

## Thursday, October 14


Thursday, October 14 7:30 - 9:00 (Asia/Saigon)

Registration   

Thursday, October 14 9:00 - 9:15 (Asia/Saigon)

Opening ceremony (Live & Recording)   

Thursday, October 14 9:15 - 10:15 (Asia/Saigon)

Keynote speaker #1 (Live & Recording)    

Lattice-based Post-Quantum Cryptography: From Algorithm to Architecture Design  
Prof. Hanho Lee, Inha University, South Korea

Thursday, October 14 10:15 - 10:30 (Asia/Saigon)


Coffee break   

Thursday, October 14 10:30 - 11:30 (Asia/Saigon)

Keynote speaker #2 (Live & Recording)   

Ms. Bich-Yen Nguyen, Soitec

Thursday, October 14 11:30 - 13:30 (Asia/Saigon)

Lunch break   

Thursday, October 14 13:30 - 14:30 (Asia/Saigon)

Keynote speaker #3: (Live & Recording)   

Millimeter-wave and Terahertz-wave Beam-scanning Antenna Technologies for Automotive Radars and beyond 5G Mobile Communication Systems  
Prof. Kunio Sakakibara, Nagoya Institute of Technology

Thursday, October 14 14:30 - 14:50 (Asia/Saigon)

Coffee break   

Thursday, October 14 14:50 - 16:30 (Asia/Saigon)

Communications #1 (On Demand)   

Room: ROOM A

***Lossless Data Transmission by means of IEEE 802.11aa GCR Block Ack with TXOP-Bursting and AIFS Control***  

Toshiro Nunome and Akira Nagahara



pp. 1-6

***Two-Way Cognitive Network supported by Reconfigurable Intelligent Surface***  

Thu-Thuy Thi Dao and Ngoc Son Pham



pp. 7-12

***An Enhanced Method to Improve Signal Reception Performance for 5G NR Physical Uplink Control Channel with Frequency Hopping Configuration***  

Dang-Minh Phan and Phuoc Nguyen T. H.



pp. 13-17

***A Novel ZF and MMSE Receiver for Modified Walsh-Hadamard Code Division Multiplexing in Helicopter Satellite Communications***  

Toshiharu Kojima and Tsubasa Yamada



pp. 18-21



***Physical Layer Security of Massive MIMO Spatially-uncorrelated Rician Channels***



Vu Le Quynh Giang, Thang Le Nhat and Kien T. Truong



pp. 22-27

**Electronics #1 (On Demand)**   

Room: ROOM B

***Implementation of a Dual-core 64-bit RISC-V on 7nm FinFET process***  

Ho Van Ninh and Duc-Hung Le



pp. 28-32

***Artificial Cognition for Early Leaf Disease Detection using Vision Transformers*** 



Huy-Tan Thai, Nhu-Y Tran-Van and Le Kim-Hung



pp. 33-38

***A Power-efficient Implementation of SHA-256 Hash Function for Embedded Applications***  

Binh Kieu-Do-Nguyen, Trong-Thuc Hoang, Cong-Kha Pham and Cuong Pham-Quoc



pp. 39-44

***Integrated Multi-standard system based on LR1110 for geolocation applications*** 



Bui Phung Huu Duc, Dat Tran Tien Nguyen, Phuong Binh Nguyen, Nguyen Minh Thien, Le Huy Trinh and Fabien Ferrero



pp. 45-50

### ***An Edge-AI Heterogeneous Solution for Real-time Parking Occupancy Detection***



Tran Thinh, Long Tan Le, Nguyen Hoang Long, Ho Le Thuc Quyen, Ngo Qui Thu, Nguyen La Thong and Huynh Phuc Nghi



pp. 51-56

## **Network #1 (On Demand)**

Room: ROOM C

### ***An Efficient Shock Advice Algorithm based on K-Nearest Neighbors for Automated External Defibrillators***

Dao Thanh Hai, Nguyen Minh Tuan, Nguyen Thi Thu-Hang and Hai-Chau Le



pp. 57-61

### ***Adaptive Sampling for Saving Energy: A Case Study on The Libelium-based Environment Monitoring Systems***

Phat Phan-Trung, Thuat Nguyen-Khanh and Quan Le-Trung



pp. 62-67

### ***Efficient Multipath Routing Scheme for MPTCP-enable Software-Defined Networks***

Khac Tuan Nguyen, Linh T. Nguyen, Huu-Tien Vu and Hai-Chau Le



pp. 68-72

### ***Adaptive Collision Avoidance Scheduling based on Traffic and Priority for IoT Sensor Networks***

Linh T. Nguyen, Nguyen Thi Thu-Hang, Hai-Chau Le, Vinh Vu and Nguyen Trinh



pp. 73-78

### ***Implementation of a WiFi-based V2V-V2I Communication Unit for Low Speed Vehicles***

Trần Huy Anh, Anh Quang Nguyen, Hieu Thanh Tran and Phong Dao





pp. 79-82

Friday, October 15

Friday, October 15 7:30 - 8:30 (Asia/Saigon)

Registration   

Friday, October 15 8:30 - 9:50 (Asia/Saigon)

Communications #2 (On Demand)   

Room: ROOM A

***H<sub>2</sub>/H<sub>1</sub>-Distributed Fault Detection and Isolation for Heterogeneous Multi-Agent Systems***  

Thiem V. Pham



pp. 83-88

***A Comparative Research on VPN Technologies on Operating System for Routers*** 



Phu Nguyen Phan Hai, Hoa Nguyen Hong, Bao Bui Quoc and Hoang Trang



pp. 89-93

***Security Analysis of Relay Selection in Energy Scavenging-based Cognitive Networks***  

Pham Thi Dan Ngoc, Nguyen Bui-Trung, Nguyen Huynh, Quan Minh Lam, Khuong Ho-Van, Pham Ngoc Son, Son Vo Que and Thiem Do-Dac



pp. 94-98

***Development of Lightweight and Accurate Intrusion Detection on Programmable Data Plane***  

Nga Thi Dao, Van-Phuc Hoang, Chi Hieu Ta and Vu Son



pp. 99-103

Electronics #2 (On Demand)   

Room: ROOM B

***Path Planning for Unmanned Surface Vehicle (USV) in obstacle-filled environments***  

Huy Tran, Thanh-Toan Nguyen, Tran-Minh-Duc Ho and Hung Nguyen



pp. 104-108

### ***Simulation of Hybrid Autonomous Underwater Vehicle based on ROS and Gazebo***



An-Thuyen Ngo, Huy Tran, Hung Nguyen, Ton Thien Phuong and Tran Then Phuc



pp. 109-113

### ***Compact automatic solution to detect and warn abandoned children on school buses***



Van Binh Nguyen and Thi Thu Huong Ngo



pp. 114-118

### ***Research and Implement Embedded Artificial Intelligence in Low-Power Water Meter Reading Device***



Hoan Duc Nguyen, Thao Manh Nguyen, Le Huy Trinh and Fabien Ferrero



pp. 119-124

## **Signal Processing #1 (On Demand)**



Room: ROOM C

### ***Chest X-ray abnormalities localization via ensemble of deep convolutional neural networks***



Van-Tien Pham, Cong-Minh Tran, Stanley Zheng, Tri-Minh Vu and Shantanu Nath



pp. 125-130

### ***FPGA-based Implementation and Evaluation of Realtime OFDM Phase Compensation in 5G***



Hiep Nguyen and Sang Nguyen



pp. 131-134

### ***A Chirp-based, Adaptive, Signal-dependent Reduced Interference Distribution for Limited Data***



Yen Thi Hong Nguyen, Desmond McLernon, Mounir Ghogho, Ho Duc Tam Linh, Syed Ali Raza Zaidi and Sami A Aldalameh



### ***BMI estimation from facial images using residual regression model***



Trung Pham, Tuan Luu and Thanh-Hai Tran



pp. 135-140

**Friday, October 15 9:50 - 10:10 (Asia/Saigon)**

Coffee break   

Friday, October 15 10:10 - 11:30 (Asia/Saigon)

Communications #3 (On Demand)   

Room: ROOM A

***Average Transmission Rate and Outage Performance of Relay-Assisted Satellite Hybrid FSO/RF Systems***  

Thang Nguyen, Hoang D. Le, Ngoc Dang and Anh T. Pham



pp. 141-146

***A Spectral Analysis Based Channel Estimation Method for Time Diversity Combining in Helicopter Satellite Communications***  

Toshiharu Kojima and Seiya Yako



pp. 147-150

***CARS: Dynamic Cyber-attack Reaction in SDN-based Networks with Q-learning*** 

Hai Hoang Nguyen, Tri Gia Nguyen, Hoang Thai Dinh, Duc Tran Le and Trung V. Phan



pp. 151-156

***Performance Evaluation of LoRa Networks for Confirmed Messages*** 

Quy Lam Hoang, Vo Nguyen Quoc Bao and Hoon Lawrence Oh



pp. 157-161

Electronics #3 (On Demand)   


Room: ROOM B

***1.2 $\mu$ W 41dB Ripple Attenuation Chopper Instrumentation Amplifier Using Auto-zero Offset Cancellation Loop***  

Thanh Xuan Pham, Quoc Bo, Kha Manh Hoang, Le Van Thai and Loan Pham-Nguyen



pp. 162-166

***Design of state feedback controller with optimal parameters using bat algorithm for reactionwheel pendulum***  

Nguyen Chiem and Lê Trần Thắng



pp. 167-172

### **Convolutional Neural Network Hardware Implementation for Flower**

**Classification**  

Thinh Quang Do and Hoang Trang



pp. 173-178

### **Triple Band Vivaldi Antenna for Construction Monitoring Based on the IIoT Systems**

Thanh Tu Duong, Duy Pham, Do Vu and Tan Nguyen



pp. 179-183

## Signal Processing #2 (On Demand)

Room: ROOM C

### **Multi-model deep learning drone detection and tracking in complex background conditions**

Kim-Phuong Phung, Thai-Hoc Lu, Trung-Thanh Nguyen, Ngoc-Long Le, Huu-Hung Nguyen and Van-Phuc Hoang



pp. 184-189

### **Fast QTMT for H.266/VVC Intra Prediction using Early-Terminated Hierarchical CNN model**

Xiem HoangVan, Sang NguyenQuang, Minh DinhBao, Minh DoNgoc and Dinh Trieu Duong



pp. 190-195

### **A pilot study on hand posture recognition from wrist-worn camera for human machine interaction**

Thanh-Hai Tran, Hoang-Nhat Tran, Hong-Quan Nguyen, Trung-Hieu Le, Van-Thang Nguyen, Trung-Kien Tran, Cuong Pham, Thi-Lan Le, Hai Vu, Thanh Phuong Nguyen and Nguyen Huu Thanh



pp. 196-201

### **Fast and Accurate Fall Detection and Warning System Using Image Processing Technology**

Thang Nguyen, Le Kim Tan, Phan Hong Thai and Van Binh Nguyen



pp. 202-205

Friday, October 15 11:30 - 13:30 (Asia/Saigon)

Lunch break   

Friday, October 15 13:30 - 14:50 (Asia/Saigon)

Antenna and Propagation #1 (On Demand)   

Room: ROOM A

***Multi-Mode Wave Orbit for Multigigabit Transmission via Rotary Transmitter with a Free Rotation Center***  

Christian Panhans and Reinhard Stolle



pp. 206-211

***Wide Slot Circularly Polarized Conductive Oxide-based Transparent Antenna Design for ISM Band RFID Applications***  

Arpan Desai, Ismail Akdag, Merih Palandoken, Cong Danh Bui, Jayshri S Kulkarni and Truong Khang Nguyen



pp. 212-216

***A dual circularly polarized metasurface-based antenna for synthetic aperture radars***  

Hien Thi Ngoc Doan



pp. 217-221



***A Wideband Full-Duplex Dual-Polarized Antenna with Conical Radiation Pattern***



Thu Hang Vu, Son Xuat Ta, Thanh Nam Le, Nguyen Khac Kiem, Chien Ngoc Dao and Nghia Nguyen-Trong



pp. 222-226

Special sessions #2 (On Demand)   

Room: ROOM B

***USRP Experimental Approach for Digital Self- Interference Cancellation in Full-Duplex Communications*** 

Cristina Despina-Stoian, Roua Youssef, Angela Digulescu, Emanuel Radoi, Florin Popescu, Alexandru Serbanescu and Roland Gautier



pp. 227-231

***Modulated Wideband Converter Compressed Sensing Spectrum Reconstruction in Multi-Level Power of Transmitters Signal Scenarios*** 



Lap Luat Nguyen, Anthony Fiche and Roland Gautier



pp. 232-238

***Design of Varactor-Loaded Transmission-Line Phase Shifter with Integrated Single-Stage LNA in 0.18 um RF CMOS Technology***

Khuong Minh Tran, Ha Vu Ngoc Anh, Ngoc Doan Van Le, Thao Manh Nguyen, Le Huy Trinh and Fabien Ferrero



pp. 239-243

***Security for Selected Two-Way Relay with Different Trust Degrees and Friendly Jammers***

Huynh Van Hoa, Chan Dai Truyen Thai, Nguyen Thi Yen Linh and Vo Nguyen Quoc Bao

2

pp. 244-248

**Signal Processing #3 (On Demand)**

Room: ROOM C

***Efficient Incremental Instance-based Learning Algorithms for Open World Malware Classification***

Kien Hoang Dang, Dai Tho Nguyen and Thu Trang Nguyen Thi



pp. 249-254

***Text classification problems via BERT embedding method and graph convolutional neural network***

Loc Tran, Lam Pham, Tuan Tran and An Mai



pp. 255-259

***On a development of sparse PCA method for face recognition problem***

Loc Tran, Bich Ngo, Tuan Tran, Lam Pham and An Mai



pp. 260-264

***A Lightweight Multi-factor Authentication Scheme based on Digital Watermarking Technique***

Trong-Minh Hoang, Van-Hau Bui and Ngoc-Tan Nguyen



pp. 265-269

**Friday, October 15 14:50 - 15:10 (Asia/Saigon)**

Coffee break   

Friday, October 15 15:10 - 16:30 (Asia/Saigon)

Antenna and Propagation #2 (On Demand)   

Room: ROOM A

***A High-gain and WideBand Patch Antenna for 5G Millimeter-wave Applications***



Thi Them Truong, Thi Anh Vu, Do Toan, Duc Nhat Nguyen, Hoang Truyen, Vu Xuan Trung Nguyen and Minh Thuy Le



pp. 270-274

***A study of 10-bit 2-MS/s Successive Approximation Register ADC with low power in 180nm technology***  

Hà Nam Anh and Hoang Trang




pp. 275-279

***Design of S-Band Transceiver for CubeSat Structure Satellites***  

Tung The-Lam Nguyen, Nguyen Khac Kiem, Son Xuat Ta, Van Cuong Nguyen, Anh Duc Tran, Thanh Nam Le and Chien Ngoc Dao



pp. 280-283

Special sessions #2 (On Demand)   

Room: ROOM B

***Wideband Dual-Polarized Full-Duplex Antenna Array*** 

Hadi Hijazi, Marc Le Roy, Raafat Lababidi, Denis Le Jeune and Andre Perennec



pp. 284-289

***Sum-Rate Optimization for Alamouti Distributed Space-Time Coding in Bi-directional Cooperative Communications*** 

Sang Quang Nguyen and Dong Doan



***Physical layer security in cooperative cognitive radio networks with relay selection methods*** 

Vo Phi Son, Le Nhat Binh, Tung T. Nguyen and Nguyen Trong Hai



pp. 290-295

### ***Impacts of chaotic mixing sequence on the Compressed Sensing blind spectrum reconstruction***

Uyen Lap Phuong Nguyen, Phuoc Vo, Lap Luat Nguyen and Bao Huynh Phuong Nguyen



pp. 296-300

## Special sessions #1 (On Demand)

Room: ROOM C

### ***Low-Latency and Secure Computation Offloading Assisted by Hybrid Relay-Reflecting Intelligent Surface***

Khac-Hoang Ngo, Nhan Thanh Nguyen, Thinh Quang Dinh, Trong-Minh Hoang and Markku Juntti



pp. 301-306

### ***An Effective Framework of Private Ethereum Blockchain Networks for Smart Grid***



Do Hai Son, Tran Thi Thuy Quynh, Tran Viet Khoa, Hoang Thai Dinh, Nguyen Linh Trung, Nguyen Viet Ha, Dusit Niyato, Diep N. Nguyen and Eryk Dutkiewicz



pp. 307-312

### ***A Benchmark of Deep Learning Models for Multi-leaf Diseases for Edge Devices***



Tuấn Anh Phạm and Duc Trong Minh Hoang



pp. 313-318

### ***Comparison of Data Dimension Reduction Methods in The Problem of Detecting Attacks***

Linh Le Thi Trang, Nguyen Van Truong, Quang Huy and Trong-Minh Hoang



pp. 319-322