2022 Thirteenth International Conference on Ubiquitous and Future Networks (ICUFN 2022)

Barcelona, Spain 5-8 July 2022



IEEE Catalog Number: CFP2287G-POD ISBN: 978-1-6654-8551-7

Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

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

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

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

 IEEE Catalog Number:
 CFP2287G-POD

 ISBN (Print-On-Demand):
 978-1-6654-8551-7

 ISBN (Online):
 978-1-6654-8550-0

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



July 5, 2022 (Tuesday)

Workshop 1A: The 9th International Workshop on Intelligent Vehicles (IV 2022)

Session Chair: Prof. Dong Seog Han, Kyungpook National University Room A (VX S208), Time 16:30 ~ 17:30

- [W1A-1] Analysis of V2V Communication Performance on Roads and Tunnels Surrounded by Mountains.........1 Youngjin Yoon, Jihun Kim and Dong Seog Han (Kyungpook National University, Korea)
- [W1A-2] 3D Map Reconstruction From Single Satellite Image Using a Deep Monocular Depth Network........5 Changmin Son and Soon-Yong Park (Kyungpook National University, Korea)

[W1A-3] Pig Treatment Classification on Thermal Image Data using

- Deep Learning.......8

 Savina Jassica Colaco, Jung Hwan Kim and Alwin Poulose
 (Kyungpook National University, Korea); Zutphen sanne van
 and Suresh Neethirajan (Wageningen University & Research,
 Netherlands); Dong Seog Han (Kyungpook National University,
 Korea)
- [W1A-4] Dual-inferences mechanism for real-time semantic segmentation.......12

 Quyen Van Toan and Min Young Kim (Kyungpook National University, Korea)
- [W1A-5] End-to-end autonomous driving using the Ape-X algorithm in Carla simulation environment........18

 Maxence Hussonnois (Deakin University, Australia); Jae-Yun Jun (ECE, France)

Workshop 1B: The 3rd International Workshop on Smart Radio for IoT Era I (SRIoT 2022 I)

Session Chair: Prof. Takeo Fujii, The University of Electro-Communications ${\bf Room~B~(VX~S218), Time~16:30} \sim 17:30$

- [W1B-1] Device Adaptive Control Method Considering Power
 Consumption for Pedestrian-to-Infrastructure
 Communications........24
 Noriyuki Oki, Atsuki Mukoda, Ayumu Ueda and Takeo Fujii (The University of Electro-Communications, Japan)
- [W1B-2] Evaluation of Transmission Timing Control Error for OZSS
 Short Message SS-CDMA Communication System.......29
 Hiroshi OGUMA and Rei KAWAI (Toyama College, Japan); Suguru
 KAMEDA (Hiroshima University, Japan); Noriharu SUEMATSU
 (Tohoku University, Japan)

[W1B-3] Characteristics of RSSI Kriging Interpolated Value in Neighborhood of Buildings......35

Ryo Miyamoto and Shusuke Narieday (Mie University, Japan); Takeo Fujiiz (Univ. Electro-Commun.); Hiroshi Narusey (Mie University, Japan)

[W1B-4] Differential Packet Level Index Modulation for Low Power Wide Area System......38

Mai Ohta (Fukuoka University, Japan); Takeo Fujii (The University of Electro-Communications, Japan)

Workshop 1C: The 3rd International Workshop on Smart Radio for IoT Era II (SRIoT 2022 II)

Session Chair: Prof. Suguru Kameda, Hiroshima University Room C (VX S219), Time 16:30 ~ 17:30

[W1C-1] Dual Energy-Aware based Trajectory Optimization for UAV Emergency Wireless Communication Network: A Multiarmed Bandit Approach........43

> Amr Amrallah (Tokyo Institute of Technology, Japan); Ehab Mahmoud Mohamed (Prince Sattam Bin Abdulaziz University, Saudi Arabia); Gia Khanh Tran and Kei Sakaguchi (Tokyo Institute of Technology, Japan)

[W1C-2] Identifying Invalid Nodes in Bluetooth Mesh Networks by Using the Bayesian Probability Classification Algorithm and Time to Live.......49

Ta-Te Lu, Yi-Hsuan Li and Bo-Yu Jheng (Chien Hsin University of Science and Technology, Taiwan)

[W1C-3] Performance Evaluation of Highly Efficient Information Collection Methods by Trend Analysis of Sensor Information Using Pre-learning........55

Ryuji Miyamoto, Osamu Takyu and Hiroshi Fujiwara (Shinshu University, Japan); Koichi Adachi (The University of Electro-Communications, Japan); Mai Ohta (Fukuoka University, Japan); Takeo Fujii (The University of Electro-Communications, Japan)

[W1C-4] High-Sensitivity Detection Method for Signals in PhyC-SN........61

Toshi Ito and Osamu Takyu (Shinshu University, Japan); Mai Ohta (Fukuoka University, Japan); Takeo Fujii and Koichi Adachi (The University of Electro-Communications, Japan)

July 6, 2022 (Wednesday)

Session 1A: 6G, 5G, PS-LTE, LTE-R, LTE-Advanced

Session Chair: Prof. Sunwoong Choi, Kookmin University Room A (VX S208), Time 13:00 ~ 14:30

- [1A-1] Rate Splitting Multiple Access for a MISO SWIPT System
 Aided by a Power Beacon.........67

 Mario R. CamanaCarla E. Garcia and Insoo Koo (University of Ulsan,
 Korea)
- [1A-2] Throughput Improvement by Transmit 3D Beamforming and MCS Incorporating 1024-QAM......72

 Kentaro Yoda, Takumi Yasaka, and Hiroyuki Otsuka (Kogakuin University, Japan)
- [1A-3] Reflection Design With LS Channel Estimation for RISenhanced OFDM Systems...........75 Fan-Shuo Tseng and Tsang-Yi Wang (National Sun Yat-sen University, Taiwan)
- [1A-4] A Low-Complexity Multiuser Adaptive Modulation Scheme for MRC Receivers in Massive MIMO Systems.........80 Amin Radbord (University of Guilan, Iran); Mohammed Abdel Hafez (United Arab Emirate University, United Arab Emirates); Mohammadreza Amini (Islamic Azad University, Iran)
- [1A-5] Characteristics of Transmit Power Allocation for Poor Conditioned End Devices in LPWAN with Peak Detection Based Carrier Sense.........86

 Shusuke Narieda (Mie University, Japan); Takeo Fujii (Univ. Electro-Commun., Japan)

Session 1B: Open Wireless Networking

Session Chair: Danfeng Sun, Institut f. Automation und Kommunikation Room B (VX S218), Time $13:00 \sim 14:30$

- [1B-1] On Designing Interfaces to Access Deep Learning
 Inference Services........89
 Seungwoo Kum, Seungtaek Oh, Jungchul Yeom and Jaewon Moon
 (Korea Electronics Technology Institute, Korea)
- [1B-2] Real-time dynamic traffic scheduling for medical applications on IEEE 802.15.6.......92
 Guilherme Gil, Paulo Pedreiras and Luis Moutinho (University of Aveiro, Portugal)
- [1B-3] Spectrum Based Wireless Radio Traffic Classification using Hybrid Deep Neural Network.......95

 Md. Habibur Rahman, Raihan Bin Mofidul and Yeong Min Jang (Kookmin University, Korea)
- [1B-4] QoE Comparison of Retransmission and AL-FEC on Audiovisual Groupcast over Wireless LANs.......100 Toshiro Nunome and Minoru Ishida (Nagoya Institute of Technology, Japan)

[1B-5] Dynamic Adaptive Agent with Critical Movement Detection for the Next Generation of Spatial Reuse........106

Yoshima Syach Putri, Dion Tanjung, Dong-Hyun Kim and Jong-Deok Kim (Pusan National University, Korea)

Session 1C: Future Internet and Network

Session Chair: Prof. Kae Won Choi, Sungkyunkwan University Room C (VX S219), Time $13:00 \sim 14:30$

- [1C-1] Intelligent Addressing and Routing Strategy for Smart Devices on Interactive Internet of Everything Platforms........112 Pradheep Kumar .K (Dept of CSE, Pilani); Srinivasan. N. and Murali Bhaskaran (Rajalakshmi Engineering College, Chennai)
- [1C-2] Optimization of Millimeter-Wave Base Station Deployment in 5G Networks........117 Qingwen Zeng (Beijing Normal University-Hong Kong Baptist University United International College (UIC), China)
- [1C-3] Centralized ultra-precision service control system for providing ultra-precision services in large-scale deterministic networks.......122

 Eungha Kim, Yeoncheol Ryoo, Binyeong Yoon and Taesik Cheung (ETRI, Korea)
- [1C-4] Deep Neural Network Based Parallel Signal Detection in SM-0FDM System.......125

 Jinmei Zhang, Zhiquan Bai, Kaiyue Yang and Abeer Mohamed (Shandong University, China); Kyungsup Kwak (INHA University, Korea); Xinhong Hao (Beijing Institute of Technology, China)
- [1C-5] Beamspace based AIC and MDL Algorithm for Counting the Number of Signals in Specific Range.......130

 Heui-Seon Park, Suk-seung Hwang, Seok-Joo Shin and Jae-Young Pyun (Chosun University, Korea)

Session 2A: Al/Machine Learning for Mobile Communications

Session Chair: Prof. Mohammed Abdel Hafez, United Arab Emirates University $Room\ A\ (VX\ S208),\ Time\ 14:40 \sim 16:10$

- [2A-1] Channel BlaQLisT: Channel Blacklist using Q-Learning for TSCH.......134

 JunMyeung Kim and Sang-Hwa Chung (Pusan National University, Koreal
- [2A-2] Deep Learning Based Signal Detection in Dual Mode Generalized Spatial Modulation......140 Kaiyue Yang, Zhiquan Bai, Jinmei Zhang, Ke Pang and Xinhong Hao (Shandong University, China)
- [2A-3] An Explainable Multi-Task Learning Approach for RF-based UAV Surveillance Systems.......145
 Rubina Akter (Kumoh National Institute of Technology, Korea); Van-Sang Doan (Vietnam Naval Academy, Vietnam); Ahmad Zainudin and Dong-Seong Kim (Kumoh National Institute of Technology, Korea)

[2A-4]	Dependability Prediction with Logical Link Correlation for
	Industrial Wireless Communication Systems150
	Danfeng Sun, Zeyun Xiao and Huifeng Wu (Hangzhou Dianzi University China)

[2A-5] DNN aided PSO based-scheme for a Secure Energy Efficiency Maximization in a cooperative NOMA system with a non-linear EH........155

Carla E. Garcia, Mario R. Camana and Insoo Koo (University of Ulsan, Korea)

Session 2B: Security and Network Management

Session Chair: Prof. Insoo Sohn, Dongguk University

Room B (VX S218), Time 14:40 ~ 16:10

- [2B-1] Ethereum Based Storage Aware Mining for Permissioned Blockchain Network........161

 Ikechi Saviour Igboanusi Allwinnaldo, Revin Naufal Alief, Muhammad Rasyid Redha Ansori, Jae-Min Lee and Dong-Seong Kim (Kumoh National Institute of Technology, Korea)
- [2B-2] RPL Authenticated Mode Evaluation: Authenticated Key Exchange and Network Behavioral.......167

 Arif Burak Ordu, Mehmet Bayar and Berna Örs (Istanbul Technical University, Turkey)
- [2B-3] Blockchain-based Secure Ambulance-to-Everything
 Communications in Emergency Rescue Operations......174
 Chakkaphong Suthaputchakun (Bangkok University Thailand); Yue
 Cao (Wuhan University, China)
- [2B-4] Joint Power and Subcarrier Allocation in Multi-Cell Multi-Carrier NOMA........180
 Subhankar Banerjee (University of Maryland, USA); Chung Shue Chen (Nokia Bell Labs, Paris-Saclay Center, France); Marceau Coupechoux (LTCI, Telecom Paris, Institut Polytechnique de Paris, France), Abhishek Sinha (Indian Institute of Technology (IIT) Madras, India)
- [2B-5] Intent-based 5G UPF configuration via Kubernetes
 Operators in the Edge......186
 Ákos Leiter, István Kispál, Attila Hegyi, Péter Fazekas, Nándor
 Galambosi, Péter Hegyi, Péter Kulics, József Bíró (Nokia Bell Labs,
 Hungary)

Session 2C: Al/Machine Learning for Internet of Things (IoT)

Session Chair: Prof. Jae Yun Jun, ECE Paris

Room C (VX S219), Time 14:40 ~ 16:10

[2C-1] Implicit Multi-hop Communication Scheme based on
Overhearing in IoT LoRa Networks.......190
Dick Mugerwa, Youngju Nam, Hyunchong Cho, Hyunseok Choi,
Yongje Shin, Euisin Lee (Chungbuk National University, Korea)

[2C-2]	Deep Learning and Power Allocation Analysis in NOMA
	System196
	Mohamed Gaballa and Maysam Abbod (Brunel University, UK)
	Ammar Δldallal (Δhlia University Rahrain)

- [2C-3] Unslotted CSMA/CA mechanism with reinforcement learning of Wi-SUN MAC layer.......202 Sihyeon Lee and Sang-Hwa Chung (National University Busan, Korea)
- [2C-4] Unicast Subslot Scheduling for Wi-SUN FAN System with Packet Collision Reduction......205 Hee-Jun Lee and Sang-Hwa Chung (Pusan National University, Korea)
- [2C-5] Lightweight P2P-RPL for Efficient P2P Communication in 6TiSCH Networks......211 Jeongbae Park, Sang-Hwa Chung (Pusan National University, Korea)

Session 3A: Vehicular Ad-hoc Networks and Autonomous Vehicles

Session Chair: Dr. Sang Kil Lee, IITP

Room A (VX S208), Time 16:40 ~ 18:10

- [3A-1] Enhanced Velocity Estimation Based on Joint Doppler Frequency and Range Rate Measurements.......217

 Sohee Lim, Jaehoon Jung, Jihye Kim, and Seong-Cheol Kim (Seoul National University, Korea); Jeongsik Choi (Kyungpook National University, Korea)
- [3A-2] Cyber Threats and Cybersecurity Reassessed in UAVassisted Cyber Physical Systems.......222 Majumder Haider, Imtiaz Ahmed and Danda B. Rawat (Howard University, USA)
- [3A-3] Object Detection Performance According to Packet Loss of C-V2X.......228

 Eunmin Choi, Dongyoon Kwon, Kyungtae Kim, and Ji-Woong Choi (Daegu Gyungbuk Institute of Science & Technology, Korea)
- [3A-4] Decentralized Collaborative Decision-Making for Topology Building in Mobile Ad-Hoc Networks......233 Philipp Helle, Sergio Feo-Arenis, Kevin Shortt, and Carsten Strobel (Airbus Central R&T, Germany)
- [3A-5] Introduction to Secure Computing Methods in Unmanned
 Aerial Vehicles.........239
 Soohyun Park and Minjae Yoo (Korea University, Koea); Soyi Jung
 (Hallym University, Korea); Minseok Choi (Kyung Hee University,
 Korea); Joongheon Kim (Korea University, Koea)

Session 3B: Ubiquitous Computing and Sensor Networks

Session Chair: Prof. Hyunggon Park, Ewha Womans University Room B (VX S218), Time $16:40 \sim 18:10$

[3B-1] An Autonomous Sailboat for Environment Monitoring.......242

Yee-Teng Ang, Wey-Kean Ng and Yung-Wey Chong (Universiti Sains Malaysia, Malaysia); Jian Wan (Aston University, UK); Su-Yin Chee (Universiti Sains Malaysia, Malaysia); Louise B. Firth (University of Plymouth, UK)

[3B-2] Accident Detection and Road Condition Monitoring Using Blackbox Module.......247

Insan Arafat Jahan (Islamic University of Technology, Bangladesh); Insan Arafat Jamil (Chittagong University of Engineering and Technology, Bangladesh); Mohammad Shakhawat Hossain Fahim (Brac University, Bangladesh); Armana Sabiha Huq (Bangladesh University of Engineering and Technology, Bangladesh); Fahim Faisal and Mirza Muntasir Nishat (Islamic University of Technology, Bangladesh)

- [3B-3] Reinforcement Learning-based MAC for Reconfigurable
 Intelligent Surface-Assisted Wireless Sensor
 Networks........253
 Faisal Ahmed, Ethungshan Shitiri, Ho-Shin Cho (Kyungpook National University, Korea)
- [3B-4] TinyML Smart Sensor for Energy Saving in Internet of Things Precision Agriculture platform........256
 Chollet Nicolas (ECE, LISV, France); Bouchemal Naila (ECE, France); Ramdane-Cherif Amar (LISV, France)
- [3B-5] Design of Middle Range Microwave Power Transfer (MPT)
 System for the Mobile Power Receiver..........260
 Changyoung An and Heung-Gyoon Ryu (Chungbuk National University, Korea)

July 7, 2022 (Thursday)

Session 4A: Cloud Computing and Networks

Session Chair: Akos Leiter, Nokia Bell Labs

Room A (VX S208), Time 14:30 ~ 16:00

- [4A-1] A Survey of Autoscaling in Kubernetes.......263

 Minh-Ngoc Tran, Dinh-Dai Vu and Younghan Kim (Soongsil University, Korea)
- [4A-2] Modelling the offload of Al Tasks in Mobile Clouds........266

 Zhiyan Chen and Ligang He (University of Warwick, Korea)
- [4A-3] Design and Development of Server-Client Cooperation Framework for Federated Learning.......271 Jongbin Park and Seung Woo Kum (Korea Electronics Technology Institute, Korea)
- [4A-4] Optimum control method of workload placement and air conditioners in a GPU server environment.......274

 Hikotoshi Nakazato, Seisuke Arai and Masashi Kaneko (NTT Corporation, Japan)
- [4A-5] Temperature-compensated Overcharge protection Indirect measurement circuit.........280

 JinUk Yeon, KunSik Kim and Innyeal Oh (University of Sunmoon, Korea)

Session 4B: SDN, Security, and Network Virtualization

Session Chair: Prof. Dong Seog Han, Kyungpook National University Room B (VX S218), Time $14:30 \sim 16:00$

- [4B-1] Performance Analysis of Python Based SDN Controllers over Real Internet Topology......283 Jisi Chandroth, Byeong-hee Roh and Jehad Ali (Ajou University, Koreal
- [4B-2] An NFV-based Scheduling and Flexible Deployment
 Scheme for RaaS Functions in Cloud Data Centers........289
 Hsueh-Wen Tseng, Ting-Ting Yang and Pei-Shan Chen (National Chung-Hsing University, Korea)
- [4B-3] Assessing the RPKI Validator Ecosystem.......295
 Paul Henry Friedemann, Nils Rodday and Gabi Dreo Rodosek
 (Universität der Bundeswehr München, Germany)
- [4B-4] Privacy-Preserving Surveillance for Smart Cities.........301

 ljaz Ahmad (Chosun University, Koera); Eunkyung Kim (Hanbat National University, Korea); Suk-seung Hwang and Seokjoo Shin (Chosun University, Korea)
- [4B-5] Software-Defined Networking: A New Approach to Fifth Generation Networks - Security Issues and Challenges Ahead......307 Behrooz Daneshmand and Tu Anh Le (ITMO University, Russia)

Session 5A: Machine Learning and Computational Intelligence

Session Chair: Prof. Junhee Seok, Korea University

Technology, Thailand)

Room A (VX S208), Time 16:30 ~ 18:10

- [5A-1] Efficient Device-Edge Inference for Disaster
 Classification.........314
 Nathaniel Tan Sze Yang, Mau-Luen Tham, Sing Yee Chua and Ying
 Loong Lee (Universiti Tunku Abdul Rahman, Malaysia); Yasunori
 Owada (National Institute of Information and Communications
 Technology, Japan); Suvit Poomrittiqul (Pathumwan Institute of
- [5A-2] Evaluating Correctness of Reinforcement Learning based on Actor-Critic Algorithm.......320

 Youngjae Kim, Manzoor Hussain, Jae-Won Suh and Jang-Eui Hong (Chungbuk National University, Korea)
- [5A-3] Leveraging Vehicular Communications in Automatic VRUs
 Accidents Detection......326
 Bruno Ribeiro, Maria Jo~ao Nicolau and Alexandre Santos
 (University of Minho, Portugal)
- [5A-4] Signal Relaying Method for High Data Rate in the MIMO System......332 Yong-An Jung, Dong-Cheul Han, Soo-Hyun Cho, Han-Jae Shin and Sung-Hun Lee (Gumi Electronics & Information Technology Research Institute, Korea)
- [5A-5] Optimization Technique of Indoor-Outdoor User Pairing in DL-NOMA System.......335

 Adel Algahtani and Emad Alsusa (University of Manchester, UK)

Session 5B: 6G, 5G, Computer Vision Applications & Autonomous Vehicles

Session Chair: Prof. Seokjoo Shin, Chosun University

Room B (VX S218), Time 16:30 ~ 18:10

- [5B-1] Learning-based Second Price Auction for Distributed Delivery Scheduling in Smart and Autonomous Urban Air Mobility......341 Joongheon Kim (Korea University, Korea)
- [5B-2] Technical Challenges and Categorization of 5G Mobile Services......345 Ronald Beaubrun (Laval University, Canada)
- [5B-3] Infrastructure-Independent Pseudonym Swap Protocol for Vehicular Networks.........351

 Abdueli Paulo Mdee, Muhammad Toaha Raza Khan, Junho Seo and Dongkyun Kim (Kyungpook National University, Korea)
- [5B-4] Recent Advances in a Medical Domain Metaverse: Status, Challenges, and Perspective.......357 Jose M. Ruiz Mejia and Danda B. Rawat (Howard University, USA)
- [5B-5] Search Space Adaptation for Differentiable Neural Architecture Search in Image Classification..........363

 Youngkee Kim (Korea University, Korea); Soyi Jung (Hallym University, Korea); Minseok Choi (Kyung Hee University, Korea); Joongheon Kim (Korea University, Korea)

July 8, 2022 (Friday)

Session 6A: Cyber-Physical System (CPS) & Information Networks

Session Chair: Prof. Ki-Hyung Kim, Ajou University

Room A (VX S208), Time 09:30 ~ 11:00

- [6A-1] Design and Implementation of a Digital Twin Platform in Vertical Farming Systems........366 Tae-Hwan Ko, Hea-Min Lee, Dong-Hee Noh, JuHwan, Choi and Sung-Woo Byun (Korea Electronics Technology Institute, Korea)
- [6A-2] User-Centered Design to Enhance IoT Cybersecurity
 Awareness of Non-Experts in Smart Buildings......369
 Hanning Zhao and Bilhanan Silverajan (Tampere University, Finland)
- [6A-3] CNN Based Multi-view Image Quality Enhancement...........372

 Gyu-Lee Jeon, Hee-Jae Kim, Eun Yeo and Je-Won Kang (Ewha

 Womans University, Korea)
- [6A-4] Improving per-flow fairness by ML-based estimation of competing flows' congestion control algorithm.........376

 Keito Maeta, Gen Kitagata and Go Hasegawa (Tohoku University, Japan)
- [6A-5] Mitigating Coordinate Transformation for Solving Partial Differential Equations with Physic-Informed Neural Networks.........382

 Hyo-Seok Hwang and Suhan Son (Korea University, Korea); Yoojoong Kim (The Catholic University of Korea, Korea); Junhee Seok (Korea University, Korea)

Session 6B: Network Theory and Network Science

Session Chair: Prof. Sanghwan Lee, Kookmin University

Room B (VX S218), Time 09:30 ~ 11:00

- [6B-1] Experimental Evaluation of Roaming Performance of
 Cellular IoT Networks........386
 Kalpit Dilip Ballal, Radheshyam Singh, Lars Dittmann and Sarah
 Ruepp (Technical University of Denmark, Denmark)
- [6B-2] Traffic Analytics Development Kits (TADK): Enable Real-Time Al Inference in Networking Apps.......392 Kun Qiu, Harry Chang, Ying Wang, Xiahui Yu, Wenjun Zhu, Yingqi Liu, Jianwei Ma and Weigang Li (Intel Corporation, China) Xiaobo Liuy and Shuo Dai (ZTE Corporation, China)
- [6B-3] A Framework for Named Networking on Edge Al...........399

 Fritz Kevin Flores and Marnel Peradilla (De La Salle University, Philippines)
- [6B-4] Fault-tolerant Distributed AAA Architecture Supporting
 Connectivity Disruption........405
 Karri Huhtanen (Radiator Software Oy, Finland); Antti Kolehmainen
 (Tampere University, Finland)
- [6B-5] An Improved Relay Selection Scheme for FD-MIMO based System.......408

 Sung-Hun Lee, Sang-Bong Byun, Han-Jae Shin, Dong-Cheul Han, Soo-Hyun Cho and Yong-An Jung (Gumi Electronics & Information Technology Research Institute, Korea)

July 6, 2022 (Wednesday)

Poster Session 1

Session Chair: Prof. Hyunhee Park, Myongji University

Room C (VX S219), Time 16:40 ~ 18:10

- [P1-1] A Lightweight End-to-End Neural Networks for Decoding of Motor Imagery Brain Signal.......411 Hyeon Kyu Lee, Ji-Soo Myoung and Young-Seok Choi (Kwangwoon University, Korea)
- [P1-2] Reinforcement Learning-based Multiple Camera Collaboration Control Scheme.......414 Dongchil Kim and Chang Mo Yang (Korea Electronics Technology Institute, Korea)
- [P1-3] Multi-label Text Classification of Economic Concepts from Economic News Articles using Natural Language Processing.......417 Soojeong Kim (Korea University, Korea); Minhyeok Lee (Chung-Ang University, Korea); Junhee Seok (Korea University, Korea)
- [P1-4] TCAE: Temporal Convolutional Autoencoders for Time Series Anomaly Detection.......421 Jinuk Park, Yongju Park and Chang-il Kim (KETI, Korea)
- [P1-5] Ride-Hailing Service aware Electric Taxi Fleet Management using Reinforcement Learning.......427 Paul Silva (Jeonbuk National University, Korea); Young-Joo Han (Hyundai Motor Group, Korea); Young-Chon Kim and Dong-Ki Kang (Jeonbuk National University, Korea)
- [P1-6] Decentralized Identifiers (DIDs)-Based Authentication Scheme for Smart Health Care System..........433 Alnazif Mohammed Alnour and Ki-Hyung Kim (Ajou University, Korea)

July 7, 2022 (Thursday)

Poster Session 2

Session Chair: Prof. Junsu Kim, Tech University of Korea Room C (VX S219), Time $14:30 \sim 16:00$

- [P2-1] Accelerating University Admission System using Machine Learning Techniques.........439
 Basil Alothman, Hanadi Alazmi, Mohammad Bin Ali, Noor Alqallaf and Murad Khan (Kuwait College of Science and Technology, Kuwait)
- [P2-2] Unsupervised Deep Learning-based End-to-end Network for Anomaly Detection and Localization......444

 Bekhzod Olimov, Barathi Subramanian and Jeonghong Kim (Kyungpook National University, Korea)

- [P2-3] VLC Positioning by DNN via WkNN in Indoor Environment.......450 Sung Hyun Oh and Jeong Gon Kim (Tech University of Korea, Koera)
- [P2-4] Detecting the Ripeness of Strawberries and the Coordinates of the Hull Using Deep Learning........454
 Seojeong Kim and Sunghwan Jeong (Korea Electronics Technology Institute, Korea); Heegon Kim and Sooho Jeong (Jeonnam Agricultural Research & Extension Services, Korea); Yun Ga-yun (Jeonnam Agricultural Research & Extension Servies, Korea); Keunho Park (Korea Electronics Technology Institute, Korea)
- [P2-5] Introduction to a new use-case based on MPEGIoMT: time-series temperature data analysis by the flower condition.........459

 Jaewon Moon, Seungwoo Kum and Seungtaek Oh (Korea Electronics Technology Institute, Korea)

Poster Session 3

Session Chair: Prof. Junbeom Hur, Korea University

Room C (VX S219), Time 16:30 ~ 18:10

- [P3-1] Short-term PM2.5 Prediction using Modified Attention Seq2Seq BiLSTM.......462 Ida Bagus Krishna Yoga Utama, Duc Hoang Tran and Yeong Min Jang (Kookmin University, Korea)
- [P3-2] An Improved Sensor Anomaly Detection Method in IoT System using Federated Learning.......466 Duc Hoang Tran, Van Linh Nguyen, Ida Bagus Krishna Yoga Utama and Yeong Min Jang (Kookmin University, Korea)
- [P3-3] Enhanced 3D Action Recognition Based on Deep Neural Network........470 Sungjoo Park and Dongchil Kim (Korea Electronics Technology Institute/KETI). Korea)
- [P3-4] Object Tracking of Aerial Imaging Device Image Using Variational Autoencoder and External Memory.......473

 Keunho Park, Byoungjun Kim, Donghoon Kim, Seon-Hyeong Kim, Seo-jeong Kim and Sunghwan Jeong (Korea Electronics Technology Institute, Korea)
- [P3-5] MissVoxelNet: 3D Object Detection for Autonomous Vehicle in Snow Conditions........479 Anh Do The and Myungsik Yoo (Soongsil University, Korea)

July 8, 2022 (Friday)

Poster Session 4

Session Chair: Prof. Jeong Ryun Lee, Chung-Ang University Room C (VX S219), Time $09:30 \sim 11:00$

- [P4-1] A Comparative Analysis of 2D Deep CNN Models for Arrhythmia Detection Using STFT-Based Long Duration ECG Spectrogram.......483 Tabassum Islam Toma and Sunwoong Choi (Kookmin University, Korea)
- [P4-2] Learning Based Clinical Diagnosis Framework for Inconsistently and Partially Labeled Dataset..........489

 Jae-Wook Jung, San-Eun Jeon, Jun-Pyo Hong (Pukyong National University, Korea); Ju-Hyeon Kim, Yeong-Kyun Bae and Jae-Hyun Lee (College of Medicine, Kosin University Gospel Hospital, Korea)
- [P4-3] Design of obstacle detection method for autonomous driving in agricultural environments........494

 Sung-Woo Byun, Donghee Noh and Hea-Min Lee (Korea Electronics Technology Institute (KETI), Korea)
- [P4-4] Design of Autonomous Driving Algorithms for Fruit harvesting in orchards.......497

 Hea-Min Lee, DongHee Noh, HyunGu Kang, Sung-Woo Byun and Ju-Hwan Choi (Korea Electronics Technology Institute, Korea)
- [P4-5] Abnormal Voltage Regulation Detection in on-Grid PV-ESS System by Support Vector Machine with Principal Component Analysis.......500 Md Morshed Alam, Raihan Bin Mofidul, Radityo Fajar Pamungkas, ByungDeok Chung and Yeong Min Jang (Kookmin University, Korea)