

[A1] Recent Intelligent AIOT Application and Implementation

BGC 0101

Chair: Chi-Chia Sun, National Formosa University, TW

- A1-1 09:00-09:15 **Design and Implementation of a Monitoring and Control System Based on RS485 and OPC UA for Industrial IoT Applications**
Sheng-Wei Chang, Hui-Kai Su and Hao-Wei Chang, National Formosa University, Taiwan
- A1-2 09:15-09:30 **The Intelligent Beehive IoT System with the Ability to Measure Bee Activity and Honey Production**
Meng-Chang Wu, Yung-Hoh Sheu, Guo-Jun Chien, Pin-Yuan Shui, Shu-Jyun Huang, Chi-Wei Chang, Jen-Yu Shieh, National Formosa University, Taiwan
- A1-3 09:30-09:45 **A System for Combining Dehazer Weather Processing with AI Traffic Light Technology Enforcement**
Chi-Chia Sun and Wei-Ting Tai, National Formosa University, Taiwan
- A1-4 09:45-10:00 **Indoor Positioning System Using UWB and Kalman Filter to Increase the Accuracy of the Localization System**
Minh-Anh Nguyen, Chi-Chia Sun, National Formosa University, Taiwan
- A1-5 10:00-10:15 **Implementing Portable Energy Storage Systems in Urban Environments**
Chi-Chia Sun, Wen-Kai Kuo and Yong-Ye Lin, National Formosa University, Taiwan
- A1-6 10:15-10:30 **The YOLO Object Detection and Thermal Imaging in Natural Disaster Environments Advanced Intelligent Rescue System**
Hsin-Yu Chien and Chi-Chia Sun, National Formosa University, Taiwan

[A2] Artificial Intelligence, Machine Learning, and Deep Learning

BGC 0205

Chair: Hui-Kai Su, National Formosa University, TW

- A2-1 09:00-09:15 **Enhancing SNN Performance by Using Dynamic Membrane Threshold and Inhibitory Block Division**
Kun-Chih Chen, National Yang Ming Chiao Tung University, Taiwan; Tsu-Ping Lin, National Sun Yat-sen University, Taiwan
- A2-2 09:15-09:30 **Improving the Wavelet Transform Based Adaptive FullSubNet+ with Huber Loss**
Pei-Fang Li, Ping-Chen Wu and Jeh-Wei Hung, National Chi Nan University, Taiwan
- A2-3 09:30-09:45 **An Intelligent Approach for Tire-Pressure Monitoring System**
Shashank Mishra and Jia-Ming Liang, National University of Tainan, Taiwan
- A2-4 09:45-10:00 **Fraud Online Payment Detection Based on Machine Learning with Balancing Data Technique**
Nurafni Damanik and Chuan-Ming Liu, National Taipei University of Technology, Taiwan
- A2-5 10:00-10:15 **Detecting Gingivitis Through an Application by Utilizing “YOLOv5”, an Artificial Intelligent Software**
Khittitaj Bunupuradah and Techaphatr Indhavivadhana, Saint Gabriel's College, Thailand; Tem Indhavivadhana, Samut Sakhon Hospital, Thailand; Somchoke Ruengittinun, Kasetsart University, Thailand
- A2-6 10:15-10:30 **Smart Manufacturing and Generative Adversarial Network**
Gene Eu Jan, Tainan National University of the Arts, Taiwan; I-Hsuan Lu and Yung-Hao Wong, Minghsin University of Science and Technology, Taiwan

[A3] High Performance RF and Microwave Design**BGC 0614**

Chair: Wen Cheng Lai, National Taiwan University of Science and Technology, TW

- A3-1 09:00-09:15 **Ku-Band Low Noise Amplifier with TR Switch**
Tanvir Islam, University of Houston, USA; Chien-Wen Yeh, Wei-Yang Chen and Jun-Wei Luo, National Formosa University, TW; Wen Cheng Lai, National Taiwan University of Science and Technology, Taiwan
- A3-2 09:15-09:30 **Measured Radiation Power for 5G Communication Device**
Tanvir Islam, University of Houston, USA; Hao-Yi Li and Wen-Chung Kuo, National Yunlin University of Science and Technology, Taiwan; Wen Cheng Lai, National Taiwan University of Science and Technology, Taiwan
- A3-3 09:30-09:45 **The Effects of via Materials on the Scattering Matrix and Radiation Pattern of Substrate Integrated Waveguide Antenna**
Shen Shou Max Chung, National Penghu University of Science and Technology, Taiwan; Shih-Chung Tuan, Asia Eastern University of Science and Technology, Taiwan
- A3-4 09:45-10:00 **Design of Power Amplifier with Bandpass Filter**
Tanvir Islam, University of Houston, USA; Zhe-Yu Yu, Rui-Peng Chen, Yi-Cheng Ting, National Formosa University, Taiwan; Wen-Cheng Lai, National Taiwan University of Science and Technology, Taiwan
- A3-5 10:00-10:15 **Throughput Analysis for 5G Base Station**
Tanvir Islam, University of Houston, USA; Jia-Tien Hsia Wen, Wen-Chung Kuo, National Yunlin University of Science and Technology, Taiwan; Wen-Cheng Lai, National Taiwan University of Science and Technology, Taiwan

[B1] Recent Lean Production and Smart Manufacturing with Sustainable Development**BGC 0101**

Chair: Meng-Hua Li, National Formosa University, TW

- B1-1 10:50-11:05 **Concurrent Burr Detection with Collaborative Robot**
Yu-Chih Lin, Kai-Yang Peng and Jen-Yuan Chang, National Tsing Hua University, Taiwan
- B1-2 11:05-11:20 **A Lightweight Framework for Staged Remaining Useful Life Prediction of Rotating Machinery Based on Monotonicity and Dynamic Adjustment**
Kun-Chih Chen, National Yang Ming Chiao Tung University, Taiwan; Zhe-Xiang Tu and Chen-Jyun Tang, National Sun Yat-sen University, Taiwan
- B1-3 11:20-11:35 **Implementing Predictive Analytics Through ANN and Kanban to Improve Suppliers Performance**
Meng-Hua Li and Jihan Angrila, National Formosa University, Taiwan
- B1-4 11:35-11:50 **Trajectory Analysis of Quadcopter UAV Using Software in the Loop Simulation**
Meng-Hua Li and Rafiandra Dayansya, National Formosa University, Taiwan
- B1-5 11:50-12:05 **The Impact of Industry 4.0 Technologies on Sustainable Supply Chain Management**
Meng-Hua Li and Jasmine Maharani, National Formosa University, Taiwan
- B1-6 12:05-12:20 **Intelligence in Poultry Farming: Enhancing Efficiency and Welfare Through Intelligent Manufacturing**
Wai Yie Leong, INTI International University, Malaysia; Yuan Zhi Leong and Wai San Leong, Schneider Electric, Malaysia

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[B2] Smart Electronics Technologies and Applications

BGC 0205

Chair: Da-Huei Lee, Southern Taiwan University of Science and Technology, TW

- B2-1 10:50-11:05 **Low-cost Vibrotactile Sensor Using Polyvinylidene Fluoride Film for use in Virtual Haptic Data Gathering**
Aaron Raymond See, Kohila Chandramohan, Stefan Graham, Muhammad Zenda Ruud and Chien-Jen Wang, Southern Taiwan University of Science and Technology, Taiwan
- B2-2 11:05-11:20 **Calculate Waist Trajectory During Golf Swing from IMU Sensing Data**
Chun-Hung Yang, Jia-Quan Liu and Da-Huei Lee, Southern Taiwan University of Science and Technology, Taiwan
- B2-3 11:20-11:35 **Hybrid Modulation Optical Communication and Specific Wavelength Device-based Water Mist and Smoke Discrimination Sensing System**
Liang-Yan Lin, Yi-Kai Liao, Chun-Hung Yang and Da-Huei Lee, Southern Taiwan University of Science and Technology, Taiwan
- B2-4 11:35-11:50 **Implementation of an AI-based Competitive Cheerleading Coaching Assistant System**
Chun-Hung Yang, Jiun-Yu Tu, Dong-Shing Wu, Ya-Ting Zhuang, Pei-Ying Tsai and Chen-Kai Hsu, Southern Taiwan University of Science and Technology, Taiwan
- B2-5 11:50-12:05 **Smart Sensor Technologies and Its Location-Aware Applications**
Dong-Shing Wu, Jiun-Yu Tu and Chun-Hung Yang, Southern Taiwan University of Science and Technology, Taiwan
- B2-6 12:05-12:20 **A FPGA-based Real-valued Signals Generator for Optical Wireless Communications**
Jyun-Syong Wang and Wei-Wen Hu, National Formosa University, Taiwan

[B3] Life Cycle Assessment in Related Industrial Production

BGC 0614

Chair: Meng-Chieh Lee, National Taichung University of Science and Technology, TW

- B3-1 10:50-11:05 **Artificial Intelligence for Thermal Deformation Optimization of a Machine Tool Spindle**
Swami Nath Maurya, Win-Jet Luo, Bivas Panigrahi and C. Bambang Dwi Kuncoro, National Chin-Yi University of Technology, Taiwan
- B3-2 11:05-11:20 **Life Cycle Assessment in Simplified Interior Construction**
M.C. Jeffrey Lee, National Taichung University of Science and Technology, Taiwan; Teow Ngak Ng, Tainan University of Technology, Taiwan; Hsien Te Lin, National Cheng Kung University, Taiwan
- B3-3 11:20-11:35 **Lifecycle Cost Analysis of Implementing Smart Remote Monitoring in Vertical Transportation Systems of Buildings**
Cheng Chen Chen, National Taipei University of Technology, Taiwan
- B3-4 11:35-11:50 **Application of Human-made Pollution Sensor Module in Ventilation Facilities**
Hsu Hsieh-Chih and Pan Chen-Yu, National Cheng Kung University, Taiwan

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[B4] Intelligent Systems and Artificial Intelligence

BGC 0701

Chair: Jin-Tsong Jeng, National Formosa University, TW

- B4-1 10:50-11:05 **An Interactive English Learning System with Image and Speech Recognition**
Ching-Ta Lu, Feng Chia University, Taiwan; I-Tien Chu, National Taipei University of Business, Taiwan; Ying-Chen Pan and Yu-Chun Liu, National Taiwan Normal University, Taiwan
- B4-2 11:05-11:20 **Study on Screw Filtration System**
Ching-Chun Chuang, National Kaohsiung University of Science and Technology, Taiwan; Bo-Yu Lin, National Formosa University, Taiwan
- B4-3 11:20-11:35 **Interval Improved Fuzzy Partitions Fuzzy C-Means under Hausdorff Distance**
Sheng-Chieh Chang, Wei-Ching Chuang and Jin-Tsong Jeng, National Formosa University, Taiwan
- B4-4 11:35-11:50 **A Centroid-Based Overlap Coverage Approach for UAV Data Collection in Wireless Sensor Networks**
Jau-Yang Chang, Kai-Hua Chen and Jin-Tsong Jeng, National Formosa University, Taiwan

[C1] Sensors, Circuit and VR Technology

BGC 0101

Chair: Shih-Hsu Huang, Chung Yuan Christian University, TW

- C1-1 15:50-16:05 **Optical Dual Sensor for the Simultaneous Detection of Oxygen and Nitric Oxide Based on Electrospun Fibers Double-Layer**
Rispani and Cheng-Shane Chu, Ming Chi University of Technology, Indonesia
- C1-2 16:05-16:20 **Effective RTL Locking for Obfuscation of Loop-Based Designs**
Yi-Chen Chen and Shih-Hsu Huang, Chung Yuan Christian University, Taiwan
- C1-3 16:20-16:35 **A Novel Automatic Synthesis Model for Noise Performance of Switched-Capacitor Low-Pass Filter**
Po-Yu Kuo and Li-An Tsai, National Yunlin University of Science and Technology, Taiwan
- C1-4 16:35-16:50 **Virtual Reality in Education: Case Studies and Applications**
Wai Yie Leong, INTI International University, Malaysia; Yuan Zhi Leong and Wai San Leong, Schneider Electric, Malaysia

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[C2] Advanced Circuit Techniques for Smart Life

BGC 0205

Chair: Jen-Shiun Chiang, Tamkang University, TW; Hsin-Liang Chen, Chinese Culture University, TW

- C2-1 15:50-16:05 **A Multi-Stage Dual Mode Digital LDO with Fast Transient Response and Adaptive Frequency**
Wei-Bin Yang, Li-Lun Chu, Tse-Yu Chen and Cheng-Kai Lin, Tamkang University, Taiwan; Diptendu Sinha Roy, National Institute of Technology, Meghalaya, India
- C2-2 16:05-16:20 **A 78 dB SNDR 500kHz BW Continuous-Time DSM Hybrid 6-Bit SAR ADC with Sharing DAC**
Yu-Wei Yang and Ting-Yu Syu, Tamkang University, Taiwan; Hsin-Liang Chen, Chinese Culture University, Taiwan; Jen-Shiun Chiang, Tamkang University, Taiwan
- C2-3 16:20-16:35 **A Second Order Fully Passive Noise Shaping SAR ADC**
Chuang-Hsuan Chueh and Cheng-Han Lin, Tamkang University, Taiwan; Hsin-Liang Chen, Chinese Culture University, Taiwan; Jen-Shiun Chiang, Tamkang University, Taiwan
- C2-4 16:35-16:50 **Semantic Segmentation Using Super Resolution Technique as Pre-Processing**
Chih-Chia Chen, Wei-Han Chen, Jen-Shiun Chiang and Chun-Tse Chien, Tamkang University, Taiwan; Tingkai Chang, Crean Lutheran High School, United States

[C3] Computational Intelligence and Information Applications I

BGC 0614

Chair: Hsuan-Ming Feng, National Quemoy University, TW; Hua-Ching Chen, Xiamen Ocean Vocational College, CN

- C3-1 15:50-16:05 **Automatic Identification of Fetal Cranial Standard Sections in Early Pregnancy Based on the Detection of Key Anatomical Structures**
Hao Xue, College of Engineering Huaqiao University, China; Xu Guo, Zhonghua Liu and Weifeng Yu, The First Hospital of Quanzhou Affiliated to Fujian Medical University, China; Peizhong Liu, College of Engineering Huaqiao University, China
- C3-2 16:05-16:20 **Prenatal Diagnosis of Ventricular Septal Defect Based on Yolov7**
Furong Li and Haisheng Song, Northwest Normal University, China; Huaming Wang, The Second Affiliated Hospital of Fujian Medical University, China; Lan Zheng, College of Engineering, Huaqiao University, China
- C3-3 16:20-16:35 **Semantic Segmentation of Adult Liver and Its Accessory Structures Based on Swin Transformer**
Lei Zhang, Haisheng Song, Northwest Normal University, China; Jiansong Zhang and Lan Zheng, Huaqiao University, China; Shengnan Wu, First Affiliation Hospital of Fujian Medical University, China
- C3-4 16:35-16:50 **Muti-Head Self Attention are Scalable Learner for Ultrasound Image Analysis**
Jiansong Zhang, National Huaqiao University, China; Yongjian Chen, The Second Affiliated Hospital of Fujian Medical University, China; Shengnan Wu, The First Affiliation Hospital of Fujian Medical University, China; Peizhong Liu, National Huaqiao University, China

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[C4] Machine Learning for Smart and Industrial Applications

BGC 0701

Chair: Yeong-Kang Lai, National Chung Hsing University, TW

- C4-1 15:50-16:05 **Hardware Acceleration of Lite CNN-based Face Direction Recognition Detector by Deep Learning Processor Unit with FPGA**
Hsing-Yao Wang, Chung-Bin Wu and Chih-Peng Fan, National Chung Hsing University, Taiwan
- C4-2 16:05-16:20 **Efficient Data Management in Edge Computing**
Shih-Ying Chen, Hung-Ming Chen and Chun-Yen Chu, National Taichung University of Science and Technology, Taiwan
- C4-3 16:20-16:35 **Word Card Generation for Language Education using Latent Diffusion Model**
Jun-Ye Zhou, Tz-Heng Fu, National Taipei University of Technology, Taiwan
- C4-4 16:35-16:50 **Breast Cancer Screening with Class Imbalance Datasets of Mammogram Imaging**
Chia-Ming Liang, Tri-Sevice General Hospital and National Defense Medical Center, Taiwan; Yao-Chung Chang, Chun-Yu Yeh, Shang-Hui Lin, Yi-Jui Huang and Wei-Wen Hsu, National Taitung University, Taiwan

[D1] Best Paper Competition

BGC 0101

Chair: Yuei-An Liou, National Central University, TW

- D1-1 17:00-17:15 **Interworking between SNMP and OM2M supporting the Bulk Operation**
Chao-Hsien Lee and Chih-Lung Chiang, National Taipei University of Technology, Taiwan
- D1-2 17:15-17:30 **Stability Analysis of a Multi-machine Power System Connected with a High-capacity DC Microgrid Containing Electric-vehicle Loads and Hybrid Renewable Power-generation Systems**
Li Wang, Shih-Chia Lin, Yu-Cheng Hsu and Ching-Chuan Tseng, National Cheng Kung University, Taiwan; Hazlie Mokhlis, University of Malaya, Malaysia; Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia; Manoj Tripathy, Indian Institution of technology Roorkee, India
- D1-3 17:30-17:45 **A Robust Model for the Intelligent Classification of Uterine Fibroid Ultrasound Images**
Tiantian Yang, Huaqiao University, China; Ping Li, the First Hospital of Quanzhou, China; Peizhong Liu, Huaqiao University, China
- D1-4 17:45-18:00 **Eyeing3D: Perceiving 3D from 2D Images**
Tai Peng, Kang-Yang Huang and Si-Yu Lu, National Taiwan University, Taiwan; Rou-An Chen and Hong-Han Shuai, National Yang Ming Chiao Tung University, Taiwan; Wen-Huang Cheng, National Taiwan University, Taiwan; Jianlong Fu, Microsoft Research, China
- D1-5 18:00-18:15 **Enhancing Object Detection Accuracy in Blurred Images with a New Deblurring Model**
Chia-Yu Wang, National Taiwan Ocean University, Taiwan; Jun-Wei Hsieh, Yi-Kuan Hsieh and Yu-Chee Tseng, National Yang-Ming Chiao-Tung University, Taiwan
- D1-6 18:15-18:30 **A System Dynamics Approach of a Laptop Manufacturing Supply Chain Operation Simulation Modelling Using AnyLogic**
Meng-Hua Li and Sonya Indriastuti, National Formosa University, Taiwan

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[D2] Intelligent Robotic Manipulation

BGC 0205

Chair: Jen-Yuan Chang, National Tsing Hua University & National Formosa University, TW

- D2-1 17:00-17:15 **Strategy for Stable In-Hand Manipulation with Humanoid-Pinch Gripper**
Chia-Yu Cheng, Sheng-Guan Lin and Jen-Yuan Chang, National Tsing Hua University, Taiwan
- D2-2 17:15-17:30 **Refining Object Grasping in Robotic Hands Using a Mediapipe-based Virtual Contour Method**
Sheng-Guan Lin and Jen-Yuan Chang, National Tsing Hua University, Taiwan
- D2-3 17:30-17:45 **Implementation of Intelligent Arm Control Combined with Image Recognition for Cigarette Butt Pick-up Application**
Sen-Tung Wu, Kun-Che Ho, Yih-Her Yan, Yao-Hui Xu and Shi-Kai Huang, National Formosa University, Taiwan
- D2-4 17:45-18:00 **Intelligent Diagnosis and Precision Analysis of a Large Gantry Type 5-Axis CNC Machine Tool**
Tzu-Chi Chan, Xian-You Shao, Aman Ullah, Chien-Wen Chen and Chia-Wei Chen, National Formosa University, Taiwan
- D2-5 18:00-18:15 **Two-Axis Robot Positioning Errors Model of a Semiconductor Inspection Machine**
Su-Yi Fan, Tzu-Chi Chan, Bedanta Roy, National Formosa University, Taiwan

[D3] Computational Intelligence and Information Applications II

BGC 0614

Chair: Hsuan-Ming Feng, National Quemoy University, TW / Hua-Ching Chen, Xiamen Ocean Vocational College, CN

- D3-1 17:00-17:15 **Fetal Nasal Bone Abnormal Detection Based on YOLOV5**
Yapeng Li, Huaqiao University, China; Zhonghua Liu, Quanzhou First Hospital Affiliated to Fujian Medical University, China; Shaobin Zhang and Longxiang Feng, Huaqiao University, China
- D3-2 17:15-17:30 **Diagnosis of Endometrial Cancer Based on Deep Learning**
Tong Yang, Huaqiao University, China; Yaping Ni, The First Hospital of Quanzhou, China; Lan Zheng, Huaqiao University, China
- D3-3 17:30-17:45 **Automatic Endometrial Cancer Segmentation Based on Deep Learning**
Longxiang Feng, Huaqiao University, China; Chunxia Chen, Fujian Maternity and Child Health Hospital, China; Yapeng Li and Shaobin Zhang, Huaqiao University, China
- D3-4 17:45-18:00 **Real-time Instance Segmentation of Fetal Cranial Ultrasound Images Based on Improved YOLACT++**
Pan Zeng, Huaqiao University, China; Xiaolin Chen, The First Hospital of Quanzhou Affiliated to Fujian Medical University, China; Furong Li, Northwest Normal University, China; Weifeng Yu and Zhonghua Liu, The First Hospital of Quanzhou Affiliated to Fujian Medical University, China; Peizhong Liu, Huaqiao University, China
- D3-5 18:00-18:15 **Classification of Rectal Cancer Metastases Based on Deep Learning**
Ju Tang, Huaqiao University, China; Qiming Huang, Fujian Medical University Second Affiliated Hospital, China; Jiansong Zhang and Shaobin Zhang, Huaqiao University, China

[E1] Artificial Intelligence Applications and Technologies

BGC 0101

Chair: Jyun-Yu Jhang, National Taichung University of Science and Technology, TW

- E1-1 09:00-09:15 **Grape Farm Pest Bird Sound Detection System using Embedded Systems**
Euhid Aman, Presidency University, India; Wen-Ren Yang, National Changhua University of Education, Taiwan
- E1-2 09:15-09:30 **1-D Band Structure Prediction in Photonic Fishbone Structure Using Artificial Neural Network**
Chien-Chung Chen, Fu-Li Hsiao and Chuan-Yu Chang, National Changhua University of Education, Taiwan; Ying-Pin Tsai, College of Photonics, National Yang Ming Chiao Tung University, Taiwan
- E1-3 09:30-09:45 **Diffraction Efficiency Prediction in 2-D Metasurface Using Artificial Neural Network**
Cheng-Jui Fan, Fu-Li Hsiao, Tzu-Chun Chiu and Wei-Hsuan Hsieh, National Changhua University of Education, Taiwan; Ying-Pin Tsai, National Yang Ming Chiao Tung University, Taiwan
- E1-4 09:45-10:00 **FPGA-based Implementation of A Dynamic Hand Gesture Recognition System**
Yi-Chen Tsai, Yu-Hsuan Lai, Chong-Hao Xu and Shanq-Jang Ruan, National Taiwan University of Science and Technology, Taiwan
- E1-5 10:00-10:15 **Paraguayan Snack Recognition System: Implementation and Comprehensive Analysis**
Jonathan David Gonzalez, Juan Jose Minardi and Octavio Santacruz, Universidad Politecnica Taiwan-Paraguay, Paraguay; Shanq-Jang Ruan, National Taiwan University of Science and Technology, Taiwan
- E1-6 10:15-10:30 **Training and Integrating GPT and Other Language Models to Build a Voicebot System**
Duc-Tri Nguyen, Nhat-Quang Tran and Van-Khoa Pham, University of Technology and Education, Hochiminh City, Viet Nam
- E1-7 10:30-10:45 **Dense-U-Net assisted Improved Audio-Visual Source Tracking for Speech Enhancement**
Jayanta Datta, University of Chile, Chile

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[E2] Application and Design of Deep Learning Signal Processing

BGC 0205

Chair: Szu-Hong Wang, National Yunlin University of Science and Technology, TW; Ming-Ta Ke, National Yunlin University of Science and Technology, TW

- E2-1 09:00-09:15 **Fitness Assistant Using sEMG and Machine Learning**
Ivanna Borja, Mauricio Conigliaro and Mara Guillen, Universidad Politecnica Taiwan-Paraguay, Paraguay; Shanq-Jang Ruan, National Taiwan University of Science and Technology, Taiwan
- E2-2 09:15-09:30 **Heart Left Bundle Branch Block Detect System**
Gang-Ting Fan, National Yunlin University of Science and Technology, Taiwan; Deng-Yang Huang, Yuanpei University, Taiwan; Szu-Hong Wang, National Yunlin University of Science and Technology, Taiwan
- E2-3 09:30-09:45 **Facial Expression Synthesis Based on Denosing Diffusion Probabilistic Model**
Chayanon Sub-R-Pa, Ming-Zhong Fan, Chaoyang University of Technology, Taiwan; Hui Yu, University of Portsmouth, United Kingdom; Rung-Ching Chen, Chaoyang University of Technology, Taiwan
- E2-4 09:45-10:00 **Improved Shoe Recognition Model using Vision Image Transformer**
Rung-Ching Chen, Ibrahim Y Garta and Shao-Kuo Tai, Chaoyang University of Technology, Taiwan
- E2-5 10:00-10:15 **Improved Bilateral Filter Using Smoother Difference and Adaptive Sum**
Jian-Jiun Ding, Pin-Wen Huang and Shiang-Chih Hua, National Taiwan University, Taiwan
- E2-6 10:15-10:30 **Fast Algorithms for Multi-Windowed Dark Channel Priors with Less Comparison and Time Cycle Requirement**
Jian-Jiun Ding, Ming-Yang Tu and Shiang-Chih Hua, National Taiwan University, Taiwan

[E3] Power Electronic and Automation Control

BGC 0614

Chair: Ching-Chun Chuang, National Kaohsiung University of Science and Technology, TW

- E3-1 09:00-09:15 **FamiPacking: A Diffusion Model for Guiding 3D Bin Packing**
Chu-Jun Peng, Ling Lo and Hongxia Xie, National Yang Ming Chiao Tung University, Taiwan; Chien-Chih Chiu, Wan-Hsin Hsueh and Shih-Chieh Huang, Taiwan FamilyMart, Taiwan; Hong-Han Shuai, National Yang Ming Chiao Tung University, Taiwan; Wen-Huang Cheng, National Taiwan University, Taiwan
- E3-2 09:15-09:30 **Research on CANOpen Communication protocol for Electric Vehicle On-board Chargers**
Wu Ping-Tsang, National Formosa University, Taiwan; Chuang Ching-Chun, National Kaohsiung University of Science and Technology, Taiwan; Hong Min-Rui, Wang Shu-Po and Wu Jun-Yi, National Formosa University, Taiwan
- E3-3 09:30-09:45 **Compare Neural Networks and Fuzzy Neural Networks Applied in Power Forecasting of Photovoltaic System**
Tsai-Jiun Ren, National Formosa University, Taiwan; Yu-Xiang Su, Kun Shan University, Taiwan
- E3-4 09:45-10:00 **A Predictive Model for Turbine Energy Yield Estimation in a Combined Cycle Power Plant**
Edward Ofoegbu and Akbar Shiekh-Akbari, leeds beckett University, United Kingdom

Poster List

15:50-16:50, OCT. 21 (SAT)

Chair: Chih-Hsien Hsia, National Ilan University, TW

- PA-01 **Suppression of Subsynchronous Resonance in Hybrid Steam-Turbine Generator and Offshore Wind Farm Using a Vanadium Redox Flow Battery-Based Energy Storage System and a Static Synchronous Compensator**

Li Wang, Jui-Tse Lai, Ting-You Li and Ching-Chuan Tseng, National Cheng Kung University, Taiwan; Hazlie Mokhlis, University of Malaya, Malaysia; Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia; Manoj Tripathy, Indian Institute of Technology Roorkee, India

- PA-02 **Voltage Stability Analysis of Multi-microgrid Clusters**

Li Wang, Li-Wei Chen, Yu-Wei Liou and Ching-Chaun Tseng, National Cheng Kung University, Taiwan; Hazlie Mokhlis, University of Malaya, Malaysia; Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia; Manoj Tripathy, Indian Institution of Technology Roorkee, India

- PA-03 **Design and Implementation of a Bidirectional DC-DC Power Converter for Energy-storage Systems of a DC Microgrid Using a Digital Controller**

Li Wang, Rui-Xuan Wu, Zi-Hao Liao and Ching-Chuan Tseng, National Cheng Kung University, Taiwan; Hazlie Mokhlis, University of Malaya, Malaysia; Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia; Manoj Tripathy, Indian Institution of technology Roorkee, India

- PA-04 **Sensitivity and Economic Analyses of Various Energy- Storage Systems in a Hybrid Power-Generation System**

Li Wang, Chun-Ta Chang, Sheng-Jie Zhang and Ching-Chaun Tseng, National Cheng Kung University, Taiwan; Hazlie Mokhlis, University of Malaya, Malaysia; Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia; Manoj Tripathy, Indian Institution of Technology Roorkee, India

- PA-05 **Improvement of Electric Power Quality Using a Unified Power-Quality Conditioner Integrated with a PV System and a Supercapacitor**

Li Wang, Jia-Ruei Zhang, Ting-You Li and Ching-Chaun Tseng, National Cheng Kung University, Taiwan; Hazlie Mokhlis, University of Malaya, Malaysia; Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia; Manoj Tripathy, Indian Institution of technology Roorkee, India

- PA-06 **Stability Analysis of a Synchronous Generator Connected to a Power Grid through a Modular Multilevel Converter-based High-Voltage Direct-Current Link**

Li Wang, Yu-Han Lin, Zi-Hao Liao and Ching-Chaun Tseng, National Cheng Kung University, Taiwan; Hazlie Mokhlis, University of Malaya, Malaysia; Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia; Manoj Tripathy, Indian Institution of technology Roorkee, India

- PA-07 **Embedding a Hardware Trojan in the YOLO-v2 Neural Network Model using FPGA Implementation**

Zhe-Hong Liu, Shih-Hsu Huang and Yun-Ting Chuan, Chung Yuan Christian University, Taiwan

- PA-08 **5G Private Network Identity Management System with Zero Trust Design**

Hung-Ming Chen, Yung-Feng Lu and Yi-Ming Chuang, National Taichung University of Science and Technology, Taiwan

- PA-09 **Spatial-Based Generative Adversarial Network for Makeup Transfer**

Liang-Ying Ke, National Ilan University, Taiwan; Wan-Ling Lan, Singapore American School, Singapore; Hsin-Yi Lin, Taipei City University of Science and Technology, Taiwan; Chih-Hsien Hsia, National Ilan University, Taiwan

- PA-10 **Contactless Palm-Vein Recognition for E-Commerce**

Ping-Han Chen, Chunghwa Telecom Laboratories, Taiwan; Chang Liu, Kang Chiao International School, Taiwan; Chih-Hsien Hsia, National Ilan University, Taiwan

- PA-11 **Design of an Objective Detection Technology with AR Display for Tool Machine Monitoring System**

Wei-Fu Kuo, Zhuan Li and Sheng-He Wang, Southern Taiwan University of Science and Technology, Taiwan

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Chair: Chih-Hsien Hsia, National Ilan University, TW

PA-12 Multi-Type Tree Partition Decision for H.266/VVC Inter Coding Based on Random Forest Classifiers

Chih-Ming Lien, National Taiwan Normal University, Taiwan; Mei-Juan Chen, Chieh-Ming Yang, Rui-Hong Hong and Yuan-Hong Lin, National Dong Hwa University, Taiwan; Chia-Hung Yeh, National Taiwan Normal University, Taiwan

PA-13 Design of A Service Orchestration System Based on TM Forum Open Apis

Hung-Ming Chen, Yung-Feng Lu, Jie-Chen Ke and Meng-Ju Zhong, National Taichung University of Science and Technology, Taiwan

PA-14 Design of an MRT Assisted Empty Vehicle Detection Technique Based on the Yolo Deep Learning Model

Hung-Ming Chen, Shih-Ying Chen and Hong-Yi Chen, National Taichung University of Science and Technology, Taiwan

PA-15 Design and Development of a Customizable and Instructional Health Education App

Hsiang-Lung Huang, Ya-Hsin Hsueh, National Yunlin University of Science and Technology, Taiwan; Fang-Ru Lin, National Taiwan University Hospital Yunlin Branch, Taiwan; Ming-Te Yen, Pin-Hsuan Kao, Ming-Ta Ke, National Yunlin University of Science and Technology, Taiwan

PA-16 Identity Authentication Techniques for Unmanned Ships Communication Based on MITRE ATT&CK Framework

Shih-Hao Chang, National Taipei University of Technology, Taiwan; Junxian He, Tamkang University, Taiwan

09:00-10:30, OCT. 22 (SUN)

Chair: Liang-Bi Chen, National Penghu University of Science of Technology, TW

- PB-01 **Enhance the Computational Edge Devices with Lightweight Attention and Transferrable Awareness**
Jirayu Petchhan and Shun-Feng Su, National Taiwan University of Science and Technology, Taiwan
- PB-02 **Opto-Mechanical Assembly Solution for Addressing Key Challenges in Probing and Testing Technology of Semiconductor Gas Sensors**
Chih-Wen Chen and Yi-Hao Lin, Taiwan Instrument Research Institute, Taiwan
- PB-03 **A Deep Learning-Based Fake News Detecting System**
Po-Kai Chen, Khai-Thinh Nguyen, Zhiquan Feng, National Central University, Taiwan; Tzu-Chiang Tai, Providence University, Taiwan; Jia-Ching Wang, National Central University, Taiwan
- PB-04 **A Historical Review of Drone Performances**
Hui-Ching Hsieh, Gene Eu Jan and He-Lin Luo, Tainan National University of the Art, Taiwan; Chih-Ming Kung, Shih Chien University, Taiwan
- PB-05 **Research on Real-Time Drone Dance Control System Based on High Speed Mesh Communication Architecture**
Chih-Ming Kung, Wei-Sheng Yang, Guan-Kai Chen and Shih Chien University, Taiwan; Hui-Ching Hsieh and Gene-Eu Jan, Tainan National University of the Arts, Taiwan
- PB-06 **A Large-Scale Aerial Photo Shooting System with No Time Difference Based on Drone Swarm Flight**
Chih-Ming Kung, Wei-Sheng Yang and Guan-Kai Chen, Shih Chien University Kaohsiung Campus, Taiwan; Hui-Ching Hsieh and Gene-Eu Jan, Tainan National University of the Arts, Taiwan
- PB-07 **Enhanced Large-scale Street Scene Point Cloud Segmentation with Pyramid Feature Fusion**
Jing-Ming Guo, Hoang-Chuong Vo and Wei-Tse Wang, National Taiwan University of Science and Technology, Taiwan
- PB-08 **Depth Estimation for Outdoor Monocular Images using Multiscale Transformer**
Jing-Ming Guo, Anh-Vu Bui and Che-Chih Wu, National Taiwan University of Science and Technology, Taiwan, Taiwan
- PB-09 **Designing an End-To-End Mobility Mechanism for Mec Applications**
Hung-Ming Chen, Yung-Feng Lu, Chin-Chien Lu and Chun-Hung Tsai, National Taichung University of Science and Technology, Taiwan
- PB-10 **An Application of Cost, Resilience and Leadership for Implementation of PV, Solar Thermal and ASHP**
Ram Sharan Thapa, The University of Hull, Nepal
- PB-11 **Fatigue Driving Detection Based on YOLOv7 Algorithm and MEC Acceleration Circuit Design**
Rui-Hua Shi, Yu-Chia Chiang, Hsuan-Yu Chen, Yu-Ze Zhong, Zheng-An Yang, Yu-Sheng Liu and Yu-Cheng Fan, National Taipei University of Technology, Taiwan
- PB-12 **YOLOv7 Algorithm and Winograd Acceleration Circuit for Real-time Road Image Recognition and Reminder**
You-Chiao Cheng, Li-Chen Chang, Yi-Fang Heish, Tzu-Shuo Wang, Jhih-Yuan Gao, Yao-Zhan Xu and Yu-Cheng Fan, National Taipei University of Technology, Taiwan
- PB-13 **An Intelligent Sign Language Translation System by Integrating Facial Expressions with Hand Movements**
Xiang-Rui Huang, Jia-Wei Wu, Wei-Liang Ke and Liang-Bi Chen, National Penghu University of Science and Technology, Taiwan
- PB-14 **Arithmetic Optimization Clustering Algorithm for Automatic Labeling in Human Activity Recognition**
Yu-Da Lin, Jun-Han Lin and Chiung-Wen Hsu, National Kaohsiung University of Science and Technology, Taiwan

09:30-10:30, OCT. 23 (MON)

Chair: Chia-Hsin Cheng, National Formosa University, TW

PC-01 **Research on Bearing Diagnosis with a Smart Gearbox using Monitored Vibration Data**

Li-Te Huang, National Tsing Hua University & Industrial Technology Research Institute, Taiwan; Jen-Yuan Chang, National Tsing Hua University & National Formosa University, Taiwan

PC-02 **Object Detection Based on Deep Learning for Autonomous Vehicles Systems in ROS2**

Chia-Hsin Cheng, National Formosa University, Taiwan

PC-03 **Implementation of a 32-bit Floating-Point Multiplier for Low-Power Designs using 90nm CMOS Technology**

Van-Khoa Pham, University of Technology and Education, Hochiminh City, Viet Nam

PC-04 **LCD Interface to I2C Protocol Conversion using Fpga**

Kuang-Hao Lin, Tzu-Yi Tseng and Qi-Tai Wang, National Formosa University, Taiwan

PC-05 **The Design and Implementation of an AI-Enabled Smart Jump Rope System**

Kuo-Yi Chen, Kuo-Yi Chen and Kuo-Yi Chen, National Formosa University, Taiwan

PC-06 **Image-Based Detection System of Guided-Mode Resonance Sensor Using 3D Printed Component**

Wen-Kai Kuo and Yu-Hsiang Chen, National Formosa University, Taiwan

PC-07 **The Development of the Vertical Take-Off and Landing UAV**

Tong Zou Jie, Shiuan Huang Hau, Bing-Lin Xie, Pei-Chi Chen, National Formosa University, Taiwan