

Technical Program

Oct. 14 (FRI)

[A1] Smart Machinery and Novel Materials

EB209

Chair: Li-Wei Tseng, National Changhua University of Education, TW

- A1-1 09:00-09:15 **Pose Measurement of Machine Tool Using Inertial Sensors**
Yan-Xun Lin, National Changhua University of Education, Taiwan; Chung-Wei Wu, Precision Machinery Research and Development Center, Taiwan; Yi-Cheng Lin, Wen-Tse Hsiao, Taiwan Instrument Research Institute, Taiwan; Li-Wei Tseng, National Changhua University of Education, Taiwan
- A1-2 09:15-09:30 **Mechanical Properties of FeNiCoAlTaB Novel Materials**
Po-Yu Lee, Li-Wei Tseng, National Changhua University of Education, Taiwan; Chih-Hsuan Chen, National Taiwan University, Taiwan
- A1-3 09:30-09:45 **An Intelligent IoT System for Machine Tool Applications**
Yeong-Lin Lai, National Changhua University of Education, Taiwan; Yeong-Kang Lai, National Chung Hsing University, Taiwan; Shan-Ching Chen, Li-Chih Chang, Chun-Yi Zheng, National Changhua University of Education, Taiwan
- A1-4 09:45-10:00 **Electromechanical Simulation of Machine Tools**
Shuo-Jie Liao, National Changhua University of Education, Taiwan; Wei-Lun Huang, Precision Machinery Research & Development Center, Taiwan; Li-Wei Tseng, National Changhua University of Education, Taiwan
- A1-5 10:00-10:15 **Biomimetic Functional Surface as Anti-corrosion Coating Layers**
Chau-Yi Tsai, Yi-Seng Chen, Da-You Ke, Chum-Ting Chang, Wei-You Sun and Cheng-Hsuan Hsu, National Formosa University, Taiwan

[A2] Optical Metrology and Perovskite Optoelectronics

EB110

Chairs: Jing-Heng Chen, Feng-Chia University, TW; Rui-Yun Hsu, Industrial Technology Research Institute, TW

- A2-1 09:00-09:15 **An Improved Method for Measuring Small-Angle Variation Based on Phase-Enhanced Total-Internal-Reflection Heterodyne Interferometry**
Chuan-Yu Tseng, Tsai-Chun Huang, Jiun-You Lin, National Changhua University of Education Changhua, Taiwan
- A2-2 09:15-09:30 **Measurement Uncertainty-analysis for Measuring Focal Length of Spherical Lenses Using Digital-grating Moiré Technique**
Jun-Ming Bai, Chen-Hsin Tu, Feng Chia University, Taiwan; Chien-Yuan Han, National United University, Taiwan; Kun-Huang Chen, Jing-Heng Chen, Feng Chia University, Taiwan
- A2-3 09:30-09:45 **An Investigation of Carrier Transport Behavior in a Bi-Layer ETL for Efficient Perovskite Solar Cells**
Rui-Yun Hsu, Industrial Technology Research Institute, Taiwan; Yeong-Lin Lai, Yung-Hua Chou, Wei-Jhe Syu, National Changhua University of Education, Taiwan
- A2-4 09:45-10:00 **The Refractive Index Measurement of Seawater Based on a Photo Array Sensor**
Tzu Hao Tseng, Meng Chang Hsieh, National Sun Yat-sen University, Taiwan
- A2-5 10:00-10:15 **Prototype Sensor for Washing Machine Wastewater Monitoring**
Chen-Wei Huang, Chun-Yi Chang, Cheng-Chih Hsu, National United University, Taiwan

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[A3] Recent Advances in Artificial Intelligence

EB111

Chair: Yeong-Lin Lai, National Changhua University of Education, TW

- A3-1 09:00-09:15 **An Efficient Fault-Tolerant Winograd Convolution for Convolutional Neural Networks**
Yu-Hsin Kao, Chia-Chun Liu, Yi-Wen Ding, Tsung-Chu Huang, National Changhua University of Education, Taiwan
- A3-2 09:15-09:30 **LCD Panel Defect Detection Using a Deep-Learning Neural Network**
Yeong-Lin Lai, National Changhua University of Education, Taiwan; Yeong-Kang Lai, National Chung Hsing University, Taiwan; Cheng-Hsien Chen, Chun-Yi Zheng, Ming-Ho Lee, Yun-Wei Chiang, National Changhua University of Education, Taiwan
- A3-3 09:30-09:45 **Boost the Performance of Model Training with the Ray Framework for Emerging AI Applications**
Xiao-Xiang Ruan, Chao-Chin Wu, National Changhua University of Education, Taiwan
- A3-4 09:45-10:00 **Portable Tea Growth Detection System with Semantic Image Segmentation**
Yeong-Kang Lai, Kun-Yong Chang, National Chung Hsing University, Taiwan
- A3-5 10:00-10:15 **Fall Detection System for Depression Angle RGB Image based on Human Skeletonch**
Chia-Ming Liu, Zhi-Shan Huang, Yen-Lin Chen, National Taipei University of Technology, Taiwan

[B1] Artificial Intelligence Applications

EB209

Chairs: Sheng-Tsung Tu, Ming Chuan University, TW; Chia-Yu Wu, Ming Chuan University, TW

- B1-1 10:50-11:05 **Estimation of Monthly Air Temperature Using Random Forest Algorithm**
Duy-Phien Tran, Yuei-An Liou, National Central University, Taiwan
- B1-2 11:05-11:20 **The Use of Virtual Idol in Sports Communication: The Example of Table Tennis Competition Broadcasting in the National University and College Athletic Games**
Sheng-Tsung Tu, Qiqi Zheng, Ming Chuan University, Taiwan
- B1-3 11:20-11:35 **The Study of Sports Events Broadcasting Design-The 2022 National Intercollegiate Athletic Games as an Example**
Chia-Yu Wu, Ming Chuan University, Taiwan; Yu-Chi Chen, Chinese Culture University, Taiwan; Ray-Chun Lu, Ming Chuan University, Taiwan
- B1-4 11:35-11:50 **Determining the Driver's Mental State Using Detecting the Eyes**
Rung-Ching Chen, Chun Wei Chang, Christine Dewi, Chaoyang University of Technology, Taiwan
- B1-5 11:50-12:05 **ENSO-based Ensemble Learning Approach for Tropical Cyclone Intensity Estimation**
Truong-Vinh Le, Yuei-An Liou, National Central University, Taiwan

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[B2] Efficient Circuits and Systems for AI Edge Computing and Applications

EB110

Chairs: Horng-Yuan Shih, Tamkang University, TW; Wei-Bin Yang, Tamkang University, TW

- B2-1 10:50-11:05 **Hardware Accelerator Design of Personal Identification with ECG Signal based on Artificial Neural Network**
Hao-Yu Chen, Huei-Hong Jian, Chiao-Yu Liang, Ying-Ju Huang, Horng-Yuan Shih, Tamkang University, Taiwan
- B2-2 11:05-11:20 **An RF-DC Converter IC for Power Charging Application**
Pin-You Chen, Bo-Yuan Chen, Chia-Hung Chang, Jheng-Yu Cheng, Syuan-Sou Chen, Meng-Man Yang, National Yunlin University of Science and Technology, Taiwan; Wei-Wen Hu, National Formosa University, Taiwan
- B2-3 11:20-11:35 **TripleNet: A Low-Parameter Network for Low Computing Power Platform**
Rui-Yang Ju, Tamkang University, Taiwan; Ting-Yu Lin, National Cheng Kung University, Taiwan; Jen-Shiun Chiang, Tamkang University, Taiwan
- B2-4 11:35-11:50 **Binarization of Color Document Image based on Adversarial Generative Network and Discrete Wavelet Transform**
Yu-Shian Lin, Tamkang University, Taiwan; Ting-Yu Lin, National Cheng Kung University, Taiwan; Jen-Shiun Chiang, Chih-Chia Chen, Tamkang University, Taiwan
- B2-5 11:50-12:05 **Magnitude to Digital Converter with Latch-Type Comparator and Dynamic Switching Current Scheme**
Hsin-Liang Chen, Chinese Culture Univeristy, Taiwan; Yin-Qin Ye, Jen-Shiun Chiang, Tamkang University, Taiwan

[B3] MEMS Actuators and Sensors

EB111

Chair: Chih-Hsiung Shen, National Changhua University of Education, TW

- B3-1 10:50-11:05 **Optical Dual Sensor Single Fiber Pt(II) Complex Coated Perovskite Quantum Dots Green for Oxygen and Nitric Oxide Gas Detection**
Rispandi Rispandi, Dimas Trio Putro, Cheng-Shane Chu, Ming Chi University of Technology, Taiwan
- B3-2 11:05-11:20 **Research on Novel Thermal Insulation Structure of CMOS-MEMS Thermopile**
Kai-Chun Yu, Chih-Hsiung Shen, National Changhua University of Education, Taiwan
- B3-3 11:20-11:35 **Investigation of p-GaN Gate HEMT Using Removal Si Substrate and Part of Buffer Layer**
Yuan Lin, Yu-Sheng Chiu, Edward Yi Chang, National Yang Ming Chiao-Tung University, Taiwan
- B3-4 11:35-11:50 **Fabrication and Analysis of Thermoelectric Generator-Integrated Shoes for Hiking**
Hasan Basri Maulana Firmansyah, Chin-Tai Chen, National Kaohsiung University of Science and Technology, Taiwan
- B3-5 11:50-12:05 **Spectral Analysis of Array of Sensors Based on Hierarchical 1D-DCNN**
Ju-Han Chang, Chih-Hsiung Shen, National Changhua University of Education, Taiwan

Oct. 14 (FRI)

[C1] Security and Privacy

EB209

Chair: Jay Cheng, National Changhua University of Education, TW

- C1-1 13:00-13:15 **Automatic Alignment for Side-Channel Attack Against Cryptographic Modules**
Sying-Jyan Wang, Yi-Chi Lin, National Chung Hsing University, Taiwan; Chen-Yeh Lin, Song-Kong Chong, Institute for Information Industry, Taiwan; Katherine Shu-Min Li, National Sun Yat-sen University, Taiwan
- C1-2 13:15-13:30 **Zero Payload Enhanced AES Cryptography Against Side-Channel Attacks**
Chun-Tsai Chien, Chien-Lung Wang, Sying-Jyan Wang, National Chung Hsing University, Taiwan
- C1-3 13:30-13:45 **An Evaluation of Cybersecurity Risks of DLMS/COSEM Smart Meter Using Fuzzing Testing**
Chienlung Wang, Jou-An Shih, I-En Liao, Chun-Tsai Chien, National Chung Hsing University, Taiwan

[C2] Advanced Material, Device/Circuit and System Technologies

EB110

Chair: Hsun-Hsiang Chen, National Changhua University of Education, TW

- C2-1 13:00-13:15 **Numerical Transient Analysis of a Wedge-Wave Ultrasonic Motor**
Tai-Ho Yu, Chiao-Yi Huang, Tang-Wei Guan, National United University, Taiwan
- C2-2 13:15-13:30 **ESD-immunity Study of High-voltage nLDMOS with Vertical Parasitic Schottky Structures in the Source End**
Xing-Chen Mai, Shen-Li Chen, Jhong-Yi Lai, Zhi-Wei Liu, Yu-Jie Chung, National United University, Taiwan
- C2-3 13:30-13:45 **Using Deep Learning Technology for Abnormal Component Identification in Smart Manufacturing Cloud Platform**
Hsin-Tzu Wang, Kyun-We Yu, National United University, Taiwan; Shu-Lin Hsieh, Chumpower Machinery Corporation, Taiwan; Ming-Fong Tsai, National United University, Taiwan
- C2-4 13:45-14:00 **ESD-ability Enhancement of High Voltage pLDMOSs with the Discrete Source Side**
Yu-Jie Chung, Shen-Li Chen, Zhi-Wei Liu, Jhong-Yi Lai, Xing-Chen Mai, National United University, Taiwan

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[C3] Emerging/Advanced Intelligent Technologies for Image and Video Processing **EB111**

Chairs: Jing-Ming Guo, National Taiwan University of Science and Technology, TW; Sankarasrinivasan Seshathiri, National Taiwan University of Science and Technology, TW

- C3-1 13:00-13:15 **Enhancing Efficient Saliency Detector Through Self-Supervised Training**
Herleeyandi Markoni, Jing-Ming Guo, National Taiwan University of Science and Technology, Taiwan
- C3-2 13:15-13:30 **Ordered Dithering Halftone Classification Using Contrastive Learning**
Sankarasrinivasan S, Jing-Ming Guo, National Taiwan University of Science and Technology, Taiwan
- C3-3 13:30-13:45 **Efficient Batik Image Retrieval Using Bit Entropy Maximization Approach and Triplet Learning**
Jing-Ming Guo, Alim Wicaksono Hari Prayuda, National Taiwan University of Science and Technology, Taiwan; Heri Prasetyo, Universitas Sebelas Maret, Indonesia
- C3-4 13:45-14:00 **An Improved HVS-Multitone Block Truncation Coding Image**
Sankarasrinivasan S, Jing-Ming Guo, National Taiwan University of Science and Technology, Taiwan

[KS1] Keynote Speech I **EB209**

Chair: Yeong-Lin Lai, National Changhua University of Education, TW

- KS-1 14:20-15:20 **GaN Device Technologies for Communication and Power Switch Applications**
Edward Yi Chang, National Yang Ming Chiao Tung University, Taiwan

[V-KS1] VLSI Forum-Keynote Speech I **EB209**

Chair: Jen-Shiun Chiang, Tamkang University, TW

- V-KS-1 15:40-16:40 **Smart Technology for Baseball**
Cheng-Wen Wu, National Tsing Hua University, Taiwan

Oct. 14 (FRI)

[D1] Intelligent Applications on IOT and Smart City

EB209

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

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|------|-------------|---|
| D1-1 | 16:40-16:55 | An Environmental Sensing and APP Display System based on IoT
<i>Cheng-De Fan, Chih-Yung Chang, Tamkang University, Taiwan; Chun-Chieh Fan, St. John's University, Taiwan</i> |
| D1-2 | 16:55-17:10 | Intelligent Management System Design for Household Refrigerators
<i>Hong-Kai Chen, Wei-Cheng Wang, Huai-Chen Wu, You-Kuan Lu, Ming-Hwa Sheu, Szu-Hong Wang, National Yunlin University of Science and Technology, Taiwan</i> |
| D1-3 | 17:10-17:25 | ADAS E-Bike: Auxiliary ADAS Module for Electric Power-assisted Bicycle
<i>Xian-Hong Huang, Zhi-Hao Chen, Afaroj Ahamad, Chi-Chia Sun, National Formosa University, Taiwan</i> |
| D1-4 | 17:25-17:40 | Power Forecasting of Photovoltaic System Using Environment Data and Weather Information
<i>Tsai-Jiun Ren, Ji-Yan Wu, Kun Shan University, Taiwan</i> |
| D1-5 | 17:40-17:55 | A Novel Passive IoT Sensing Device
<i>Yeong-Lin Lai, National Changhua University of Education, Taiwan; Yeong-Kang Lai, National Chung Hsing University, Taiwan; Shan-Ching Chen, Li-Chih Chang, Chun-Yi Zheng, National Changhua University of Education, Taiwan</i> |
| D1-6 | 17:55-18:10 | Histopathology Image Classification of Breast Cancer Using a Vector Deep Fuzzy Neural Network
<i>Yi-Jyun Gao, Cheng-Jian Lin, Hsiu-Mei Huang, Yi-Hsuan Chuang, National Taichung University of Science and Technology, Taiwan</i> |
| D1-7 | 18:10-18:25 | Using Fuzzy Logic Controller for Navigation Control of an Ackermann Steering Robot
<i>Xin-You Lin, Cheng-Jian Lin, Ming-Yu Chang, National Chin-Yi University of Technology, Taiwan</i> |

[D2] Green Energy

EB110

Chair: Hsin-Liang Chen, Chinese Culture University, TW

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|------|-------------|--|
| D2-1 | 16:40-16:55 | Stability Analysis of a Grid-connected Large-scale DC Microgrid with a Hybrid Wind/Solar Farm
<i>Li Wang, Xian-Lun Peng, Hao-Sin Yang, Ching-Wen Tzeng, Ching-Chuan Tseng, Jia-Ruei Zhang, National Cheng Kung University, Taiwan</i> |
| D2-2 | 16:55-17:10 | A Flow Battery-based Energy-Storage System Integrated into a Wind Power-Generation System
<i>Li Wang, Zhi-Hong Huang, Jui-Tse Lai, National Cheng Kung University, Taiwan; Hung-Hsien Ku, Chin-Lung Hsieh, Institute of Nuclear Energy Research, Taiwan; Shih-Chia Lin, National Cheng Kung University, Taiwan</i> |

Oct. 14 (FRI)

[D2] Green Energy

EB110

Chair: Hsin-Liang Chen, Chinese Culture University, TW

D2-3 17:10-17:25 **A Hybrid Method for Hour-ahead PV Output Forecast with Historical Data Clustering**

Gary Chang, Nuttapat Jittratorn, Guan-Yi Li, National Chung Cheng University, Taiwan

D2-4 17:25-17:40 **Power Smooth of a Hybrid PV-Wind Microgrid Using a Hybrid Energy-storage System with a Designed Adaptive Fuzzy Logic Controller**

Li Wang, Zhi-Hong Huang, Jui-Tse Lai, Rui-Xuan Wu, Ching-Chuan Tseng, National Cheng Kung University, Taiwan

D2-5 17:40-17:55 **Comparative MPPT Performance in a PV System Using Different Neural Network Algorithms**

Li Wang, Ching-Wen Tzeng, Li-Wei Chen, Yu-Han Lin, Ching-Chuan Tseng, National Cheng Kung University, Taiwan

D2-6 17:55-18:10 **Frequency Control of a Bidirectional Interlinking Converter in an Islanded Hybrid AC/DC Microgrid**

Li Wang, Min-Fang Lee, Chun-Da Zhang, Jing-Jia Lin, Ching-Chuan Tseng, National Cheng Kung University, Taiwan

[D3] Deep Learning for Intelligent Systems and Multimedia Processing

EB111

Chairs: Hsin-Te Wu, National Ilan University, TW; Wei-Che Chien, National Dong Hwa University, TW

D3-1 16:40-16:55 **Exploiting Discrete Cosine Transform Features in Speech Enhancement Technique FullSubNet+**

Yu-Sheng Tsao, Berlin Chen, National Taiwan Normal University, Taiwan; Jeh-Wei Hung, National Chi Nan University, Taiwan

D3-2 16:55-17:10 **Implementation of Smart Transportation Application Using YOLO Deep-Learning Neural Network**

Yen-Yu Lu, Ching-Ta Lu, Asia University, Taiwan; Jun-Hong Shen, National United University, Taiwan

D3-3 17:10-17:25 **Solar Photovoltaic Power Generation Prediction based on Deep Learning Methods**

Mu-Yen Chen, National Cheng Kung University, Taiwan; Hsiu-Sen Chiang, Chih-Yung Chang, National Taichung University of Science and Technology, Taiwan

Oct. 15 (SAT)

[E1] Best Paper Competition

EB209

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

- E1-1 09:00-09:15 **Measurement of Surface Profile by Modified Twyman-Green Interferometer**
Tian-Le Lan, Sheng-Chun Hung, Jing-Heng Chen, Kun-Huang Chen, Zhi-Yan Lin, Feng Chia University, Taiwan
- E1-2 09:15-09:30 **Wide Range Output Voltage LLC Resonant Converter for Electric Vehicle Charging System**
Chuan-Ting Chen, Yi-Feng Lin, Wei-Cheng Chen, Jing-Yuan Lin, Huang-Jen Chiu, National Taiwan University of Science and Technology, Taiwan
- E1-3 09:30-09:45 **Observation of Clear Magnetization and Polarization Reversal by Local Electric Field in BiFeO₃-based Multiferroic Thin Film with Using Metallic MFM Tip with Optimized Magnetization**
Satoru Yoshimura, Genta Egawa, Akita University, Japan
- E1-4 09:45-10:00 **Automated Diagnostic Radiographs of COVID-19 based on Deep Learning Method**
Jyun-Siou Ting, Njabulo Shongwe, Yuan Ze University, Taiwan; Ruei-Chi Lin, Far Eastern Memorial Hospital, Taiwan; Cheng-Ta Huang, Yuan Ze University, Taiwan
- E1-5 10:00-10:15 **A Conditional Generative Adversarial Network Method for Image Segmentation in Blurry Image**
Chienhsiang Wu, National Cheng Kung University, Taiwan; Yen-Wei Lin, TP-Link Technologies Co., Ltd., Taiwan; Chin-Feng Lai, National Cheng Kung University, Taiwan
- E1-6 10:15-10:30 **Performance-Improved AdaBoost with Parameterized and Simple-Operation Genetic Algorithm**
Xin-Yu Shih, Rou-Jyun Chen, Zhen-Yi Lu, National Sun Yat-sen University, Taiwan

[E2] Emerging Technology and Intelligent System

EB110

Chair: Xin-Yu Shih, National Sun Yat-sen University, TW

- E2-1 09:00-09:15 **A Friendly Vision Enhancement System Prototype Development for Text Content**
Wen-Pinn Fang, Lam Tuyen Le, Chen-Han Yu, Yuan Ze University, Taiwan
- E2-2 09:15-09:30 **VLSI Architecture of Low-Cost High-Order Matched Filter Using 8-Phase Switching Paths for Undersea Object-Identification Applications**
Xin-Yu Shih, Geng-Hong Li, National Sun Yat-sen University, Taiwan
- E2-3 09:30-09:45 **Effect of Different Training Algorithms in Artificial Neural Networks on the Rotor Unbalance Diagnosis**
Mohammad Najibullah, Chun-Ling Lin, Shyh-Chin Huang, Ming Chi University of Technology, Taiwan
- E2-4 09:45-10:00 **Design Flow for the Implementation of Obfuscated Finite State Machines**
Yi-Ren Chen, Shih-Hsu Huang, Chung Yuan Christian University, Taiwan
- E2-5 10:00-10:15 **Systematic and Flexible Genetic-Algorithm-Based Feature Reduction for Decision Tree ML-Validation**
Xin-Yu Shih, Yao-Yu Lu, National Sun Yat-sen University, Taiwan

Oct. 15 (SAT)

[E3] Technology Innovation and AI Application

EB111

Chair: Yi-Chao Wu, National Taitung University, TW

E3-1 09:00-09:15 **High Capacity Information Hiding Method Based on Interpolation and Ones' complement**

Cheng-Yi Lin, Njabulo Shongwe, Cheng-Ta Huang, Yuan Ze University, Taiwan

E3-2 09:15-09:30 **Soft Sensing Measurement of Dissolved Ammonia Nitrogen in Tank-Based Eel Aquaculture Systems Utilizing Deep Learning**

Dennis Jefferson A. Amora, Joesmart V. Apan, David Noel C. Layosa, Reimart C. Sarmiento, Jericho J. Tugado, Technological Institute of the Philippines, Philippines; Christian Lian Paulo P. Rioflorido, Chung Yuan Christian University, Taiwan

E3-3 09:30-09:45 **Preliminary Study on Abnormality Detection of Airbox Sensor Device**

Wen-Lung Tsai, Ya-Han Zhang, Asia Eastern University of Science and Technology, Taiwan

E3-4 09:45-10:00 **Image Recognition by YoloV4 for Vehicle Type Distinction in Side of Road**

Ting-Hao You, Fu Jen Catholic University, Taiwan; Yi-Chao Wu, National Taitung University, Taiwan; Yong-Yi Fanjiang, Fu Jen Catholic University, Taiwan

[KS2] Keynote Speech II

EB209

Chair: Jing-Ming Guo, National Taiwan University of Science and Technology, TW

KS-2 10:50-11:50 **On Unification of MLPs (NN1.0), CNN(NN2.0), and NAS (Plausibly NN3.0)**

Sun-Yuan Kung, Princeton University, USA

[V-KS2] VLSI Forum-Keynote Speech I

EB209

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

V-KS-2 13:00-14:00 **New Era of Deep Learning-based Medical Diagnosis Using Big Data**

Myung Hoon Sunwoo, Ajou University, Korea

Oct. 16 (SUN)

[F1] Other Multimedia and Intelligent Applications

EB209

Chair: Wei-Min Liu, National Chung Cheng University, TW

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|------|-------------|--|
| F1-1 | 09:00-09:15 | A Research on Smart Machine Tool's Processing Parameter Governed with Monitored Vibration Data
<i>Ma Chih-Hsuan, Miao Hsin-Yuan, Tunghai University, Taiwan</i> |
| F1-2 | 09:15-09:30 | Delay-Based TCP with Pacing and ECN for Solving Incast Problem in Data Center Networks
<i>Che-Hung Chiang, Yi-Cheng Chan, Ping-Lien Chen, National Changhua University of Education, Taiwan</i> |
| F1-3 | 09:30-09:45 | Using Voice User Interface to Assist Designers in the Early Stage of Product Design
<i>You-Chieh Lee, Chao-Ming Wang, National Yunlin University of Science and Technology, Taiwan</i> |
| F1-4 | 09:45-10:00 | An Efficient Single Image Fog Removal using Improved Dark Channel Prior
<i>Nguyen Hoang Hai Pham, Chi-Chia Sun, National Formosa University, Taiwan</i> |
| F1-5 | 10:00-10:15 | Combining Augmented Reality and Multi-User Remote Collaboration to Improve Sustainable Agriculture and Economy
<i>Bo-Yiang Jiang, Chao-Ming Wang, National Yunlin University of Science and Technology, Taiwan</i> |
| F1-6 | 10:15-10:30 | A Programmable Pressure Cuff at Fingertip to Aid Sepsis Detection in Intensive Care Unit
<i>Dao-Heng Luo, Bing-Ruei Wu, Ming Yang, Wei-Min Liu, National Chung Cheng University, Taiwan</i> |

[F2] Recent Advances and Applications on Power Electronics

EB110

Chair: Yi-Feng Lin, National Taiwan University of Science and Technology, TW

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|------|-------------|--|
| F2-1 | 09:00-09:15 | A Wireless Power Transfer System for Automated Guided Vehicle
<i>Dong-Ying You, Chih-Wei Chen, Laskar Pamungkas, Yi-Feng Lin, Huang-Jen Chiu, National Taiwan University of Science and Technology, Taiwan</i> |
| F2-2 | 09:15-09:30 | Edge AI- Use Case on Google Coral Dev Board Mini
<i>Thomas Schumann, Jonathan Winzig, Julio Cesar Aldana Almanza, Mauricio Guajardo Mendoza, Hochschule Darmstadt-University of Applied Sciences, Germany</i> |
| F2-3 | 09:30-09:45 | Design and Implement of Four Level Flying Capacitor Totem Pole Power Factor Correction
<i>Hou-Chun Chen, Yi-Feng Lin, You-Rui Zheng, Jing-Yuan Lin, National Taiwan University of Science and Technology, Taiwan</i> |
| F2-4 | 09:45-10:00 | Design and Implementation of Interleaved Hybrid Modulation Inverter
<i>Yu-Ping Wang, Chang-Tsai Tsai, Ta-Wei Huang, Yi-Feng Lin, Huang-Jen Chiu, National Taiwan University of Science and Technology, Taiwan</i> |

Oct. 16 (SUN)

[F2] Recent Advances and Applications on Power Electronics

EB110

Chair: Yi-Feng Lin, National Taiwan University of Science and Technology, TW

- F2-5 10:00-10:15 **Nanosatellite Power System with a Variable DC Bus Voltage for Improved System Efficiency**
Taiwei Chen, Katherine Kim, National Taiwan University, Taiwan

[F3] AI and Sensors in Industry Applications

EB111

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

- F3-1 09:00-09:15 **Comparing the Prediction Accuracy with Passenger Time Series of Taipei MRT under Different Deep RNNs**
Jin-Tsong Jeng, Hsuan-Jui Chang, National Formosa University, Taiwan
- F3-2 09:15-09:30 **Tunable Step Impedance Filter with Plasma Coupling**
Shen Shou Max Chung, National Pengu University of Science and Technology, Taiwan; Shih-Chung Tuan, Asia Eastern University of Science and Technology, Taiwan
- F3-3 09:30-09:45 **A 5.2 GHz Differential Down Conversion Mixer Design**
Jia-Min Chiau, Min-Hua Ho, Wen-Cheng Lai, National Changhua University of Education, Taiwan
- F3-4 09:45-10:00 **AI Food Recommendation Systems**
Jin-Tsong Jeng, National Formosa University, Taiwan
- F3-5 10:00-10:15 **A 18-24GHz Low Noise Amplifier with Filter**
Ching-Hsiang Hsu, Chi-Yi Cheng, Yi-Te Lin, National Formosa University, Wen-Cheng Lai, National Yulin University of Science and Technology, Taiwan

[KS3] Keynote Speech III

EB209

Chair: Yeong-Lin Lai, National Changhua University of Education, TW

- KS-3 10:50-11:50 **Microelectronics: Current Status, Outlook, and Reliability Issues**
Juin J. Liou, University of Central Florida, USA

[G1] Circuit and System Design of Image and Signal Processing

EB209

Chairs: Chih-Peng Fan, National Chung Hsing University, TW; Ying-Ren Chien, National Ilan University, TW

- G1-1 13:00-13:15 **A Face Mask Detection System based on High Level Synthesis and Hardware Software Codesign**
Yao-Wen Chang, Chih-Chi Huang, Yin-Tsung Hwang, National Chung Hsing University, Taiwan

Oct. 16 (SUN)

[G1] Circuit and System Design of Image and Signal Processing

EB209

Chairs: Chih-Peng Fan, National Chung Hsing University, TW; Ying-Ren Chien, National Ilan University, TW

- G1-2 13:15-13:30 **Applications of Cancer Classification Using Elman Neural Network**
Wei-Lung Mao, Jyun-He Chen, Jian-Jhih Lin, Sung-Hua Chen, Chung-Chi Wang, National Yunlin University of Science and Technology, Taiwan
- G1-3 13:30-13:45 **Hardware Acceleration of YOLO-based Convolutional Neural Network Detector by Deep Learning Processor Unit for Intelligent Autonomous Mover**
Kuan-Hung Chen, Feng Chia University, Taiwan; Chung-Bin Wu, Yin-Tsung Hwang, Hua-Luen Chen, Jie-Min Lin, Chih-Peng Fan, National Chung Hsing University, Taiwan
- G1-4 13:45-14:00 **Digital Predistortion Technique Using Kernel Adaptive Algorithm for Nonlinear Power Amplifier**
Wei-Lung Mao, Wei-Zhou Chen, Chun-Ting Yao, Sung-Hua Chen, Chun-Chi Wang, National Yunlin University of Science and Technology, Taiwan
- G1-5 14:00-14:15 **A Deep Learning Accelerator with Tree Architecture on FPGA Platform**
Yeong-Kang Lai, Ling-Cheng Huang, National Chung Hsing University, Taiwan; Yeong-Lin Lai, National Changhua University of Education, Taiwan
- G1-6 14:15-14:30 **Energy-efficient and Accurate Object Detection Design on FPGA Platform**
Kuan-Hung Chen, Chun-Wei Su, Jen-He Wang, Feng Chia University, Taiwan
- G1-7 14:30-14:45 **A Fast Kernel Least Mean Square Algorithm**
Yijie Tang, Hailong Yan, Jialong Tang, Southwest University, China; Ying-Ren Chien, National Ilan University, Taiwan
- G1-8 14:45-15:00 **Full Resolution Color Interpolation for 4x4 RGB-IR Hybrid CMOS Sensor**
Yeong-Kang Lai, Yao-Hsien Huang, National Chung Hsing University, Taiwan; Yeong-Lin Lai, National Changhua University of Education, Taiwan

[G2] Artificial Intelligence, Machine Learning, and Deep Learning

EB110

Chair: Fu-Li Hsiao, National Changhua University of Education, TW

- G2-1 13:00-13:15 **Bilingual Fake News Detection Algorithm Using Naïve Bayes and SGD Classifier Models**
Paolo Joshua Billones, Dailyne Macasaet, Shearyl Arenas, Technological Institute of the Philippines, Philippines
- G2-2 13:15-13:30 **Design of a P. Vannamei White Spot Syndrome Virus (WSSV) Detection System Utilizing YOLOv5n**
Dennis Jefferson Amora, Daniel Psalm M. Alulod, Kimberly Ann B. Debolgado, John Ronald M. Magcale, Christine Ruth A. Tobias, Shearyl U. Arenas, Technological Institute of the Philippines, Philippines
- G2-3 13:30-13:45 **Photonic Crystal Band Structure Prediction Using Artificial Neural Network**
Su-Chao Wang, Yu-Ming Weng, Fu-Li Hsiao, National Changhua University of Education, Taiwan

Oct. 16 (SUN)

[G2] Artificial Intelligence, Machine Learning, and Deep Learning

EB110

Chair: Fu-Li Hsiao, National Changhua University of Education, TW

G2-4 13:45-14:00 **Design of a Household Consumption-based Water Leak Detection System Utilizing Machine Learning**

Dennis Jefferson A. Amora, Bennett Antonio M. Calayag, Neil M. Estur, Mary Allyana V. Janapin, Patrick Andrei L. Villegas, Technological Institute of the Philippines, Philippines; Christian Lian Paulo P. Rioflorido, Chung Yuan Christian University, Taiwan

G2-5 14:00-14:15 **A Deep Research on Stress Classification of Table Tennis Athletes Based on Perceived Stress Scale and EEG**

Min-Yu Chen, National Chung Hsing University, Taiwan; Sheng-Kuang Wu, National Taiwan University of Sport, Taiwan; Chung-Hao Hsueh, Meng-Hsiun Tsai, National Chung Hsing University, Taiwan

G2-6 14:15-14:30 **Establish a Dynamic Detection System for Metal Bicycle Frame's Defect based on YOLO Object Detection**

Kuan-Ying Su, Ming-Fei Chen, Yu-Quan Zhung, National Changhua University of Education, Taiwan; Cheng-Han Tsai, Industrial Technology Research Institute, Taiwan

G2-7 14:30-14:45 **Human Posture Classification Using a Dual Deep Convolutional NN with Silhouette Images**

Yun-Wei Cheng, Yeh-Ming Lin, Chia-Feng Juang, National Chung Hsing University, Taiwan

G2-8 14:45-15:00 **NPK Prediction based on pH Colorimetry Utilizing ResNet for Fertilizer Recommender System**

Dennis Jefferson Amora, Angelito B. Deocadiz, Giofidel L. Sañejo, Catherine Joy R. Santiago, Mellennie G. Umali, Shearyl U. Arenas, Technological Institute of the Philippines, Philippines

G2-9 15:00-15:15 **Automatic Semiconductor Intellectual Property Generator and Profiling Tool based on Systolic Array Architecture**

Yeong-Kang Lai, Yu-Teng Chen, National Chung Hsing University, Taiwan

[G3] Artificial Intelligence, Machine Learning, and Deep Learning

EB111

Chair: Cheng-I Chen, National Central University, TW

G3-1 13:00-13:15 **A Comparative Analysis of LSTM and BILSTM Network-Based Methods in PV Power Prediction**

Yu-Jen Liu, Cheng-Yu Lee, Po-Yu Hou, National Chung Cheng University, Taiwan; Yih-Der Lee, Chin-Chan Cheng, Yen-Fu Chen, Institute of Nuclear Energy Research, Taiwan

G3-2 13:15-13:30 **Power Dispatching Control Strategy of Interconnected Microgrid**

Cheng-I Chen, Wei-Jun Chen, National Central University, Taiwan; Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan

G3-3 13:30-13:45 **Low-Voltage Ride through Capability Test by IEC 61400-27-1 Wind Turbine Model**

Yu-Jen Liu, Jia-Ho Wu, National Chung Cheng University, Taiwan; Huai-Jhe Su, Taiwan Electric Research and Testing Center, Taiwan; Po-Yu Hou, National Chung Cheng University, Taiwan

Oct. 16 (SUN)

[G3] Artificial Intelligence, Machine Learning, and Deep Learning

EB111

Chair: Cheng-I Chen, National Central University, TW

G3-4 13:45-14:00 **An Enhanced Reinforcement Learning Based Approach of Energy Management Optimization for Microgrids**

Karamsetty Shouryadhar, Chao-Nan Chen, Yeong-Chin Chen, Asia University, Taiwan

G3-5 14:00-14:15 **A Grid Synchronization Strategy for Micro-Grid System**

Yi-Hung Liao, Ying Zhou, Xuan Sheng Huang, National Central University, Taiwan

G3-6 14:15-14:30 **One-hour Ahead Spatio-Temporal Solar GHI Forecasting Using Long Short-term Memory**

Ying-Yi Hong, Yan-Ting Pan, Chang-Chen Hsu, Christian Lian Paulo P. Rioflorido, Jay Bhie D. Santos, Chung Yuan Christian University, Taiwan

G3-7 14:30-14:45 **A Short-term Spatiotemporal Wind Speed Forecasting Using CNN Optimized by PSO**

Ying-Yi Hong, Shih-Syun Lin, Ju-Hsi Wang, Christian L.P.P. Rioflorido, Jay Bhie D. Santos, Chung Yuan Christian University, Taiwan

G3-8 14:45-15:00 **Modeling and Testing of the Utility Interface for Photovoltaic System under Full-scale and Down-scale Inverter System**

Yi-Hung Liao, Xin-Liang Liu, National Central University, Taiwan; Junhong Chen, T. K. Chang, Taiwan Electric Research & Testing Center, Taiwan

G3-9 15:00-15:15 **Grid-Forming Inverter Control for Power Sharing Simulation in Microgrid**

Yu-Jen Liu, Pei-Hao Sun, Po-Yu Hou, National Chung Cheng University, Taiwan

Poster List

10:50-12:05, Oct. 14 (FRI)

Chair: Chun-Yi Zheng, National Changhua University of Education, TW

- PA-01 **Study of Silicon Nitride Etched by Cyclic Atomic Layer Etching**
Tsung-Ying Yang, Mei-Yan Kuo, Edward-Yi Chang, National Yang Ming Chiao Tung University, Taiwan
- PA-02 **Fast Intra Coding Algorithm Based on Visual Perception Analysis for H.266/VVC**
Yu-Hsiang Tsai, Chen-Rung Lu, Meng-Chun Hsieh, Mei-Juan Chen, Chieh-Ming Yang, National Dong Hwa University, Taiwan; Chia-Hung Yeh, National Taiwan Normal University / National Sun Yat-sen University, Taiwan
- PA-03 **Development of a Solar Incident Angle Coordinates for PV Panel Power Calculation**
Liang-Rui Chen, Yi-Lin Chen, Wei-Tzer Huang, National Changhua University of Education, Taiwan
- PA-04 **A Weighted Circular Algorithm Incorporated with Genetic Algorithms in RSSI Positioning Systems**
Kuo-Wei Huang, Hong-Chin Lin, Rui-Ming Yang, Min-Kuan Chen, National Chung Hsing University, Taiwan
- PA-05 **Fully Controllable Linear Phase Retarder by Two Liquid Crystal Variable Retarders**
Zhen Xiang Zhao, National United University, Taiwan; Chih-Jen Yu, Chang Gung University, Taiwan; Chien-Yuan Han, National United University, Taiwan
- PA-06 **Movable Wireless Charging System for Multiple Electric Vehicles**
Lii Jen, Hai-Ching Yang, Jau-Jr Lin, National Changhua University of Education, Taiwan
- PA-07 **AlN Passivation Technique for Ultra-Thin Barrier GaN Power Devices Demonstrating High Output Current and Low Current Degradation**
Chen Hsi Tsai, Jui Sheng Wu, Edward Yi Chang, National Yang Ming Chiao Tung University, Taiwan
- PA-08 **A V-band Low Noise Amplifier in 90-nm CMOS by Inductive Coupling Technique**
Yen-Chung Chiang, Tai-Chung Wang, National Chung Hsing University, Taiwan
- PA-09 **Duplexing Antenna Design Using Substrate Integrated Cavity with Bi-Direction Radiation Pattern**
Wanchu Hong, National Changhua University of Education, Taiwan; Yi-Hao Hong, Wistron Neweb Corp., Taiwan; Min-Hua Ho, National Changhua University of Education, Taiwan
- PA-10 **Engineering Design of Soft Gripper and Manufacturing by TPE Hollow Injection Molding**
Melsiani Rosdiani Fillipin Saduk, Helmy Dewanto Bryantono, Shi-Chang Tseng, National Yunlin University of Science and Technology, Taiwan
- PA-11 **Diffraction Analysis of Focused Tilt Gaussian Beam**
Cheng-Min Lin, Hui-Kang Teng, Kuo-Chen Lang, Nan-Kai University of Technology, Taiwan
- PA-12 **Study on Surface-Enhanced Raman Scattering Performance of Pitted GaN Covered by Au Layers**
Chen-An Deng, Tsung-Shine Ko, National Changhua University of Education, Taiwan

16:40-18:25, Oct. 14 (FRI)

Chair: Yu-Cheng Fan, National Taipei University of Technology, TW

- PB-01 **Research and Development of Robot Arm Applied to Grinding Path Planning of Metal Parts**
Kuan-Hung Liu, Ming-Fei Chen, National Changhua University of Education, Taiwan
- PB-02 **A Study of Innovative Multi-functional Folding Umbrella with Solar Energy**
Hsinn-Jyh Tzeng, Southern Taiwan University of Science and Technology, Taiwan; Jen-Chou Hsiung, Cheng Shiu University, Taiwan; Zhi-Fang Xu, Southern Taiwan University of Science and Technology, Taiwan
- PB-03 **Wireless Human Recognition Design in Indoor Environment**
Hsuan-Ming Feng, Hua-Ching Chen, National Quemoy University, Taiwan
- PB-04 **Facial Expression Recognition based on Snaking Data Access and Pipeline Convolution Neural Network**
Chi-Chang Lin, Chia-Yu Hsieh, Ping-Cheng Wu, Ping-Chun Chen and You-Sheng Xiao, Yu-Cheng Fan, National Taipei University of Technology, Taiwan
- PB-05 **2D Winograd Circuits with Data Reuse for FaceNet Identification System**
Kuan-Wei Tseng, Shen-Ju Chang, Jeng-Jay Kuo, Jian-Ping Wang, Wei-Zhe Yan, Yu-Cheng Fan, National Taipei University of Technology, Taiwan
- PB-06 **YOLO-R Based Mask Recognition System with Winograd Convolution Acceleration Chip**
Fu-Yen Chang, Ya-Xuan Li, You-Cheng Lu, Zheng-An Yang, Hao-An Hsieh, Yu-Cheng Fan, National Taipei University of Technology, Taiwan
- PB-07 **COVID-19 Lung CT Images Recognition with Superscalar Winograd Circuit Based on VGG19**
Shao-Huai Wang, Pin-Chieh Hsieh, Tzu-Yao Su, Jhih-Yuan Gao, Min-Hua Lu, Yu-Cheng Fan, National Taipei University of Technology, Taiwan
- PB-08 **Design of a Low-power Compass FIR Filter for Electrocardiogram Signals Noise Removal**
Kuang-Hao Lin, Guan-Zhou Lai, Bo-Xun Peng, Ping-Seng Tseng, National Formosa University, Taiwan
- PB-09 **Convolution Neutral Network Lightening and Hardware Architecture Acceleration Design**
Chung-Bin Wu, Wen-Hsuan Fan, Yuan-Ting Li, National Chung Hsing University, Taiwan
- PB-10 **Multicultural Knowledge and Information Literacy Learning Using AIoT Integration Technology**
Hu Xiu Ming, Lee-Ruei Ti, Hsien-Chung Chen, Thai-Cheng Yu, Huang-You Ming, Ying-Hsun Lai, National Taitung University, Taiwan
- PB-11 **Building Wireless Observation Network to Track Biological Clustering**
Yun-Ru Guo, Yu-Chin Huang, Gwo-Jiun Horng, Southern Taiwan University of Science and Technology, Taiwan
- PB-12 **Design of a High-Resolution Video Reconstruction and Transcoding System based on Super-Resolution GAN**
Tz-Heng Hsu, Po-Hui Wu, Gwo-Jiun Horng, Southern Taiwan University of Science and Technology, Taiwan
- PB-13 **Using GAN Augment CNN performance in Acute Leukemia Classification**
Chi-Hung Wei, Jiunn-Woei Lian, National Taichung University of Science and Technology, Taiwan; Mu-Yen Chen, National Cheng Kung University, Taiwan
- PB-14 **Multi-Vital Signs System with Sensor Fusion**
Chun-Liang Yang, Yi-Chen Lin, Ming-Che Chiang, Tamkang University, Taiwan
- PB-15 **A Design of Relaxation Oscillator with Pulse Width Modulation**
Wei-Bin Yang, Lung-Han Guo, Yu-Cheng Chen, Che-Chia Chuang, Tamkang University, Taiwan

09:00-10:30, Oct. 15 (SAT)

Chairs: Chih-Hsien Hsia, National Ilan University, TW; Wei-Wen Hsu, National Taitung University, TW

PC-01 Research on Kubeflow Distributed Machine Learning

Wing-Kwong Wong, Wei-Chin Lin, Yu-Bin Chen, National Yunlin University of Science and Technology, Taiwan

PC-02 Lightweight Architecture for Face Recognition System

Yu-Kai Wang, Chiu-Chin Lin, National Kaohsiung University of Science and Technology, Taiwan; Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan; Jen-Chun Lee, National Kaohsiung University of Science and Technology, Taiwan

PC-03 Table of Contents Recognition Using Deep Learning

Yu-Xiang Zhang, Chiu-Chin Lin, National Kaohsiung University of Science and Technology, Taiwan; Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan; Jen-Chun Lee, National Kaohsiung University of Science and Technology, Taiwan; Chia-Ti Wu, National I-Lan Commercial Vocational Senior High School, Taiwan

Automatic Lung Cancer Segmentation based on Deep Learning

PC-04 Po-Ting Su, Chiu-Chin Lin, National Kaohsiung University of Science and Technology, Taiwan; Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan; Jen-Chun Lee, National Kaohsiung University of Science and Technology, Taiwan

Steel Billet Serial Number Detection based on Deep Learning

PC-05 Lu Qing Xiao, Chiu-Chin Lin, National Kaohsiung University of Science and Technology, Taiwan; Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan; Jen-Chun Lee, National Kaohsiung University of Science and Technology, Taiwan

Using Modified YOLOv4 for Military Target Detection

PC-06 Jung-Hung Pan, Chiu-Chin Lin, National Kaohsiung University of Science and Technology, Taiwan; Jen-Chun Lee, Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan

Crop Classification on Deep Learning

PC-07 Ke-Hao Chen, Chiu-Chin Lin, National Kaohsiung University of Science and Technology, Taiwan; Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan; Jen-Chun Lee, National Kaohsiung University of Science and Technology, Taiwan; Chia-Ti Wu, National I-Lan Commercial Vocational Senior High School, Taiwan

Traditional Chinese Scene Text Recognition

PC-08 Chi-Ling Kuo, Jen-Chun Lee, National Kaohsiung University of Science and Technology, Taiwan; Chung-Hsien Chen, Metal Industries Research & Development Centre, Taiwan; Chiu-Chin Lin, National Kaohsiung University of Science and Technology, Taiwan

Designing a Roll Call System with Facial Recognition on Kubeflow

PC-09 Wing-Kwong Wong, Meng-Yuan Tsai, Hung-Kuei Chang, National Yunlin University of Science and Technology, Taiwan

PC-10 Preliminary Study of Cache Exchange Improvement based on RaptorQ and Tsunami

Chao-Hsien Lee, Yun-Long Li, National Taipei University of Technology, Taiwan

PC-11 Ultraviolet Photodetector Based on ZnO Nanorod by Hydrothermal Method

Sheng-Joue Young, Yu-Jhih Chu, National United University, Taiwan

PC-12 Mobile Edge Computing for Rapid Deployment Object Detection System

Ming Han Tsai, Jen-Yeu Chen, Wei-Che Chien, National Dong Hwa University, Taiwan

PC-13 Occluded Retail Products Detection through Attention-Reweighted

Hung-Tse Chan, National Taiwan University of Science and Technology, Taiwan; Vincent Chen, Interlake High School, United States; Chih-Hsien Hsia, National Ilan University, Taiwan

09:00-10:30, Oct. 15 (SAT)

Chairs: Chih-Hsien Hsia, National Ilan University, TW; Wei-Wen Hsu, National Taitung University, TW

PC-14 Visual Interpretability of Deep Learning Models in Glaucoma Detection Using Color Fundus Images

Da-Wen Lu, Tri-Service General Hospital, Taiwan; Wei-Wen Hsu, National Taitung University, Taiwan; Yu-Chuan Huang, School of Pharmacy, National Defense Medical Center, Taiwan; Lung-Chi Lee, Tri-Service General Hospital, Taiwan; Jing-Ming Guo, Yu-Ting Hsiao, National Taiwan University of Science and Technology, Taiwan; I-Hung Lin, Taipei Medical University Hospital, Taiwan; Yao-Chung Chang, National Taitung University, Taiwan; Mei-Lan Ko, National Taiwan University Hospital Hsin-Chu Branch, Taiwan

PC-15 Student Engagement Analysis Using Facial Expression in Online Course

Chih-Hsien Hsia, National Ilan University, Taiwan; Bryan Chiang, St. Mark's School, United States; Liang-Ying Ke, Zih-Yan Ciou, National Ilan University, Taiwan; Chin-Feng Lai, National Cheng Kung University, Taiwan

09:00-10:30, Oct. 16 (SUN)

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

PD-01 Investigation of Electrical Characteristics in Low-temperature Polycrystalline Silicon Thin-film Transistors Fabricated at Low-temperature Process

Chia Chuan Wu, William Cheng-Yu Ma, National Sun Yat-sen University, Taiwan; Yu-Xuan Wang, National Yang Ming Chiao Tung University, Taiwan; Mao-Chou Tai, Yu-An Chen, Hong-Yi Tu, Sheng-Yao Chou, Ya-Ting Chien, Ting-Chang Chang, National Sun Yat-sen University, Taiwan

PD-02 A Study of ESD Reliability on Gate and Drain to Source and substrate Stress by Structure Modulation in 0.18 μ m 6 V nLDMOS Devices

Hsun-Hsiang Chen, You Zhang, National Changhua University of Education, Taiwan; Shen-Li Chen, National United University, Taiwan

PD-03 A Fast Transient Response Hybrid LDO with Asynchronous Control Mechanism

Wei-Bin Yang, Chun-Wei Wang, Cheng-Ru Yu, Li-Lun Chu, Tamkang University, Taiwan

Multi-Field Application of Automatic Intruder Warning and Eviction Systems

PD-04 *Chun-Han Cho, Tzu-Hsuan Chiu, Ming-Hua Sheu, Szu-Hong Wang, National Yunlin University of Science and Technology, Taiwan*

PD-05 Generalized Modelling of CMOS-MEMS Sensor based on Transfer Learning of Deep Neural Networks

Bin Chen, Shu-Jung Chen, National Changhua University of Education, Taiwan

All inorganic HTL/ETL Perovskite Solar Cells

PD-06 *Rui-Yun Hsu, Industrial Technology Research Institute, Taiwan; Wei-Jhe Syu, National Changhua University of Education, Taiwan; Zen-Min Huang, Yu-Chen Lin, National Kaohsiung University of Sciences and Technology, Taiwan*

The Study of Adding Anti-Solvent to Improve the Efficiency of Perovskite Solar Cells

PD-07 *Rui-Yun Hsu, Industrial Technology Research Institute, Taiwan; Tsung-Chieh Cheng, Zen-Min Huang, Yu-Chen Lin, National Kaohsiung University of Sciences and Technology, Taiwan*

Distribution Static Compensator Using Intelligent Controller for Power Quality Improvements

PD-08 *Kuang-Hsiung Tan, National Defense University, Taiwan; Faa-Jeng Lin, National Central University, Taiwan; Chih-Chan Hu, National Chung-Shan Institute of Science and Technology, Taiwan*

Intelligent Controlled Virtual Synchronous Generator for Virtual Inertia Estimation

PD-09 *Kuang-Hsiung Tan, National Defense University, Taiwan; Faa-Jeng Lin, National Central University, Taiwan; Yih-Der Lee, Institute of Nuclear Energy Research, Taiwan*

Impact of Control Strategies on Altitude Control in Indoor Quadcopter

PD-10 *Chun-Hung Liu, Wei-Lin Lai, Shang-Chi Shen, Shun-Pin Yeh, Po-Cheng Wu, Yu-Chien Wang, Guan-Yu Luo, National Taitung University, Taiwan*

PD-11 Energy Saving Potential Evaluation for U-V Connection Power System-Case Study in Taipower

Mei-Ling Chen, Pei-Gang Chen, Che-Yu Lu, National United University, Taiwan

Development of Road Environment Identification System Using YOLO V5

PD-12 *Bo-Chen Lin, Shih-Lin Lin, National Changhua University of Education, Taiwan; Ping-Liang Lai, Private Max Flipped School, Taiwan*