon Kim and Hui Yong Kim (Electronics and Telecommunications Research Institute, Korea)

[6E-3] FSC Receiver for Performance Improvement of D2D Communication in LTE-Advanced System....557

Sangmi Moon, Myeonghun Chu, Jihye Lee, Soonho Kwon, and Intae Hwang (Chonnam National University, Korea)

July 7, 2016 (Thursday)

09:40~10:50

Session 7A : Wireless Systems

Feliksas Kuliesius (Vilnius University, Lithuania)

[7A-1] A 3-11GHz Current-Reuse Low Noise Amplifier for Ultra-Wideband Receivers....563

Hamid Karrari, Hassan Faraji Baghtash, and Esmail Najafi Aghdam (Sahand University of Technology, Iran)

[7A-2] On the Investigation of Voltage Standing Wave Ratio to Design a Low Noise Wideband Microwave Amplifier....568

M. R. M. Rizk (Alexandria University, Egypt), Ehab Abou-Bakr (The Higher Institute of Engineering and Technology, Egypt), A.A.A. Nasser (Arab Academy For Science Technology and Maritime Transport, Egypt), El-Sayed A. El-Badawy (Alexandria University, Egypt), and Amr M. Mahros (Alexandria University, Egypt & University of

Jeddah, Saudi Arabia)

[7A-3] Study on Construction of CDMA Transmission Simulator Using SH3 Microcomputer Board....573

Eisuke Kudoh, Kojiro Oka, and Kenichi Suzuki (Tohoku Institute of Technology, Japan)

Session 7B : Wireless Network I

Chair: Purnendu Karmakar (The LNM Institute of Information Technology, India)

[7B-1] QoE Assessment of a Reliable Groupcast Scheme in Audiovisual Transmission Over a Wireless LAN....576

Toshiro Nunome, Haruki Yamamoto, and Yuma Honda (Nagoya Institute of Technology, Japan)

[7B-2] Cross Layer Multi QoS Metric Routing for Multimedia Traffic in 802.11E Over MANETs....582

Mahadev A. Gawas, Lucy J. Gudino, and K. R. Anupama (BITS-Pilani K.K.Birla, India)

[7B-3] A New MAC Protocol for Emergency Handling in Wireless Body Area Networks....588

Sabita Nepal, Amod Pudasaini, Jae-young Pyun, Suk-seung Hwang, Chung Ghiu Lee, and Seokjoo Shin (Chosun University, Korea)

Session 7C : Internet of Things II

Chair: Najam Ul Hasan (Dhofar University, Oman)

[7C-1] Hop-Interval Based Decision of Operational Mode In RPL With Multi-Instance....591

Yonghwan Jeong, Sungwon Lee, Eunbae Moon, and Hyeongcheol Park (Kyungpook National University, Korea), Hongseok Yoo (Kyungwoon University, Korea), and Dongkyun Kim (Kyungpook National University, Korea)

[7C-2] A Positioning Algorithm in the Internet of Things....594

Ha. Nguyen Thi (Hoa Sen University, Viet Nam) and Khanh. Ngo Tan Vu (Tien Giang University, Viet Nam)

[7C-3] Resource Aware Hierarchical Routing in Heterogeneous Wireless IoT Networks....599

Jianlin Guo and Philip Orlik (Mitsubishi Electric Research Laboratories, USA), and Koichi Ishibashi (Mitsubishi Electric Corporation IT R&D Center, Japan)

Session 7D : Vehicular Network I

Chair: Silvia Krug (Technische Universitaet Ilmenau, Germany)

[7D-1] ACPM: An Associative Connectivity Prediction Model for AANET....605

Soumi Ghosh and Amiya Nayak (University of Ottawa, Canada)

[7D-2] Emergency Application for Vehicle-to-Vehicle Communication using Named Data Networking (eVNDN)....611

Yao-Hua Ho, Chun-Han Lin, and Shih-Jie Sun (National Taiwan Normal University, Taiwan), and Ling-Jyh Chen (Academia Sinica, Taiwan)

[7D-3] Utility-Based Scheduling for In-Taxi Video Advertising Systems....617



Technical Sessions

Shih-Fan Chou and Yu-Chia Hsu (National Taiwan University, Taiwan), and Ai-Chun Pang (National Taiwan University, Taiwan & Academia Sinica, Taiwan)

Session 7E : Wireless Communications IV

Chair: Kiran V (VTU, India)

[7E-1] Effect of Intra-Flow Interference Canceller for Large-Scale Ad Hoc Network....623

Jingze Dai (Hitachi, Ltd, Japan) and Yasushi Yamao (The University of Electro-Communications, Japan)

[7E-2] The selective transmission with majority even/odd subcarriers for the high data throughput in OFDMA based Cognitive Radio systems....628

Yihu Xu (Yanbian University, China) and Myoung-Seob Lim (Chonbuk National University, Korea)

[7E-3] New Channel Hopping Sequence for Cognitive Radio Systems Using p-ary m-sequence....632

Ji-Woong Jang (Ulsan College, Korea), Young-June Choi and Rajib Paul (Ajou University, Korea), and Young-Sik Kim (Chosun University, Korea)

July 7, 2016 (Thursday)

11:00~12:00

Session 8A : Poster

Chair: Young-June Choi (Ajou University, Korea)

[8A-1] Layered Architecture of Device Virtualization and Functional Collaboration for Efficient Cyber Services Configurability....635

Kyou Ho Lee (Inje University, Korea), Chae Min Park (Barun Technology Co., Korea), and Myung Hyun Yoon (Korea Electronics Technology Institute (KETI), Korea)

[8A-2] Low Complexity Algorithms for Network Coding based on Singular Value Decomposition....641

Jungmin Kwon and Hyunggon Park (Ewha Womans University, Korea)

[8A-3] Design of Positioning DB Automatic Update Method Using Google Tango Tablet for Image Based Localization System....644

Juil Jeon, Myungin Ji, Juyoung Kim, Sangjoon Park, and Youngsu Cho (Electronics and Telecommunications Research Institute, Korea)

[8A-4] An Inter-cell Interference Coordination Method with Beam Pattern Diversity of User Terminals in Heterogeneous Multi-cell Networks....647

Yun Hee Choo and SeungKwon Baek (Electronics and Telecommunications Research Institute, Korea)

[8A-5] Multi-antenna-based Transmission Strategy in 5GHz Unlicensed Band....651

Jungsun Um (Electronics and Telecommunications Research Institute (ETRI), Korea), Jaehyun Park (Pukyong National University, Korea),

and Seungkeun Park (Electronics and Telecommunications Research Institute (ETRI), Korea)

[8A-6] Access Control with ONOS Controller in the SDN Based WLAN Testbed....656

Jung Wan Shin, Hwi Young Lee, Won Jin Lee, and Min Young Chung (Sungkyunkwan University, Korea)

Session 8B : Poster

Chair: Young-June Choi (Ajou University, Korea)

[8B-1] Improving Frequency Multiplexing of Random Access Resources for TDD System Enhancement....661

Jisoo Park (ETRI, Korea) and Jaemin Ahn (CNU, Korea)

[8B-2] A Comparison of Clustering Algorithms for Botnet Detection Based on Network Flow....667

Long Mai and Minho Park (Soongsil University, Korea)

[8B-3] Performance of Secure Network Coding based on Homomorphic Encryption....670

Seong-Min Choi and Joon-Sang Park (Hongik University, Korea)

[8B-4] Two-Dimensional Interleaver for Holographic Data Storage Systems....673

Seongkwon Jeong and Janjin Lee (Soongsil University, Korea)

[8B-5] Handover Measurement for Millimeter Wave Cellular System with Beamforming....676

Jasper Meynard P. Arana, Rothna Pec, and Yong Soo Cho (Chung-Ang University, Korea)

[8B-6] Spectrum and Connectivity Aware Anchor-based Routing in Cognitive Vehicular Ad Hoc Networks....679

Huma Ghafoor and Insoo Koo (University of Ulsan (UOU), Korea)

Session 8C : Poster

Chair: Young-June Choi (Ajou University, Korea)

[8C-1] Using Social Internet of Things (SIoT) Demand Side Management on the Plant....685

Jaehyeon Eom, Laihyuk Park, Woongsoo Na, Nhu- Ngoc Dao, Seon Min Jang, Yong Hun Kim, Jun Wook Lee, and Sungrae Cho (Chung-Ang University, Korea)

[8C-2] Optimization of ISM Band Interference Coordination Between WLAN and IEEE 802.15.4 Using NAV on PAN Coordinator....688

Seonmin Jang, Laihyuk Park, Woongsoo Na, Nhu-Ngoc Dao, Jae Hyeon Eom, Yong Hun Kim, Jun Wook Lee, and Sungrae Cho (Chung-Ang University, Korea)

[8C-3] Clustering Control in Isopleth-Oriented Ad Hoc Communication for Disaster Detection....691

Satoshi Katayama and Tomotaka Wada (Kansai University, Japan), and Young-Bok Choi (Tongmyong University, Korea)

[8C-4] Using D2RQ and Ontop to Publish Relational Database as Linked Data....694

PhalPheaktra Chhaya, Chi-Hwan Choi, Kyung-Hee Lee, Wan-Sup

Cho, Kwang-soo Shin, and Young-Sung Lee (Chungbuk National University, Korea)

[8C-5] A Study on Quality of Experience of Controlling a Device Remotely in an IoT Environment....699

Yejin Shin, Soonuk Seol, and Kangwon Lee (Korea University of Technology and Education, Korea)

[8C-6] A Study on Vehicular Image Sensor Communication Intelligent System....703

T. Nguyen, C. H. Hong, Se Bong Jang, and Y. M. Jang (Kimin Electronics co.ltd, Korea)

Session 8D : Poster

Chair: Young-June Choi (Ajou University, Korea)

[8D-1] Improved Scheduling for MAC Protocol in WBAN Based Monitoring Environment....706

Rae Hyun Kim and Jeong Gon Kim (Korea Polytechnic University, Korea)

[8D-2] A Practical Method of Designing DFT-based Channel Estimator....710

Jun-woo Kim, Jang-won Moon, Young-jo Bang, and Hoon Lee (ETRI (Electronics and Telecommunications Research Institute), Korea)

[8D-3] Novel Detection Scheme for LSAS Using Power Allocation in Multi User Scenario with LTE-A and MMB Channels....715

Jihye Lee, Myeonghun Chu, Soonho Kwon, Sangmi Moon, and Intae Hwang (Chonnam National University, Korea)

[8D-4] Design of Open-Ring Monopole Antenna for TPMS Sensor Modules....721

Seung Gi Kim, HanWool Choi, Sol Lim, and Dae Jin Kim (Chonnam National University, Korea)

[8D-5] A Survey on MITM and its Countermeasures in the TLS Handshake Protocol....724

Seung-Woo Han, Hyunsoo Kwon, Changhee Hahn, Dongyoung Koo, and Junbeom Hur (Korea University, Korea)

[8D-6] Realistic Media Authoring Tool Based on MPEG-V International Standard....730

Sang-Ho Shin, Keum-Sook Ha, Han-O Yun, and Yoon-Seok Nam (Dongguk University Gyeongju Campus, Korea)

Session 8E : Poster

Chair: Young-June Choi (Ajou University, Korea)

[8E-1] An Orthogonal Coded Hybrid MAC Protocol with Received Power Based Prioritization for M2M Networks....733

In-Seop Park, Ethungshan Shitiri, and Ho-Shin Cho (Kyungpook National University, Korea)

[8E-2] Cell Decomposition for the Table in Document Image Based on Analysis of Texts and Lines Distribution....736

Hong Tai Tran, Tuan Anh Tran, In Seop Na, and Soo Hyung Kim (Chonnam National University, Korea)

[8E-3] Sensing-based Adaptive Data Reporting Scheme in Wireless Sensor Networks....739

Taemin Hwang, Yujin Nam, and Jaewoo So (Sogang University, Korea), Minsoo Na and Changsoon Choi (SK Telecom, Korea)

[8E-4] TPMS Tire Position Registration Algorithm Using Acceleration and RSSI Data....745

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

[8E-5] Ubiquitous Creation of Digital Bas-Reliefs Using Smartphone....748

Bong-Soo Sohn (Chung-Ang University, Korea)

July 7, 2016 (Thursday)

13:30~15:30

Session 9A : Software Defined Network I

Chair: Yoshihiro Niitsu (Shibaura Institute of Technology, Japan)

[9A-1] A Framework for Fine-Grained Inter-Domain Routing Diversity Via SDN....751

Yangyang Wang, Jun Bi, and Keyao Zhang (Tsinghua University, P.R. China), and Yangchun Wu (ZTE Corporation, P.R. China)

[9A-2] Constructing Infrastructure Wireless Network Using Open Source....757

Junho Kim and Sungwon Lee (Kyunghee University, Korea)

[9A-3] The ACO Routing Agent Implementation for the Real Network....763

Sim Young-Bo, SeungGwan Lee, and SungWon Lee (Kyunghee University, Korea)

[9A-4] A Cross-Layer Design for Large Transfers in SDNs....769

Fatemah Alali and Malathi Veeraraghavan (University of Virginia, USA)

[9A-5] PathMon: Path-Specific Traffic Monitoring in OpenFlow-Enabled Networks....775

Ming-Hung Wang, Shao-You Wu, Li-Hsing Yen, and Chien-Chao Tseng (National Chiao Tung University, Taiwan)

Session 9B : Wireless Network II

Chair: Takeo Fujii (The University of Electro-Communications, Japan)

[9B-1] High reliable broadcasting protocol in WLAN using retransmission....781

Byungcheol Kang, Minjoon Kim, and Jaeseok Kim (Yonsei University, Korea)

[9B-2] Challenges of Applying DTN Routing Protocols in Realistic Disaster Scenarios....784

Silvia Krug and Jochen Seitz (Technische Universität Ilmenau, Germany)

[9B-3] Evaluation of BLE Mesh Capabilities: A Case Study Based on CSRMESH....790

Philipp Zenker and Silvia Krug (Technische Universität Ilmenau, Germany), Michael Binhack (senTec Elektronik GmbH, Germany),



Technical Sessions

and Jochen Seitz (Technische Universität Ilmenau, Germany)

[9B-4] Automatic Failure Diagnosis for Wireless LAN Systems Based on Distribution of Responses From STAs....796

Hiroshi Fujita, Takayoshi Nakayama, Yun Wen, and Dai Kimura (FUJITSU LABORATORIES LTD., Japan)

[9B-5] 6LoWPAN Based Intelligent Transport System for Surveillance- A Model of Ubiquitous Computing Technology....801

Vinila Nagaraj, Kiran V, and Padmaja K V (RVCE, India)

Session 9C : Mobile Network

Chair: Mahadev Anant Gawas (Bits, India)

[9C-1] Enhanced Multi-Criteria-Based Path Selection Algorithm for Heterogeneous Networks....804

Yevgeniy Yeryomin and Jochen Seitz (Technische Universität Ilmenau, Germany)

[9C-2] Evaluation of MCDA-based Handover Algorithms for Mobile Networks....810

Radion Bikmukhamedov (Radion Bikmukhamedov & Kazan National Research Technical University, Russia), Yevgeniy Yeryomin and Jochen Seitz (Technische Universität Ilmenau, Germany)

[9C-3] A Data Scheduling Algorithm for Medical Streaming in Mobile P2P Network....816

Xiaoxiang Wang, Xiaopeng Ma, and Yulong Wang (Beijing University of Posts and Telecommunications, P.R. China), and Dongyu Wang (Chinese PLA General Hospital, P.R. China)

[9C-4] A Cross-Layer Mobility Management with Multi-Criteria Decision Making....821

Atheer Al-Rubaye and Jochen Seitz (Technische Universität Ilmenau, Germany)

[9C-5] Performance Analysis for Use of Mobile Agent in Wireless Multihop Networks....827

Shigeki Shiokawa (Kanagawa Institute of Technology, Japan)

Session 9D : Internet I

Chair: Francesco Zampognaro (University of Rome Tor Vergata, Italy)

[9D-1] Bandwidth Efficiency in the Next Generation Access Architecture XG-PON....833

Constantine A. Kyriakopoulos and Georgios I. Papadimitriou (Aristotle University, Greece)

[9D-2] A No Reference Method for Detection of Dropped Video Frames in Live Video Streaming....839

Muhammad Arslan Usman, Muhammad Rehan Usman, and Soo Young Shin (Kumoh National Institute of Technology, Korea)

[9D-3] Web Protocols and Challenges of Web Latency in the Web of Things....845

Nitin Naik and Paul Jenkins (Ministry of Defence, UK)

[9D-4] Web Services-Based Trust Framework Design and Applications: A Case Study....851

Cheng-Han Kuo and Shuchih Ernest Chang (National Chung Hsing University, Taiwan)

[9D-5] Cloud Service in Stock Trading Game: Service Virtualization, Integration and Financial Application....857

Chin-Wei Wang and Shuchih Ernest Chang (National Chung Hsing University, Taiwan)

Session 9E : Security II

Chair: Petr Bujok (University of Ostrava, Czech Republic)

[9E-1] Analysis of Attackers Against Windows Emulating Honeypots in Various Types of Networks and Regions....863

Tomas Sochor, Matej Zuzcak, and Petr Bujok (University of Ostrava, Czech Republic)

[9E-2] A Modified Reversible Data Hiding in Encrypted Image Using Enhanced Measurement Functions....869

Fatema-Tuz-Zohra Khanam (University of Ulsan, Korea), Kyoung-Young Song (Ulsan College, Korea), and Sunghwan Kim (University of Ulsan, Korea)

[9E-3] Detection of Android Malware by Static Analysis on Permissions and Sensitive Functions....873

Ming-Yang Su and Kek-Tung Fung (Ming Chuan University, Taiwan)

[9E-4] Performance Evaluation of Network Scanning Tools with Operation of Firewall....876

Sun-young Im, Seung-Hun Shin, Ki Yeol Ryu, and Byeong-hee Roh (Ajou University, Korea)

[9E-5] BadVoice: Soundless Voice-control Replay Attack on Modern Smartphones....882

Park Joon Young, Jo Hyo Jin, Samuel Woo, and Dong Hoon Lee (Korea University, Korea)

July 7, 2016 (Thursday)

15:50~17:50

Session 10A : Software Defined Network II

Chair: Myungsik Yoo (Soongsil University, Korea)

[10A-1] An Adaptive Mobility Manager for Software-Defined Enterprise WLANs....888

Yunong Han and Kun Yang (University of Essex, UK)

[10A-2] SDN Enhanced Campus Network Authentication and Access Control System....894

Feliksas Kuliesius and Vainius Dangovas (Vilnius University, Lithuania)

[10A-3] Study on Coupling of Software-Defined Networking and Wireless Sensor Networks....900

Younghwan Choi, Yunchul Choi, and Yong-Geun Hong (Electronics and Telecommunications Research Institute, Korea)

[10A-4] On Addressing Mobility Issues in Wireless Mesh Networks using Software-Defined Networking....903

Mohamed Labraoui (Commissariat l'Energie Atomique (CEA) & Université Pierre et Marie Curie-Paris VI, France), Charalampos Chatzinakis and Michael Mathias Boc (Commissariat l'Energie Atomique (CEA), France), and Anne Fladenmuller (Université Pierre et Marie Curie-Paris VI, France)

[10A-5] A Fully Meshed Backbone Network for Data-Intensive Sciences and SDN Services....909

Takashi Kurimoto, Shigeo Urushidani, Hiroshi Yamada, Kenjiro Yamanaka, Motonori Nakamura, Shunji Abe, Kensuke Fukuda, Michihiro Koibuchi, Yusheng Ji, Hiroki Takakura, and Shigeki Yamada (National Institute of Informatics, Japan)

Session 10B : 5G Network I

Chair: Hiroyuki Otsuka (Kogakuin University, Japan)

[10B-1] Multi-Cell Interference Coordinated Scheduling in mmWave 5G Cellular Systems...912

Chun-Yen Chen, Yin-Yi Chen, and Hung-Yu Wei (National Taiwan University, Taiwan)

[10B-2] Enhancing Throughput Performance in LTE-Advanced Hetnets with Buffered Fractional Frequency Reuse....918

Sani Umar Abdullahi, Jian Liu, Ci Huang, and Xiaonan Zhang (University of Science and Technology Beijing, P.R. China)

[10B-3] QoS-aware Channel Assignment for IoT-enabled Smart Building in 5G Systems....924

Najam ul Hasan (Dhofar University, Oman), Waleed Ejaz (Ryerson University, Canada), Imran Baig and Manaf Zghaibeh (Dhofar University, Oman), and Alagan Anpalagan (Ryerson University, Canada)

[10B-4] Satisfaction Degree and Channel State Difference Based Fair Resource Allocation in Femto Networks....929

Lin Shi and Sang-Jo Yoo (Inha University, Korea)

[10B-5] Traffic Regulation for Power Saving in LTE-A Networks Supporting Video-on-Demand Services....932

Mingfu Li and Yuan-Chen Lo (Chang Gung University, Taiwan)

Session 10C : Ubiquitous Service

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

[10C-1] TARGETED ADVERTISING USING BEHAVIOURAL DATA AND SOCIAL DATA MINING....937

Vrinda Bhatia and Varun Hasija (Delhi Technological University, India)

[10C-2] A Big Data Approach for Proactive Healthcare Monitoring of Chronic Patients....943

Atif Naseer and Basem Y. Alkazemi (Umm al Qura University, Kingdom of Saudi Arabia), and Ehsan Ullah Waraich (Eindhoven University of Technology, The Netherlands)

[10C-3] EEG-Based Emotion Recognition Approach for E-Healthcare Applications....946

Mouhannad Ali, Ahmad Haj Mosa, Fadi Al Machot, and Kyandoghene Kyamakya (Alpen-Adria University, Austria)

[10C-4] A Windowing Approach for Activity Recognition in Sensor Data Streams....951

Fadi Al Machot, Heinrich C. Mayr, and Suneth Ranasinghe (Alpen-Adria Universität Klagenfurt, Austria)

[10C-5] Power Utilization Efficiency Improvement Method for DTN Using a Message Ferry....954

Yoshihiro Niitsu, Tsubasa Sakuma, and Hiroyuki Date (Shibaura Institute of Technology, Japan)

Session 10D : Internet II

Chair: Francesco Zampognaro (University of Rome Tor Vergata, Italy)

[10D-1] Feature Transformation and Mutual Information for DNS Tunneling Analysis....957

E. Cambiaso, M. Aiello, M. Mongelli, and G. Papaleo (National Research Council of Italy, Italy)

[10D-2] Tendency-Based Caching in Content-Centric Networking....960

YuSheng Xia, YaPing Liu, and JinShu Su (National University of Defense Technology, P.R. China)

[10D-3] Flow Distribution Strategy in Heterogeneous Networks Based on Satisfaction....966

Yingping Feng and Xiaoxiang Wang (Ministry of Education, P.R. China), Yulong Wang (Beijing University of Posts and Telecommunications, P.R. China), and Dongyu Wang (Chinese PLA General Hospital, P.R. China)

[10D-4] A QoS-Adaptive Framework for Screen Sharing Over Internet....972

Duc V. Nguyen and Huyen T. T. Tran (The University of Aizu, Japan), Pham Ngoc Nam (Hanoi University of Science and Technology, Vietnam), and Truong Cong Thang (The University of Aizu, Japan)

[10D-5] Emulation of IP-based video streaming through simultaneous satellite connections....975

M. Luglio, C. Roseti, and F. Zampognaro (University of Rome, Italy)

Session 10E : Machine Learning

Chair: YoungSung Lee (Chungbuk National University, Korea)

[10E-1] Understanding Pending Issue of Society and Sentiment Analysis Using Social Media....981

Jong-Seon Jang, Byoung-In Lee, Chi-Hwan Choi, Jin-Hyuk Kim, Dong-Myung Seo, and Wan-Sup Cho (Chungbuk National University, Korea)

[10E-2] Performance of classification based on PCA, Linear SVM, and Multi-kernel SVM....987

Saruar Alam, Moonsoo Kang, Jae-Young Pyun, and Goo-Rak Kwon (Choson University, Korea)

[10E-3] Maximizing the Number of Qualified Work Teams Based on Social Network Relationships....990

Sheng-Wei Wang (Fo Guang University, Taiwan)

[10E-4] Understanding Enterprise Interaction Analysis from Newspapers: A Network Approach....996

Yong-Yeon Kim, Ji-Hyeon Lee, Kyung-Hee Lee, and Wan-Sup Cho (Chungbuk National University, Korea)

[10E-5] Smart Answering Chatbot based on OCR and Overgenerating Transformations and Ranking....1002

Ly Pichponreay, Chi-Hwan Choi, Jin-Hyuk Kim, Kyung-Hee Lee, and Wan-Sup Cho (Chungbuk National University, Korea)



Technical Sessions

July 8, 2016 (Friday)

09:40~11:10

Session 11A : Localization

Chair: Fadi Al Machot (Alpen Adria University Klagenfurt, Austria)

[11A-1] A Fingerprinting Indoor Localization Algorithm Based Deep Learning....1006

Gibrán Félix and Mario Siller (CINVESTAV Unidad Jalisco, Mexico), and Ernesto Navarro Álvarez (Universidad Tecnológica de Manzanillo, Mexico)

[11A-2] Range Based Wireless Node Localization Using Dragonfly Algorithm....1012

Philip T. Daely and Soo Y. Shin (Kumoh National Institute of Technology, Korea)

[11A-3] Beacon Based Indoor Positioning System Using Weighted Centroid Localization Approach....1016

Santosh Subedi, Goo-Rak Kwon, Seokjoo Shin, Suk-seung Hwang, and Jae-Young Pyun (Chosun University, Korea)

Session 11B : 5G Network II

Chair: Najam Ul Hasan (Dhofar University, Oman)

[11B-1] Energy-Aware Topology Management for 5G Dual-hop Ultra-High Capacity Backhaul Networks Exploiting Path Diversity....1020

Aftab Ahmed and David Grace (University of York, England)

[11B-2] TCP Flow-Level Traffic Model for Evaluating LTE-Advanced Networks....1026

Moritz Lossow, Paul Arnold, Heinz Droste, and Gerhard Kadel (Deutsche Telekom Innovation Laboratories, Germany)

[11B-3] Performance of Transmit Antenna Selection in Non-Orthogonal Multiple Access for 5G Systems....1031

Anish Prasad Shrestha (Inha University, Korea), Tao Han (Huazhong University of Science and Technology, P.R. China), Zhiquan Bai (Shandong University, P.R. China), Jae Myoung Kim and Kyung Sup Kwak (Inha University, Korea)

[11B-4] Sidehaul Link Management Scheme for Mobile Contents Caching Environments in Moving Small-Cell Networks....1035

Minsu Shin, Jun Suk Kim, and Min Young Chung (Sungkyunkwan university, Korea), and Young Min Kwon (ATTO Research, Korea)

Session 11C : Wireless Network III

Chair: Purnendu Karmakar (The LNM Institute of Information Technology, India)

[11C-1] Data Dissemination Strategy Based on Time Validity for Opportunistic Networks....1040

Chun-Chih Lo, Yau-Hwang Kuo, and Jung-Yi Jiang (National Cheng Kung University, Taiwan)

[11C-2] Low Complexity Energy-hole Detouring Scheme with Energy Harvesting....1046

Minkyu Chun, Kyoungtaek Lee, and Jaiyong Lee (Yonsei University, Korea)

[11C-3] Testbed Implementation for Routing WLAN Traffic in Software Defined Wireless Mesh Network....1052

Won Jin Lee, Jung Wan Shin, Hwi Young Lee, and Min Young Chung (Sungkyunkwan University, Korea)

Session 11D : Internet III

Chair: Hyunggon Park (Ewha Womans University, Korea)

[11D-1] Proposal for Server Management System by Using Embedded Packet with VNIC....1056

Satoshi Kodama, Akio Minakawa, and Yusuke Goto (Tokyo University of Science, Japan)

[11D-2] The Data Indexing for Cyber Threat Resources....1059

Hyeisun Cho, Seulgi Lee, Byungik Kim, and Taejin Lee (Korea Internet & Security Agency, Korea)

[11D-3] Context-aware HTTP Adaptive Streaming in Mobile Cloud Environments....1062

Chaemin Seong, Minsoo Jang, and Kyungshik Lim (Kyungpook National University, Korea)

[11D-4] S-DASH: A New Transmission Mechanism for IP-based Digital Broadcasting Systems....1068

Hyung-Yoon Seo and Jun-Hwan Huh (Pusan National University, Korea), Soon-Choul Kim and Byungjun Bae (Electronics and Telecommunication Research Institute, Korea), and Jong-Deok Kim (Pusan National University, Korea)

Session 11E : Vehicular Network II

Chair: Young-June Choi (Ajou University, Korea)

[11E-1] MoM - A Real Time Monitoring and Management Tool to Improve the Performance of Vehicular Delay Tolerant Networks....1071

João A. F. F. Dias (Universidade da Beira Interior, Portugal), Joel J. P. C. Rodrigues (Universidade da Beira Interior, Portugal & University of Salamanca, Spain), Juan F. de Paz and Juan M. Corchado (University of Salamanca, Spain)

[11E-2] RTKLIB-Based GPS Localization for Multipath Mitigation in ITS Applications....1077

Immanuel V. Encarnacion and Nestor Michael C. Tiglaio (University of the Philippines, Philippines)

[11E-3] Context-aware Two-Level Hierarchical Routing for VANETs....1083

Zubair Amjad, Wang Cheol Song, and Khi Jung Ahn (Jeju National University, Korea)