

Editor  
Meen

Proceedings of the 2019 IEEE Eurasia Conference on IOT, Communication and Engineering  
(IEEE ECICE 2019) Yunlin, Taiwan, October 3-6, 2019

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# IOT, Communication and Engineering

Editor

**Teen-Hang Meen**  
National Formosa University, Taiwan



**2019 IEEE Eurasia Conference on IOT,  
Communication and Engineering  
(IEEE ECICE 2019)**

**Yunlin, Taiwan  
October 3–6, 2019**

# **IOT, Communication and Engineering**

**Editorial:**

This volume represents the proceedings of the 2019 IEEE Eurasia Conference on IOT, Communication and Engineering(IEEE ECICE 2019). This conference was organized by the Institute of Electrical and Electronics Engineers (IEEE), National Formosa University, International Institute of Knowledge Innovation and Invention(IIKII), and held October 3–6, 2019 in Yunlin, Taiwan. The conference provided a unified communication platform for researchers in a range of topics, such as Internet & IOT technology, Communication Science & Engineering, Computer Science & Information Technology, Computational Science & Engineering, Electrical & Electronic Engineering, Mechanical & Automation Engineering, Advanced Machining and Forming Processes, Micro- and Nano-Fabrication, Surface manufacturing processes, Gears Manufacturing, Bio-medical Manufacturing, Precision Engineering Measurement, Robotics and Automation, Additive Manufacturing Technology, Smart Manufacturing Technology for Industry 4.0, and other related fields. This proceedings volume enables interdisciplinary collaboration of science and engineering technologists in the academic and industrial fields, as well as networking internationally

**Editor:**

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IEEE Catalog Number: 2

ISBN: 978-1-7281-2501-5

# Table of Content

<b>Editorial</b>	<b>II</b>
<b>Table of Content</b>	<b>III</b>
<b>Dual Phase Modulation of CMOS-MEMS Vacuum Sensor</b>	<b>1</b>
<i>Shu-Jung Chen, Yung-Chuan Wu</i>	
<b>Machine learning approach for robot diagnostic system</b>	<b>5</b>
<i>Nian-Ze Hu, Chih-Hui Simon Su, Cihun-Siyong Alex Gong, Cheng-Jung Lee, Yong-Sheng Chen, Ching-Hsiang Yang, Ching-Ying Yeh, Zheng-Han Shi, Jieh-Tsyr Chuang</i>	
<b>Automatic Storage and Cutting System for Metal Bars</b>	<b>8</b>
<i>Han Chao Chang, Tse-Lu Chen, Chung-Lin Tsai</i>	
<b>Portable Fisheries Assistant Systems for Small Scale Fisheries Management</b>	<b>10</b>
<i>William W. Y. Hsu, Shin-Yu Wang, Wei-Siang Hong, Rey-Hsing Hu, Chieh-Ju Yu, Hsin-Yu Tasi</i>	
<b>Deep Neural Network based SOH Monitoring of Battery module</b>	<b>14</b>
<i>Jong-Hyun Lee, Hyun-Sil Kim, In-Soo Lee</i>	
<b>Short-term Availability Forecasting in Small Cell Networks</b>	<b>17</b>
<i>Ming-Yen Wu, Yu-Hsiang Lin, Tse-Hsiang Tseng, Chen-Min Hsu</i>	
<b>Application of Water Energy System to Balance Energy and Environment in the Whole World</b>	<b>21</b>
<i>Kun-Liang Weng, Fei-Chuan Chen, Yu-Hsiang Lee</i>	
<b>Investigations of the Effects of Cavity-Surface Temperature and Fiber Compatible on Weldline Tensile Strength of Long Glass Fiber Reinforced PA66 Injection Molded Parts</b>	<b>24</b>
<i>Wei-Huang Choong, Hsin-Shu Peng, Po-Wei Huang, Kai-Fu Liew, Wei-Jie Su</i>	

<b>The Impact of Web Visual Aesthetics on Purchase Intention</b>	<b>28</b>
<i>Pei-Yu Tseng, Su-Fang Lee</i>	
<b>IoV-based collision avoidance by using confidence region</b>	<b>32</b>
<i>Che-Cheng Chang, Chuan-An Lai, Wei-Ming Lin</i>	
<b>Optimization of Harvesting Power and Information Quality by Multiple Objective Functions</b>	<b>36</b>
<i>Wei Chien, Chien-Ching Chiu, Yu-Ting Cheng, Eng Hock Lim</i>	
<b>Verifying the Integrity of Private Transaction Information in Smart Contract using Homomorphic Encryption</b>	<b>38</b>
<i>Young Yoon, Juno Moon</i>	
<b>Research on Fuzzy Quantification for Cutting Noise</b>	<b>41</b>
<i>Kai-Chi Chuang, Tian-Syung Lan, Lie-Ping Zhang, Yee-Ming Chen, Xuan-Jun Dai</i>	
<b>Study of an Improved BiCMOS Reference Voltage Design</b>	<b>45</b>
<i>Weihsing Liu, Wan-Hsuan Lin, Jheng-Han Lai</i>	
<b>The Influences of Sensory Effects on Car Interior Designs</b>	<b>47</b>
<i>Ya-Hsueh Lee, Ching-Chien Liang, Kuo-Hsiang Chen</i>	
<b>Application of In-Mold Decorative Injection Technology in Cosmetic Containers</b>	<b>51</b>
<i>Chun-Wang Lee</i>	
<b>A Study of Design Communication on Sharing Bicycle Experience by Concept of Empathy Design</b>	<b>55</b>
<i>Chun Yang, Jui-Che Tu</i>	
<b>An Exploration of the Phase Dependency of a Transformer Circuit</b>	<b>59</b>
<i>Aquila H. Lee, Hijung Chai, Won Don Lee</i>	
<b>Piezoelectric Micro-Vibration Effective Energy Harvesting System</b>	<b>63</b>
<i>Jian-Chiun Liou, Chih-Yuan Ho</i>	

**Study on AEB Performance Improvement on Curved Road Based on Curvilinear Coordinate System** 65

*Jungeun Lee, Gyoungyeun Kim, Byeongwoo Kim*

**Using MCDM Method to Evaluate Product Development Projects based on Internal Resources and External Competitors** 69

*Chen-Tung Chen, Wei-Zhan Hung*

**Image segmentation using a hue-guided quadtree** 74

*Ken-Chung Ho, Chi-Shiang Tsai*

**An Improved Hill Cipher Algorithm using CBC and Hexadecimal S-Box** 77

*Jessie R. Paragas, Ariel M. Sison, Ruji P. Medina*

**Design of Battery Thermal Management Unit with PCM for Electrical Vehicle: Part I: Modelling and Analysis of Pouch Type Battery Cell** 82

*Sangmin Oh, Junchan Lee, Hyeonjung Lee, Dongu Shin, Teresa Thalluri, Kyoojae Shin*

**Automatic Reference Current Architecture in Computing in Memory by MRAM** 86

*Tsao-Lun Chen, Wei-Tang Tseng*

**Integration of Common-Path Heterodyne Interferometry and Half-Wave Plates to Measure the Optical Activity of Water in Small Polarization Rotation** 89

*Chih-Ting Tsai, Ming-Hung Chiu*

**High Accuracy Text Detection using ResNet as Feature Extractor** 92

*Chi-Shin Yang, Chen-Chiung Hsieh*

**Vehicle Recognition Via Sensor Data From Smart Devices** 96

*Tanmoy Sarkar Pias, David Eisenberg, Muhammad Aminul Islam*

**Students' Skills in Making Questions, Are they Indicators of Their Thinking Skills? 100**

*Luthfiyah Nurlaela, NugrahaniAstuti, Ita Fatkhur Romadhoni, Niken Purwidiani, Sri Handajani*

**A study for evaluating the suitability of peritoneal dialysis(PD) patients with occupational attribute questionnaire** 105

*Wang-Chin Tsai, Shuo-He Wang*

**Comparison of Self-efficacy, Job Stress and Satisfaction of Application-oriented University Teachers in Fujian and Taiwan** 109

*Paoli Kuo, Jianqiong Huang, Qiaofen Ji, Lizhi Lin, Zhangbin Chen, Kan Chen*

**An innovative crafting process for watch appearance design with reinforcement of new technologies** 113

*Tun-Hsueh Chan, Shih-Chiang Lin*

**A Conceptual Framework of Integrating Information Communication Technology into Design Process to Enhance Design Management of Interior Design** 117

*Jun He, Kuo-Hsun Wen, Jae-Woong Kim*

**Traditional village rural landscape construction** 121

*Zhou Junling, Wu Yao*

**Study of Improving Teaching Materials for Barrier-free Facility Inspector Training in Taiwan** 125

*Chih-Yuan Chang*

**Research on the conceptual teaching in Design College** 129

*Jingxiu Gan*

**Eccentricity and length distortion of spindle under the influence of temperature rising duration machining and compensation solution** 132

*Wenyuh Jywe, Cao-Sang Tran, Tung Hsien Hsieh*

**Amount and Scattering of Dyes and their Influence on the Photocurrent Enhancement of TiO<sub>2</sub> Hierarchically Structured Photoanodes for Dye-Sensitized Solar Cells** 136

*Wen-Yao Huang, Tung-Li Hsieh*

**Performance Evaluation of Video Streaming Application via Named Data Network (NDN)** 141

*Fandhy Bayu Rukmana, Riri Fitri Sari*

**Performance Evaluation of Aeronautical Fixed Service Direct Speech (DS) Application Based Named Data Network (NDN)** 145

*Dian Abadi Arji, Riri Fitri Sari*

**The Enhanced Graphic Pattern Authentication Scheme Via Handwriting identification** 150

*Sung-Shiou Shen, Che-Tzu Chang, Shen-Ho Lin, Wei Chien*

**The Application of Support Vector Machine (SVM) on the Sentiment Analysis of Internet Posts** 154

*Kai-Xu Han, Chien-Ching Chiu, Wei Chien*

**Internet-of-Things Based Controller of a Three-Phase Induction Motor Using a Variable-Frequency Driver** 156

*Guo-Ming Sung, Yen-Shih Shen, Lelisa Teso Keno, Chih-Ping Yu*

**A Supervised Clustering Algorithm Base on Alternative distance for Using multimedia software to Identify Alzheimer's disease** 160

*Huang Shu Fen, Yuan-Horng Lin, Jeng-Ming Yih*

**Modification of Mosquitto Broker for Delivery of Urgent MQTT Message** 166

*Kitae Hwang, Jae Moon Lee, In Hwan Jung, Dong-Hee Lee*

**Using Machine Learning Method to Identify for Frog Classification** 168

*Kuo-Wei Chao, Yi-Chu Chao, Chin-Kai Su, Nian-Ze Hu, Wei-Hang Chiu*

**Effect of Cutting Conditions on Thermal Error Compensation of a CNC Double-Column Machining Center** 172

*Hong-Yi Chen, Chi-Hsin Yang, Kun-Chieh Wang, Hui-Cun Shen*

<b>Application of multi-band networking and UAV in natural environment protection and disaster prevention</b>	<b>176</b>
<i>YuChing Lin, RongChyang Lee</i>	
<b>The Fuel Cell Flow channel design on Metallic Bipolar plates</b>	<b>179</b>
<i>Chien-Ju Hung, Wei-Jen Chen, Chao-An Lin</i>	
<b>Implementation of Crosswalk Lights Recognition System for the Blind's Safety</b>	<b>183</b>
<i>Huijin Park, Heesoo Won, Soobin Ou, Jongwoo Lee</i>	
<b>Railway Track Fasteners Fault Detection using Deep Learning</b>	<b>187</b>
<i>Ya-Wen Lin, Chen-Chiung Hsieh, Wei-Hsin Huang, Sun-Lin Hsieh, Wei-Hung Hung</i>	
<b>Surface Roughness Prediction Based on Markov Chain and Deep Neural Network for Wire Electrical Discharge Machining</b>	<b>191</b>
<i>Chen-Lun Fan, Jehn-Ruey Jiang</i>	
<b>Texture designs and workflows for physically based rendering using procedural texture generation</b>	<b>195</b>
<i>Hong-Yi Pai</i>	
<b>The Impact of Drift-region Length Reduction of nLDMOS on ESD Ability by TLP Measurements</b>	<b>199</b>
<i>Sheng-Kai Fan, Shen-Li Chen, Po-Lin Lin, Shi-Zhe Hong, Tien-Yu Lan, Yu-Jie Zhou</i>	
<b>Modified OTP Based Vernam Cipher Algorithm using Multilevel Encryption Method</b>	<b>201</b>
<i>Deborah G. Brosas, Ariel M. Sison, Ruji P. Medina</i>	
<b>Photoelectric Properties of Indium Molybdenum Oxide Thin Films Using Electron Beam Evaporation</b>	<b>205</b>
<i>Zhi-Qi Deng, Meng-Yu Tsai, Chia-Lin Chen, Wei-Tsai Chang, Sin-Liang Ou, Kuo-Sheng Kao</i>	
<b>Attitude Robust Fuzzy <math>H_\infty</math> Control for Quadrotor Vehicles</b>	<b>208</b>
<i>Feng-Chia Chuang, Chi-Hsin Yang, Kun-Chieh Wang, Hong-Yi Chen, Hui-Cun Shen</i>	

<b>A Study of FMEA Approach Implementation to Wet Scrubber Management in High Tech Factory</b>	<b>212</b>
<i>Chun-Hsien Wu, Tse-Sheng Chen</i>	
<b>Research on Disaster Resilience in Taiwan's Post-Disaster Tourist Areas</b>	<b>216</b>
<i>Yu Ouyang</i>	
<b>Gender Recognition by Monitoring Walking Patterns via Smartwatch Sensors</b>	<b>220</b>
<i>Tanmoy Sarkar Pias, Raihan Kabir, David Eisenberg, Nadeem Ahmed, Md. Rashedul Islam</i>	
<b>Smartphone Sensor Based Physical Activity Identification by Using Hardware- Efficient Support Vector Machines for Multiclass Classification</b>	<b>224</b>
<i>Nadeem Ahmed, Raihan Kabir, Airin Rahman, Al Momin, Md Rashedul Islam</i>	
<b>State Estimator Design for 4D Lorenz-Stenflo Chaotic System via Single State Variable</b>	<b>228</b>
<i>Chen Hong-Yi, Wang Kun-Chieh, Yang Chi-Hsin, Shen Hui-Cun</i>	
<b>Generalized Projective Synchronization for Horizontal Platform Systems via Fast Terminal Sliding Mode Control</b>	<b>232</b>
<i>Shen Hui-Cun, Yang Chi-Hsin, Wang Kun-Chieh, Chen Hong-Yi</i>	
<b>Signal Tracking Control of MEMS Resonators by Fuzzy Terminal Sliding Mode Control Scheme</b>	<b>236</b>
<i>Shen Hui-Cun, Wang Kun-Chieh, Yang Chi-Hsin, Chen Hong-Yi</i>	
<b>IoT-Based Sensing System for Patients with Mobile Application</b>	<b>240</b>
<i>Pin-Hui Jiang</i>	
<b>Injection Molding Process Control of Servo-Hydraulic System</b>	<b>242</b>
<i>Chun-Ying Lin, Fang-Cheng Shen, Kuo-Tsai Wu, Sheng-Jye Hwang, Huei-Huang Lee</i>	
<b>Decentralized Data Marketplace to Enable Trusted Machine Economy</b>	<b>246</b>
<i>Zan-Jun Wang, Ching-Hua (Vivian) Lin, Yang-Hao Yuan, Ching-Chun (Jim) Huang</i>	

**An Innovation of Primary School English Teachers' Teaching Beliefs** 251

*Mei-Yen Chiang*

**Design of Battery Thermal Management Unit with PCM for Electrical Vehicle: Part II: Experimental Investigation on Pouch Type Battery Cell** 255

*Himchan Kim, Euisong Kim, Myeongjin Seo, Taehyeong Kim, Amarnathvarma Angani, Kyoojae Shin*

**Analysis and optimal design a new flexible hinge displacement amplifier mechanism by using Finite element analysis based on Taguchi method** 259

*Viet-Hung Hoang, Ngoc-Thai Huynh, Ho Nguyen, Shyh-Chour Huang*

**Research on Optimization Decision of Plunger Gas Lift Operation Based on Data Driven** 263

*Tan Chaodong, Song Wenrong, Li Loulou, Qin Peng, Gao Zhaomin, Hua Wu*

**Cross-employing the Social Learning Theory and Technology Acceptance Model into Rational Decision Making models in Advancing Student's Employability** 267

*Ming-Yuan Hsieh*

**A Study of Tea Leaf Verification by Feature-based Image Recognition Approach with Smart Glasses** 270

*Chia-Sui Wang, Wesley Huang, Shung-Xu Yang, Yih-Feng Chang, Chia-Mao Yeh*

**The Combination of the Animation and Aerospace for Science Popularization Education --A Case Study of 'Space boy'** 274

*Jingjing Xiong, Jie Lu*

**A Conceptual Framework of Integrating Information Communication Technology into Design Process to Enhance Design Development and Management of Interior Design** 276

*Jun He, Kuo-Hsun Wen, Jae-Woong Kim*

**Study on Reuse Method of Decorative Materials in Interior Design of Lingnan Area** 280

*Zhang Yuqi*

<b>Development of an AI-enabled AGV with robot manipulator</b>	<b>284</b>
<i>Jin-Siang Shaw, Chuin Jiat Liew, Sheng-Xiang Xu, Zhe-Ming Zhang</i>	
<b>Development of a standalone pico-hydropower system in monitoring the gully environment applications in Pingtung Ur-Pho Gully</b>	<b>288</b>
<i>Zong-Hsin Liu, Hsuan-Cheng Liu, Wen-Chieh Wu, Wei-Hung Shih, Chao-Wen Wang, Cheh-Shyh Ting</i>	
<b>Critical Success Factors for Green Interior Remodeling Projects Aimed at Environmental Sustainability</b>	<b>292</b>
<i>Sung-Lin Hsueh, Yue Sun</i>	
<b>Environmental Discourse Production and Confrontation in Environmental Documentary- Using 《An Inconvenient Truth》 and 《Under the Dome》 as examples</b>	<b>296</b>
<i>Peng-Peng Li, Geng Zhang</i>	
<b>A study on students' learning interest in natural environment sensing technology integrated to curriculum development: the example of one senior high school from Kaohsiung city, Taiwan.</b>	<b>300</b>
<i>Cheng-Chuan Lu, Sheng-Hung Lo, Shu-Yen Yeh, Shi-Jer Lou</i>	
<b>Discussion on the Safety Protection Measures of UAV Campus</b>	<b>304</b>
<i>Kuo-Tai Huang, Hsuan-Liang Lin, Qing-Min Zheng</i>	
<b>Case analysis on energy saving improvement of commercial air conditioning systems</b>	<b>306</b>
<i>Kuang-Yi Lee, Yuan-Min Chu, Chun-Chung Chen, Cheng-Lung Tsai, Shi-Jer Lou</i>	
<b>Discussion on UAV Course Planning of Technical High School Civil and Architectural Groups</b>	<b>310</b>
<i>Yuan-Min Chu, Kuang-Yi Lee, Shi-Jer Lou, Hung-Lin Lin</i>	
<b>Research on the Technical Integration of Heterogeneous Materials into Building Information Modeling</b>	<b>313</b>
<i>Ting-Wen Liang, Pai-Hsin Chang, Chin-Feng Tsai</i>	

**Design and development of a small solar-powered UAV for environmental monitoring application** 316

*Chinnapat Thipyopas, Vis Sripawadkul, Nattapong Warin*

**Teleoperation of an Industrial Robot using a Non-Standalone 5G Mobile Network** 320

*Kittipong Yaovaja, Jakkarin Klunngien*

**Design of an Autonomous Tracked Mower Robot using Vision-Based Remote Control** 324

*Kittipong Yaovaja, Pongsakorn Bamrunghai, Prapapan Ketsarapong*

**Study on the reliability of solder joined on the aluminum layer using an ultrasound assisted soldering** 328

*Chuang Cheng-Li, Jian Shao-An*

**Investigation on Consumers' Acceptance of Usage Based Insurance with Internet of Vehicles** 331

*Qian-Ru Zhuo, Yu-Zhou Huang*

**Application of Smart Programmable Multi-Channel Digital Power Supply in Phase Array Antenna System Operation- Design in LabVIEW** 335

*Chun-Ying Tao, Jwo-Shiun Sun, Guan-Yu Chen*

**Cold forging analysis and verification of multi-stage hexagonal flange screw** 339

*Shao-Yi Hsia, Yu-Tuan Chou, Wei-De Chang*

**Network of Electric Current Meters for Monitoring of the Cutting Parameters in Turning** 342

*Oleg Ryabov, Jonny Herwan, Seisuke Kano, Hiroyuki Sawada*

**New Lithium Battery Balancing Circuit Design Using Isolated Converter** 346

*Van-Tsai Liu, Hong-Yi Lu, Sun-Kai Wang*

**JTCR: Joint Trajectory Character Recognition for human action recognition** 350

*Xinyi Liang, Hong-Bo Zhang, Yi-Xiang Zhang, Jin-Long Huang*

**Intelligent Environmental Monitoring System based on LoRa Long Range Technology** 354

*Zhi-Yang Su, Yi-Nang Lin, Victor R. L. Shen*

**Mobile phone audio combined with self-made laser light transmission frequency wireless actuated electromagnetic lock** 358

*Jau-Woei Perng, Tung-Li Hsieh*

**The Application of Embedded Control and IOT Technology in the Automatic Light-Chasing Vehicles** 362

*Ming-Sen Hu, Liang-Hsiu Chen*

**Standard Time Analysis for Military Aircraft Washing Operations** 366

*Tian-Syung Lan, Kai-Chi Chuang, Xuan-Jun Dai, Yan-Cheng Lai*

**Wireless Elevator Communication and Monitor System Design Based on ZigBee Technology and Ethernet** 369

*Jyh-Wei Chen, Thanh-Nhat-Trung Tran, Yu-Cheng Hsieh*

**The Impact of ICT on Tourism Business Model: Take Ctrip Group Marketing as an Example** 373

*Kun-Shan Zhang, Chiu-Mei Chen*

**Research on the Critical Factors of Adopting Smart Hotel** 377

*Chiu-Mei Chen, Kun -Shan Zhang*

**Design of two -way transmission mechanism of bicycle using TRIZ theory** 380

*Zong-Lin Tsai, Kuen-Ming Shu, Jui-Yi Kang, Yu-Chen Lin*

**Dual UAV PM2.5 pollution source tracking system** 384

*Rong-Chyang Lee, You-Hong Chen*

**Building an UAV anti-collision system with low-power FM ranging radar and camera image** 387

*Rong-Chyang Lee, Bo-Hao Chen*

**Design of an Interface Test Adapter for Sequential Testing of Transient Voltage Suppressor Diodes to Reduce Test Cycle Time** 390

*Francis Malabanan, Patricia Angela Abu, Carlos Oppus, Rosula Reyes*

**Outdoor Performance of Micro-CPV and PV Systems in Different Locations** 394

*Kai-Hsiang Yang, Chun-Yi Chen, Yueh-Mu Lee, Zun-Hao Shih, Hwen-Fen Hong*

**The Electronic Fence Application in Shared Bicycle Management** 397

*Min Jyun Chen, Jung Tang Huang, Jen Te Yu, Ru Yun Lee*

**Vision/UWB/IMU sensor fusion based localization using an extended Kalman filter** 401

*Yeonsu Lee, Dongjin Lim*

**Anomaly Detection for Univariate Time Series with Statistics and Deep Learning** 404

*Jian-Bin Kao, Jehn-Ruey Jiang*

**Time Series Multi-Channel Convolutional Neural Network for Bearing Remaining Useful Life Estimation** 408

*Juei-En Lee, Jehn-Ruey Jiang*

**ESD-Immunity Influence of Ultra-high Voltage nLDMOS as the Drift Region Embedded a P-well** 411

*Po-Lin Lin, Shen-Li Chen, Sheng-Kai Fan, Yu-Jie Zhou, Tien-Yu Lan, Shi-Zhe Hong*

**Research on the Robot Platform Construction Method Based on the Simulation** 413

*Deukkyoung Yoon, Ming Lin, Jaewoo Yoon, Byeongwoo Kim*

**Negative photoresist micro-lens for enhancing fiber-coupled InGaAs/AlGaAs MQW LED performance** 417

*Hsueh-Hui Yang, Yu-Li Tsai, Chun-Ling Chang, Chih-Hung Wu*

**A Novel Data Mining Approach in Preventing Casing Damage of Oil Production Wells** 421

*Chaodong Tan, Hua Wu, Jiankang Liu, Wei Yan, Jingen Deng, Yanlong Zhang, Qing Tang, Hongguang Bu*

<b>Culture Values of Bali Bridal Makeup As Heritage Communication</b>	<b>425</b>
<i>Mutimmatul Faidah</i>	
<b>Index-based Activate Operation for High Density DRAMs</b>	<b>430</b>
<i>Kwangho Lee, Jongmin Lee</i>	
<b>Evaluation Method of Storage Assignment for Intelligent Pharmaceutical Warehouse</b>	<b>434</b>
<i>Xingyu Jiang, Minghao Wang, Zhiqiang Tian, Yitao Lu, Keqiang Chen</i>	
<b>The Cardboard VR Game Development Tool</b>	<b>438</b>
<i>Min-Bin Chen</i>	
<b>Investigate and analyse the oscillation response of large displacement amplification mechanism</b>	<b>442</b>
<i>Thi Diem-My Le, Quang-Phuoc Tran, Shyh-Chour Huang</i>	
<b>Design and Implementation of Real-Time Localization Algorithms Based on FPGA for Positioning and Tracking</b>	<b>446</b>
<i>You-Sheng Zhang, Tsung-Hsuan Chen, Yih-Shyh Chiou, Shih-Lun Chen, Wei-Ting Chen, Yang-Ke Lin, Fu-Jung Wen, Ting-Lan Lin</i>	
<b>Development of Battery Charger for Industrial Mobile Robots</b>	<b>449</b>
<i>Ching-Chun Chuang, Chih-Wei Chuang, Chih-Chiang Hua, Sen-Tung Wu</i>	
<b>A Study on Sustainable Management of Taiwan Shoushan National Nature Park from the Perspective of Recreation impact Cognition</b>	<b>453</b>
<i>Yu Ouyang, Tsung-Ching Kung</i>	
<b>Detecting Distraction of Drivers Based on Residual Neural Network</b>	<b>457</b>
<i>JianCheng Zou, PeiZhou Yan, ZhengZheng Li</i>	
<b>Designing Methods and the Application of Passive Lighting on Indoor Environment in the Hot Summer and Warm Winter Areas</b>	<b>461</b>
<i>Du Zhaoming</i>	

**Discussion on The Temporal Garden Space in Lingnan Modern Architecture Creation** 465

*Zhou Junling, Xie Lingfeng, Wang Pohsun*

**Research on the Design and Practice of Public Service Advertising Courses in the Age of Mobile Internet** 468

*Li Shuang*

**Fuzzy Terminal Sliding Mode Control for Chaotic Synchronization of Nonlinear Gyros** 471

*Shen Hui-Cun, Wang Kun-Chieh, Yang Chi-Hsin, Chen Hong-Yi*

**A Secure and Intuitive IoT Architecture for Container Farm** 475

*Yun-Shuai Yu, Chin-Wei Chen, Pin-Yuan Yu*

**Web-based Machine Learning Modeling in a Cyber-Physical System Construction Assistant** 478

*Yi-Chang Yang, Jehn-Ruey Jiang*

**Enhanced TCP Sequence Number Steganography using Dynamic Identifier** 482

*Princess Marie B. Melo, Ariel M. Sison, Ruji P. Medina*

**Case Studies of the Impedance Adjustment with Phase Control in a Transformer Circuit** 486

*Aquila H. Lee, Hijung Chai, Won Don Lee*

**Securing Private Key using New Transposition Cipher Technique** 490

*Maricel Grace Z. Fernando, Ariel M. Sison, Ruji P. Medina*

**Classification of Astronomical Objects Using Light Curve Profile** 494

*Theeranai Sangjan, Tossapon Boongoen, Natthakan Iam-on, James Mullaney*

**Exploiting Consensus Clustering for Light Curve Data Analysis** 498

*Patcharaporn Panwong, Tossapon Boongoen, Natthakan Iam-On, James Mullaney*

**Design and Implementation of an Unfolded Sheet Metal Part Identification System 502**

*Hsi-Hsien Tseng, Lun-Chi Chen, Ruey-Kai Sheu*

**A Novel Dynamic Hand Gesture and Movement Trajectory Recognition model for Non-Touch HRI Interface 505**

*Raihan Kabir, Nadeem Ahmed, Niloy Roy, Md Rashedul Islam*

**Innovative Design on Photography Platform for the Digitized Data of Original Cadastral Maps 509**

*Hsin-Yis Shih, Hung-Lin Lin, Jia-Chang Huang, Jung-Wei Chen, Feng-Chi Yu*

**Switching Power Supply Output Voltage Automatic Calibration Software- Design in LabVIEW 514**

*Chun-Ying Tao, Chung-Ping Chen, Jwo-Shiun Sun, Guan-Yu Chen*

**Research on Construction of the Internal Quality Assurance System of Assessment-Based Diagnosis and Reformation in Higher Vocational Colleges 518**

*MingXia Wang*

**Reliable Resource Management for IoT based Logistic Services 522**

*Siwoo Byun*

**A Study for Thermal Sensing Applied to Structural Leaking and Crack Estimation Application 526**

*Ren-Jwo Tsay*

**Fault diagnosis of bearing using Deep Neural Network with Dropconnect 530**

*Jongkyu Lee, Donghee Lee, Byeongwoo Kim*

**Standalone Solar PV Maximum Power Point Tracking Using Interval Type-2 Fuzzy Logic 534**

*Angelo A. Beltran Jr.*

**i3D-Playfair: An Improved 3D Playfair Cipher Algorithm 538**

*Ritchell S. Villafuerte, Ariel M. Sison, Ruji P. Medina*

**Effectiveness of Beam Steering for Non-Coherent OFDM-DBPSK for Summer and Winter Hydrology** 542

*Petr Unru, Aleksandr Rodionov, Sergey Kulik, Denis Kuzin, Oleg Mikhailenko*

**The Line of Sight Distance Measurement by Drone for CubeSat ADS-B Payload** 546

*Lin Huan-Jung, Lu Wen-Chi, Lee Chao-Yang, Albert Lin, Henry Chen*

**Design of Counter Beam Lights for Road Tunnels Lighting with CIE Regulations** 550

*Ming-Jui Chen, Wei-Hsiung Tseng, Hsing-Yuan Liao, Si-Yuan Chen, Hsin-Yi Ma, Hsiao-Yi Lee*

**Model Creativepreneur at Vocational High School Art and Creative Industries Sector for Creative Industry Development** 552

*B.S. Pracihara, Luthfiyah Nurlaela, Muchlas Samani, I.G.P Asto Buditjahyanto*

**To better understand the Relationship between Forest and Health: Investigation of a Forest Ecosystem Services Framework** 556

*Shang-Te Tsai, Lu-Jie Zhu, Chwei-Jen Fan*

**UAV-equipped scale camera in DEM application** 559

*Feng-Chi Yu, Hung-Lin Lin, Cheng-Tsan Lai, Hui-Ming Fang*

**Improvement on the Process of Cadastral Map Resurveying Using UAS Photogrammetry** 562

*Tsung-Yi Lin, Hung-Lin Lin, Hxin-Yi Li, Pei-Chi Chen, Yi-Hsuan Tsai*

**A New Features and PSO-SVM Classifier for Object Detection** 565

*Yang Zhang, Shu-Min Yang, Dong-Rong Xin*

**A Mobile Content Delivery Scheme Based on Software Defined Protocol for Mobile Users** 568

*Tae-Kook Kim*

**An Antenna Sensor to Identify Finger Postures** 571

*Chun-Hsi Su, Hong-Wei Wu*

<b>Sugarcane Disease Recognition using Deep Learning</b>	<b>575</b>
<i>Sammy V. Militante, Bobby D. Gerardo, Ruji P. Medina</i>	
<b>Plant Leaf Detection and Disease Recognition using Deep Learning</b>	<b>579</b>
<i>Sammy V. Militante, Bobby D. Gerardo, Nanette V. Dionisio</i>	
<b>Author Index</b>	<b>583</b>

## Author Index

### A

Airin Rahman 224  
 Al Momin 224  
 Albert Lin 546  
 Aleksandr Rodionov 542  
 Amarnathvarma Angani 255  
 Angelo A. Beltran Jr. 534  
 Aquila H. Lee 59, 486  
 Ariel M. Sison 77, 201, 482, 490, 538

### B

B.S. Pracihara 552  
 Bobby D. Gerardo 575, 579  
 Bo-Hao Chen 387  
 Byeongwoo Kim 65, 413, 530

### C

Cao-Sang Tran 132  
 Carlos Oppus 390  
 Chao-An Lin 179  
 Chaodong Tan 421  
 Chao-Wen Wang 288  
 Che-Cheng Chang 32  
 Cheh-Shyh Ting 288  
 Chen Hong-Yi 228, 232, 236, 471  
 Chen-Chiung Hsieh 92, 187  
 Cheng-Chuan Lu 300  
 Cheng-Jung Lee 5

Cheng-Lung Tsai 306  
 Cheng-Tsan Lai 559  
 Chen-Lun Fan 191  
 Chen-Min Hsu 17  
 Chen-Tung Chen 69  
 Che-Tzu Chang 150  
 Chia-Lin Chen 205  
 Chia-Mao Yeh 270  
 Chia-Sui Wang 270  
 Chieh-Ju Yu 10  
 Chien-Ching Chiu 36, 154  
 Chien-Ju Hung 179  
 Chih-Chiang Hua 449  
 Chih-Hui Simon Su 5  
 Chih-Hung Wu 417  
 Chih-Ping Yu 156  
 Chi-Hsin Yang 172, 208  
 Chih-Ting Tsai 89  
 Chih-Wei Chuang 449  
 Chih-Yuan Chang 125  
 Chih-Yuan Ho 63  
 Chin-Feng Tsai 313  
 Ching-Chien Liang 47  
 Ching-Chun (Jim) Huang 246  
 Ching-Chun Chuang 449  
 Ching-Hsiang Yang 5  
 Ching-Hua (Vivian) Lin 246  
 Ching-Ying Yeh 5  
 Chin-Kai Su 168  
 Chinnapat Thipyopas 316  
 Chin-Wei Chen 475  
 Chi-Shiang Tsai 74

*Chi-Shin Yang* 92  
*Chiu-Mei Chen* 373, 377  
*Chuan-An Lai* 32  
*Chuang Cheng-Li* 328  
*Chuin Jiat Liew* 284  
*Chun Yang* 55  
*Chun-Chung Chen* 306  
*Chung-Lin Tsai* 8  
*Chung-Ping Chen* 514  
*Chun-Hsi Su* 571  
*Chun-Hsien Wu* 212  
*Chun-Ling Chang* 417  
*Chun-Wang Lee* 51  
*Chun-Yi Chen* 394  
*Chun-Ying Lin* 242  
*Chun-Ying Tao* 335, 514  
*Chwei-Jen Fan* 556  
*Cihun-Siyong Alex Gong* 5

## **D**

*David Eisenberg* 96, 220  
*Deborah G. Brosas* 201  
*Denis Kuzin* 542  
*Deukkyoung Yoon* 413  
*Dian Abadi Arji* 1445  
*Dong-Hee Lee* 166  
*Donghee Lee* 530  
*Dongjin Lim* 401  
*Dong-Rong Xin* 565  
*Dongu Shin* 82  
*Du Zhaoming* 461

## **E**

*Eng Hock Lim* 36  
*Euisong Kim* 255

## **F**

*Fandhy Bayu Rukmana* 141  
*Fang-Cheng Shen* 242  
*Fei-Chuan Chen* 21  
*Feng-Chi Yu* 509, 559  
*Feng-Chia Chuang* 208  
*Francis Malabanan* 390  
*Fu-Jung Wen* 446

## **G**

*Gao Zhaomin* 263  
*Geng Zhang* 296  
*Guan-Yu Chen* 335, 514  
*Guo-Ming Sung* 156  
*Gyoungeun Kim* 65

## **H**

*Han Chao Chang* 8  
*Heesoo Won* 183  
*Henry Chen* 546  
*Hijung Chai* 59, 486  
*Himchan Kim* 255  
*Hiroyuki Sawada* 342  
*Ho Nguyen* 259  
*Hong-Bo Zhang* 350  
*Hongguang Bu* 421  
*Hong-Wei Wu* 571  
*Hong-Yi Chen* 172, 208

- Hong-Yi Lu* 346  
*Hong-Yi Pai* 195  
*Hsiao-Yi Lee* 550  
*Hsi-Hsien Tseng* 502  
*Hsing-Yuan Liao* 550  
*Hsin-Shu Peng* 24  
*Hsin-Yi Ma* 550  
*Hsin-Yis Shih* 509  
*Hsin-Yu Tasi* 10  
*Hsuah-Cheng Liu* 288  
*Hsuan-Liang Lin* 304  
*Hsueh-Hui Yang* 417  
*Hua Wu* 263, 421  
*Huang Shu Fen* 160  
*Huei-Huang Lee* 242  
*Hui-Cun Shen* 172, 208  
*Huijin Park* 183  
*Hui-Ming Fang* 559  
*Hung-Lin Lin* 310, 509, 559, 562  
*Hwen-Fen Hong* 394  
*Hxin-Yi Li* 562  
*Hyeonjung Lee* 82  
*Hyun-Sil Kim* 14
- I**
- I.G.P Asto Buditjahyanto* 552  
*In Hwan Jung* 166  
*In-Soo Lee* 14  
*Ita Fatkhur Romadhoni* 100
- J**
- Jae Moon Lee* 166  
*Jaewoo Yoon* 413  
*Jae-Woong Kim* 117, 276  
*Jakkarin Klunngien* 320  
*James Mullaney* 494, 498  
*Jau-Woei Perng* 358  
*Jehn-Ruey Jiang* 191, 404, 408, 478  
*Jen Te Yu* 397  
*Jeng-Ming Yih* 160  
*Jessie R. Paragas* 77  
*Jheng-Han Lai* 45  
*Jia-Chang Huang* 509  
*Jian Shao-An* 328  
*Jian-Bin Kao* 404  
*JianCheng Zou* 457  
*Jian-Chiun Liou* 63  
*Jiankang Liu* 421  
*Jianqiong Huang* 109  
*Jie Lu* 274  
*Jieh-Tsyr Chuang* 5  
*Jingen Deng* 421  
*Jingjing Xiong* 274  
*Jingxiu Gan* 129  
*Jin-Long Huang* 350  
*Jin-Siang Shaw* 284  
*Jong-Hyun Lee* 14  
*Jongkyu Lee* 530  
*Jongmin Lee* 430  
*Jongwoo Lee* 183  
*Jonny Herwan* 342  
*Juei-En Lee*, 408  
*Jui-Che Tu* 55  
*Jui-Yi Kang* 380

*Jun He* 117, 276  
*Junchan Lee* 82  
*Jung Tang Huang* 397  
*Jungeun Lee* 65  
*Jung-Wei Chen* 509  
*Juno Moon* 38  
*Jwo-Shiun Sun* 335, 514  
*Jyh-Wei Chen* 369

## **K**

*Kai-Chi Chuang* 41, 366  
*Kai-Fu Liew* 24  
*Kai-Hsiang Yang* 394  
*Kai-Xu Han* 154  
*Kan Chen* 109  
*Ken-Chung Ho* 74  
*Keqiang Chen* 434  
*Kitae Hwang* 166  
*Kittipong Yaovaja* 320, 324  
*Kuang-Yi Lee* 306, 310  
*Kuen-Ming Shu* 380  
*Kun -Shan Zhang* 377  
*Kun-Chieh Wang* 172, 208  
*Kun-Liang Weng* 21  
*Kun-Shan Zhang* 373  
*Kuo-Hsiang Chen* 47  
*Kuo-Hsun Wen* 117, 276  
*Kuo-Sheng Kao* 205  
*Kuo-Tai Huang* 304  
*Kuo-Tsai Wu* 242  
*Kuo-Wei Chao* 168  
*Kwangho Lee* 430

*Kyoojae Shin* 82, 255

## **L**

*Lee Chao-Yang* 546  
*Lelisa Teso Keno* 156  
*Li Loulou* 263  
*Li Shuang* 468  
*Liang-Hsiu Chen* 362  
*Lie-Ping Zhang* 41  
*Lin Huan-Jung* 546  
*Lizhi Lin* 109  
*Lu Wen-Chi* 546  
*Lu-Jie Zhu* 556  
*Lun-Chi Chen* 502  
*Luthfiyah Nurlaela* 100, 552

## **M**

*Maricel Grace Z. Fernando* 490  
*Md. Rashedul Islam* 220, 224, 505  
*Mei-Yen Chiang* 251  
*Meng-Yu Tsai* 205  
*Min Jyun Chen* 397  
*Min-Bin Chen* 438  
*Ming Lin* 413  
*Minghao Wang* 434  
*Ming-Hung Chiu* 89  
*Ming-Jui Chen* 550  
*Ming-Sen Hu* 362  
*MingXia Wang* 518  
*Ming-Yen Wu* 17  
*Ming-Yuan Hsieh* 267  
*Muchlas Samani* 552

*Muhammad Aminul Islam* 96  
*Mutimmatul Faidah* 425  
*Myeongjin Seo* 255

## **N**

*Nadeem Ahmed* 220, 224, 505  
*Nanette V. Dionisio* 579  
*Nattapong Warin* 316  
*Natthakan Iam-on* 494, 498  
*Ngoc-Thai Huynh* 259  
*Nian-Ze Hu* 5, 168  
*Niken Purwidiani* 100  
*Niloy Roy* 505  
*NugrahaniAstuti* 100

## **O**

*Oleg Mikhailenko* 542  
*Oleg Ryabov* 342

## **P**

*Pai-Hsin Chang* 313  
*Paoli Kuo* 109  
*Patcharaporn Panwong* 498  
*Patricia Angela Abu* 390  
*Pei-Chi Chen* 562  
*Pei-Yu Tseng* 28  
*PeiZhou Yan* 457  
*Peng-Peng Li* 296  
*Petr Unru* 542  
*Pin-Hui Jiang* 240  
*Pin-Yuan Yu* 475  
*Po-Lin Lin* 199, 411

*Pongsakorn Bamrungthai* 324  
*Po-Wei Huang* 24  
*Prapapan Ketsarapong* 324  
*Princess Marie B. Melo* 482

## **Q**

*Qian-Ru Zhuo* 331  
*Qiaofen Ji* 109  
*Qin Peng* 263  
*Qing Tang* 421  
*Qing-Min Zheng* 304  
*Quang-Phuoc Tran* 442

## **R**

*Raihan Kabir* 220, 224, 505  
*Ren-Jwo Tsay* 526  
*Rey-Hsing Hu* 10  
*Riri Fitri Sari* 141, 145  
*Ritchell S. Villafuerte* 538  
*Rong-Chyang Lee* 176, 384, 387  
*Rosula Reyes* 390  
*Ru Yun Lee* 397  
*Ruey-Kai Sheu* 502  
*Ruji P. Medina* 77, 201, 482, 490, 538, 575

## **S**

*Sammy V. Militante* 575, 579  
*Sangmin Oh* 82  
*Seisuke Kano* 342  
*Sen-Tung Wu* 449  
*Sergey Kulik* 542  
*Shang-Te Tsai* 556

*Shao-Yi Hsia* 339

*Shen Hui-Cun* 228, 232, 236, 471

*Sheng-Hung Lo* 300

*Sheng-Jye Hwang* 242

*Sheng-Kai Fan* 199, 411

*Sheng-Xiang Xu* 284

*Shen-Ho Lin* 150

*Shen-Li Chen* 199, 411

*Shih-Chiang Lin* 113

*Shih-Lun Chen* 446

*Shi-Jer Lou* 300, 306, 310

*Shin-Yu Wang* 10

*Shi-Zhe Hong* 199, 411

*Shu-Jung Chen* 1

*Shu-Min Yang* 565

*Shung-Xu Yang* 270

*Shuo-He Wang* 105

*Shu-Yen Yeh* 300

*Shyh-Chour Huang* 259, 442

*Sin-Liang Ou* 205

*Siwoo Byun* 522

*Si-Yuan Chen* 550

*Song Wenrong* 263

*Soobin Ou* 183

*Sri Handajani* 100

*Su-Fang Lee* 28

*Sung-Lin Hsueh* 292

*Sung-Shiou Shen* 150

*Sun-Kai Wang* 346

*Sun-Lin Hsieh* 187

## T

*Taehyeong Kim* 255

*Tae-Kook Kim* 568

*Tan Chaodong* 263

*Tanmoy Sarkar Pias* 96, 220

*Teressa Thalluri* 82

*Thanh-Nhat-Trung Tran* 369

*Theeranai Sangjan* 494

*Thi Diem-My Le* 442

*Tian-Syung Lan* 41, 366

*Tien-Yu Lan* 199, 411

*Ting-Lan Lin* 446

*Ting-Wen Liang* 313

*Tossapon Boongoen* 494, 498

*Tsao-Lun Chen* 86

*Tse-Hsiang Tseng* 17

*Tse-Lu Chen* 8

*Tse-Sheng Chen* 212

*Tsung-Ching Kung* 453

*Tsung-Hsuan Chen* 446

*Tsung-Yi Lin* 562

*Tung Hsien Hsieh* 132

*Tung-Li Hsieh* 136, 358

*Tun-Hsueh Chan* 113

## V

*Van-Tsai Liu* 346

*Victor R. L. Shen* 354

*Viet-Hung Hoang* 259

*Vis Sripawadkul* 316

**W**

Wang Kun-Chieh 228, 232, 236, 471  
 Wang Pohsun 465  
 Wang-Chin Tsai 105  
 Wan-Hsuan Lin 45  
 Wei Chien 36, 150, 154  
 Wei Yan 421  
 Wei-De Chang 339  
 Wei-Hang Chiu 168  
 Wei-Hsin Huang 187  
 Weihsing Liu 45  
 Wei-Hsiung Tseng 550  
 Wei-Huang Choong 24  
 Wei-Hung Hung 187  
 Wei-Hung Shih 288  
 Wei-Jen Chen 179  
 Wei-Jie Su 24  
 Wei-Ming Lin 32  
 Wei-Siang Hong 10  
 Wei-Tang Tseng 86  
 Wei-Ting Chen 446  
 Wei-Tsai Chang 205  
 Wei-Zhan Hung 69  
 Wen-Chieh Wu 288  
 Wen-Yao Huang 136  
 Wenyuh Jywe 132  
 Wesley Huang 270  
 William W. Y. Hsu 10  
 Won Don Lee 59, 486  
 Wu Yao 121

**X**

Xie Lingfeng 465  
 Xingyu Jiang 434  
 Xinyi Liang 350  
 Xuan-Jun Dai 41, 366

**Y**

Ya-Hsueh Lee 47  
 Yan-Cheng Lai 366  
 Yang Chi-Hsin 228, 232, 236, 471  
 Yang Zhang 565  
 Yang-Hao Yuan 246  
 Yang-Ke Lin 446  
 Yanlong Zhang 421  
 Ya-Wen Lin 187  
 Yee-Ming Chen 41  
 Yen-Shih Shen 156  
 Yeonsu Lee 401  
 Yi-Chang Yang 478  
 Yi-Chu Chao 168  
 Yih-Feng Chang 270  
 Yih-Shyh Chiou 446  
 Yi-Hsuan Tsai 562  
 Yi-Nang Lin 354  
 Yitao Lu 434  
 Yi-Xiang Zhang 350  
 Yong-Sheng Chen 5  
 You-Hong Chen 384  
 Young Yoon 38  
 You-Sheng Zhang 446  
 Yu Ouyang 216, 453  
 Yuan-Horng Lin 160

*Yuan-Min Chu* 306, 310  
*Yu-Chen Lin* 380  
*Yu-Cheng Hsieh* 369  
*YuChing Lin* 176  
*Yue Sun* 292  
*Yueh-Mu Lee* 394  
*Yu-Hsiang Lee* 21  
*Yu-Hsiang Lin* 17  
*Yu-Jie Zhou* 199, 411  
*Yu-Li Tsai* 417  
*Yung-Chuan Wu* 1  
*Yun-Shuai Yu* 475  
*Yu-Ting Cheng* 36  
*Yu-Tuan Chou* 339  
*Yu-Zhou Huang* 331

## **Z**

*Zan-Jun Wang* 246  
*Zhang Yuqi* 280  
*Zhangbin Chen* 109  
*Zhe-Ming Zhang* 284  
*Zheng-Han Shi* 5  
*ZhengZheng Li* 457  
*Zhi-Qi Deng* 205  
*Zhiqiang Tian* 434  
*Zhi-Yang Su* 354  
*Zhou Junling* 121, 465  
*Zong-Hsin Liu* 288  
*Zong-Lin Tsai* 380  
*Zun-Hao Shih* 394



## Conference Agenda

**Venue:** National Formosa University, Yunlin, Taiwan

**Language:** English

### Pre- Conference

**Thursday, October 3<sup>rd</sup>, 2019**

10:00 17:00 Sponsor Showcase (Ballroom)

### Main Conference

**Friday, October 4<sup>th</sup>, 2019**

08:30 09:00 Welcoming Reception & Registration

09:00 09:30 Opening Ceremony

09:40 10:50 Keynote Speech 1

10:50 11:00 Tea Break

11:00 12:10 Keynote Speech 2

12:10 13:00 Lunch Break

13:00 17:00 Oral Session A, Oral Session B, Oral Session C

13:00 17:00 Poster Session

18:00 20:00 Conference Banquet



## Conference Agenda

**Venue:** National Formosa University, Yunlin, Taiwan

**Language:** English

### Main Conference

**Saturday, October 5<sup>th</sup>, 2019**

09:00	09:30	Welcoming Reception & Registration
09:30	10:40	Keynote Speech 3
10:40	10:50	Tea Break
10:50	12:00	Keynote Speech 4
12:00	13:00	Lunch Break
13:00	16:00	Poster Session
13:00	16:00	Oral Session A, Oral Session B, Oral Session C

### Main Conference

**Sunday, October 6<sup>th</sup>, 2019**

09:00	17:00	Sponsor Showcase (Ballroom) & Closing Ceremony
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## Model Creativepreneur at Vocational High School Art and Creative Industries Sector for Creative Industry Development

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### Abstract

Research model development to increase the professionalism of the model creativepreneur vocational students is studied. This study aims to reveal the professional development of vocational school students find creativepreneur development model, and determine the effectiveness of internal models in vocational creativepreneur Arts and Creative Industries Sector. This study uses research and development that consist of three steps, preliminary studies, model development and internal testing. The research was conducted at SMK Negeri 12 Surabaya. Data collection for the research used in-depth interviews and observation. The results showed that, the development of vocational students studied professionalism comes mostly from government and schools. Development program in school depends on the policies and strategies of each principal. Creativepreneur the model developed is composed of components of the competence, creativity, and effectiveness. It can be concluded that the effectiveness of the model's internal test results agree that the category of model components is complete, the structure of the model components is clear, the relationship between the components of the model is clear, readability models of good, decent models, and models effective if it is implemented. The results showed that, the development of vocational students studied professionalism comes mostly from government and schools.

**Keywords:** Development, Creativepreneur, Creative Industry

### I. INTRODUCTION

In the regulation of Education and Culture Minister No. 70 in 2013, education based on the nation's cultural life of the nation is able to establish the pattern of the present and future. This view into the direction of curriculum development in 2013 was based on very diverse national culture, to build a life now, and underpinned a better life of the nation in the future. To prepare learners, Curriculum 2013 was developed towards a learning experience that can provide ample opportunities for learners in mastering the competencies needed in his life, and together with it also remains developed kempetensi learners as heir to the culture of Indonesia. With the advantage of the culture it is studied to generate a sense of pride, implemented and expressed in private life, for society, and nation.

Efforts to qualify the graduates in Indonesia, have issued Regulation of Presidential No. 08 of 2012 on the Indonesian National Qualifications Framework (INQF) with implications for the curriculum and management towards the achievement

of the competence that leads to the achievement of results pembelajaran capabilities. As the INQF expected to change the person's insight competence, not only is solely the framework of the qualification diploma but is legalized nationwide as the basis for the recognition of educational outcomes. So, a compilation of competence meant a person's ability to perform a job description measured through structured assessment, which includes aspects of self-reliance and individual responsibility in his field of work.

President Joko Widodo is often advised that the government focus on preparing the Human Resources (HR) qualified Indonesian so that Indonesia could take a leap of progress and catch up with other countries. According to the predictions, in 2045 Indonesia will have 195 million people of childbearing age; and 60 percent of young people who should be well managed in order to become a demographic bonus for the realization of Indonesia Gold in 100 years of independence. The ability to reverse the pyramid's qualification which is currently still the majority of elementary and secondary school education becomes an educated workforce and skilled, through education and vocational training.

Competitive labor and skilled one was born from education and vocational training quality and relevant to the demands of business and industry constantly is evolving. President Jokowi instructed overhaul of vocational education and training system, and the government must reorient education and vocational training towards demand driven. Through the Presidential Instruction No. 9 of 2016, the President stressed the need to revitalize vocational school to improve the quality of human resources. The instruction commissioned to create a road map of vocational development; enhance and vocational curriculum align with the required competence of graduates (link and match).

A total of 219 vocations selected for revitalization will be encouraged to make changes and alignment of curriculum referring to the world of business and industry. The Government will meet the needs of teachers and kependidikannya professionalism. This pilot vocational escort is ready to produce skilled manpower according to the needs of the 21st century. Increased standardization of major infrastructure and industrial cooperation program update, and managing and structuring institutions and increased access to the vocational competence certification need expertise in accordance with the priorities national development, namely maritime, tourism, agriculture (food security), and the creative industries. Selection of the four areas of study into the vocational development focus is based on the direction of economic development of Indonesia.

Related to education based on the nation's cultural life of the nation to build a present and the future to come, in their implementation of vocational school based arts and creative industries require careful thought, especially in producing graduates who are ready to work. The process of learning has taken various efforts, particularly in adapting to the preservation and development of technological development. The fact that the Indonesian culture is very rich can be used as the primary capital to be able to compete with other nations in this world, especially ASEAN member countries. But in memprsiapkan HR vocational school graduates of Arts and Creative Industries need standardization, so that will be able to compete, biting, even blocking foreign labor.

The issues and considerations kept in mind, it is necessary to study the development of models to increase the professionalism of vocational students given the model name creativepreneur. Creativepreneur model development is the adoption of a positive attitude owned by entrepreneur into the profession of vocational students. The development of this model will consist of the design of the conceptual model in training for vocational students with a greater emphasis on the element of creativity and effectiveness in the field of arts and creative industries.

## II. THEORETICAL STUDIES

Entrepreneur is the application of creativity and innovation to solve the problem and attempt to take advantage of opportunities. Vocational education provisions *softskills* very important, because to face the job market, one of the soft skills that are *entrepreneurial* as a framework to innovate so that the results of such innovation can be accepted and appreciated by others. In this frame of mind honed sharpness three main abilities are creativity, innovation, and productivity. The nature of entrepreneurial education in the curriculum is the development and habituation patterns of thinking and skills of students to develop her potential in a creative, innovative, and productive to produce something meaningful idea or product (Pranata, 2014: 61).

A change is expected to occur in students who initially made the designs mediocre transformed into a creative design that could provide solutions through increased kreativitas and entrepreneurial spirit. *Entrepreneurship* is an entrepreneurial spirit, in this case, being close to the field of economics and business. Entrepreneurs are pioneers who dare to take risks for a change, some successful character of an entrepreneur; passion, patience, perseverance, hard work, flexible, and creative (Delle, 12: 43).

In turn, students' understanding of professional conduct in the workplace can be improved to be diterjuninya later in life. Competency-based curriculum is a model curriculum that focuses on the acquisition of capabilities and competence particular with regard to the task or role in the work. Vocational education is a kind of education that prepares graduates to enter the workforce, here focused on studying or training practical abilities, skills that are directly related to the completion of work tasks.

Being creativepreneur is one who can do all those, the most important thing is to be creative berolapikir, which aims to turn ideas into something tangible and can be enjoyed by the public. Of these activities will take place the process of finding opportunities, creating a product or service and

eventually making money. In the course of a business process it usually begins on a small scale, and will grow big, which is the need for entrepreneurial spirit. To increase sales, branding is required in an effort to promote to the public. With rapid advances in technology, a blog, promotion on social media or e-commerce website building can be created.

There is no word impossible for creative people to create something new, including in building the business. From the start of activities seeking the original idea to build a creative business, it is not be afraid to take risks and continue to create something new. Being creativepreneur is the most suitable profession for young, energetic and likes a challenge. Creative economy is a government appointed new sector to be managed up to the level of the Agency, namely Bekraf (Creative Economy Agency). In 2012, handled by Kemenparekraf, because it has strategic value for Indonesia, the value is a significant contribution, creation of business climate is positive, raising the image and identity of the nation, using renewable resources, encouraging innovation, and providing a positive social impact.

In the sector of the creative economy and the creative industry, there have developed 16 sub-sectors. The existence of the ministry at the time focused on the development of the creative industries to be able to survive because of the crisis in 2008, and through the industries creative, this is the industrial sector that is resilient to crises, being expected to boost the economy, and realizing the vision of Indonesia bercitra creative. To grow the creative industries in Indonesia is not difficult, because of the abundant capital of the local culture. This cultural wealth is a gift, because it is not owned by any other nations. Indonesia's creative industry will have a bright future if supported by the presence of government, business groups, academics, and the potential creativity of young people.

Creative personality is an individual who has a remarkable ability to adapt to a very wide range of situations and perform various activities to achieve the desired goal, and creativepreneur is always to create something new, different, unique, and has a high added value. Creative man born out of the creative culture has the opportunity to think creatively who want to think out of the box. Culture encourages the process of change or modernization, educational process killing creativity is a process of education that hinders critical thinking. Creative human groups according to Trias de Bes and territorial commands A = activator, an initiator of the birth of the idea, B = browser, collect information from all sources to create ideas, C = creator, humans who give birth to ideas from information analysis, D = developers, creative people who find or inventors of ideas formulated by creators, E = executors, implementers of infenter who develop ideas, F = facilitators, creative people are the means for further development, (Tilaar, 2012. 219).

The creative industry is very necessary and continues to be developed as it contributes a very significant economy and creates a positive business climate and builds the nation's image and identity. On the other side of the creative industries based on renewable resources, innovation and creativity are competitive advantages of a nation as well as provide positive social impact. The creative industry is a collaboration and integration to work together in synergy of the main actors in the creative industries are among other Academician educators, humanists, artists, researchers, writers, pioneers of

culture and art galleries, and scholars. Business men transform creativity into products of economic value, as well as the Government roels as a catalyst, advocate, and regulators.

The Indonesian Creative Economy Development in 2025, targets the creation of conditions for creative people with an adequate quantity and quality and reinforcement of human resources in the community with the mindset and creative atmosphere supported by talented and creative workers. This can be achieved; 1) increase the number of qualified human resources continuously creative and spread evenly; 2) peningkatkan number and improved quality of education and training institutions as needed creative talent; 3) improvement of the human penghagaan creative community as a profession that brings added value both economically and socially; 4) an increase in the number of creative entrepreneurs significantly boosting creative employment growth; 5) International recognition of the quality of Indonesia's creative people whose work can be felt by the Indonesian people.

### III. RESEARCH METHODOLOGY

Outcome of the paper is the discovery of a development model in vocational educator named creativepreneu models. This study uses the Research and Development (Research and Development / R & D). Procedures R & D refers to the Borg & Gall in 1989 in Sugiyono (2017: 35). Of the 10 stages of development proposed by Borg & Gall, researchers only focused in three stages: preliminary studies, model development, and testing of internal models. Before the development of vocational creativepreneu models, conducted needs assessments aimed to determine the need or early descriptions of the development educators have done in SMK. Research conducted using qualitative approaches with R&D.

This study was conducted in August 2018 to December 2018. August 2018 were used to analyze the needs, September-October 2018 to develop a model, while the November-December 2018 is used for the testing / validation and testing the effectiveness of internal models. The research location chosen was SMK Negeri 12 Surabaya area of expertise of arts and creative industries. The respondents consisted of the assistant principal of curriculum areas, chairman of competency skills, teachers earning amounted to 3 people in each competency skills, Data collection techniques used in this study are: (1) direct observation in the study site with the help of image and sound recording devices; (2) in-depth interviews to all the respondents have been determined; (3) view the documents at schools including: Budgets, the work program vice principal areas of curriculum, program chairman competency skills, As well as other data required.

The validation instruments and models are limited to three people who have expert knowledge about the development of the capacity of educators. Data were obtained from interviews, observation, and documentation are analyzed and interpreted to meet the demands of the purpose of research and other information. In order for the presentation of data more meaningful and easier to understand the steps of data analysis used in this study using the analysis interactive model of Miles and Huberman (1994: 23) that divides the analysis activities into several parts, namely: data collection, data reduction, data presentation, and conclusion.

### IV. RESEARCH RESULTS AND DISCUSSION

Based on interview, observation and documentation done in SMK Negeri 12 Surabaya can be described as development of educational progress. School program relies on policy of each school in organizing educational development, and may include trainings aimed at improving the quality of students. Education development programs originating from other institutions are conducted by the industry and artists as a form of cooperation on education. Development activity is training to students whose expectations generated vocational graduates who are ready to work within the required standards in creative industries.

The result of research, found the problems and weaknesses that often occurs in connection with the development of education, so that the results of the implementation of the development of education less than the maximum, these problems are: (1) the obstacles often faced by students in participating in training activities is learning time creative product development is less ; (2) there is no evaluation of the ability / competence of students after the implementation of activities related to creative product development, so that the picture of the desired outcome is not yet known; (3) The budget factor is one factor to consider in the hold of creative product development activities conducted school; (4) differences in competency skills and vocational neighborhood arts and creative industries; (5) the effectiveness of the guidance to the professional abilities of vocational students in the arts and creative industries who applied for this is still weak, the weakness of the aspects of planning, implementation, and monitoring. It can be seen from the quality and competence of the final result of the implementation of the development program less than the maximum. Also, based on productivity and quality of the resulting student has not fully maximized the competence of his expertise, it can be seen from the works produced; (6) guidance in the form of training is less to give optimal results, particularly in developing real-time capabilities and expertise in the industry / business, institutions and artists. It can be seen from the quality and competence of the final result of the implementation of the development program less than the maximum. Also, based on productivity and quality of the resulting student has not fully maximize the competence of his expertise, it can be seen from the works produced; (6) guidance in the form of training is less to give optimal results, particularly in developing real-time capabilities and expertise in the industry / business, institutions and artists. It can be seen from the quality and competence of the final result of the implementation of the development program less than the maximum. Also, based on productivity and quality of the resulting student has not fully maximize the competence of his expertise, it can be seen from the works produced; (6) guidance in the form of training is less to give optimal results, particularly in developing real-time capabilities and expertise in the industry / business, institutions and artists.

Seeing the condition that occurs required the participation of all parties involved in the development of education. There are several advantages that need to be maintained and enhanced, namely: (1) there are many creative productive education program so that a more professional students; (2) the majority of competency skills in SMK Negeri 12 Surabaya, the

arts and creative industries already have facilities and adequate learning facilities; (3) lots of information and communication technology (ICT) in this day and age that can be used to help facilitate the implementation of learning activities, so that students become easier to understand; (4) the qualification of existing teachers have largely meets the required which has been equipped with the competency; (5) school-based management has been implemented in each CMS needs to be maintained; (6) involvement and closeness partner institutions facilitate the development of education in student development program.

Creativepreneur Model consists of components of competence, creativity and effectiveness. All the components cannot be separated from each other. Creativepreneur models belong to the improvement of student profesionalitas. To face the challenges of the 21st century and compete with other countries, innovation and integration among the components namely the aspect of creativity and effectiveness of a wide variety of students in the use of resources in the learning activities are needed. A student is required to have a good competence in performing the duties of creative product development. Components of students' creativity are the ability to accomplish good learning shown to increase learning outcomes. Components effectiveness is conformity between tasks creative product development with the intended target. All the components cannot be separated from each other, and an integral component in realizing creativepreneur. The following image creativepreneur model development.

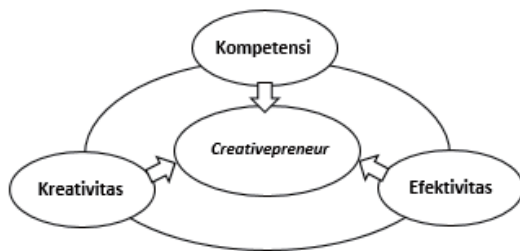


Fig. 1. Late Model Creativepreneur

Creativepreneur models consist of components: (1) to discover new things, be open to new things, flexible in action, freedom of self-expression; (2) can appreciate, believe in the idea itself, independent thinking, able to work hard and tenacious; (3) may be more reflective of self-development capabilities, to develop good social relations, cooperation with others, and have the will to always improve profesionalitasnya.

## V. CONCLUSION

The development of school programs rely policy of each school in organizing pendidikan development, may include trainings aimed at improving the quality of students. Education development programs originating from other institutions are conducted by the industry, and artists as a form of cooperation on education. Development activity is doing is training to students whose expectations generated vocational graduates who are ready to work within the required standards in creative industries.

The weakness is often the case related to the development of education, so that the results of the implementation of the

educational development of their full potential, these problems are: (1) the learning time is less creative product development; (2) there is no evaluation of the ability / competence of students related to the development of creative products, it is not known picture of the desired result; (3) The budget factors need to be considered in the hold of creative product development activities; (4) differences in competency skills and vocational neighborhood arts and creative industries; (5) the effectiveness of the guidance to the professional abilities of students for this is still weak, it can be seen from the works produced; (6) guidance in the form of training is less provide optimum results, especially in industry / business, institutions and artists.

The strengths in the development educators, namely: (1) there are many creative productive educational development programs; (2) most of the expertise competence has facilities and adequate learning facilities; (3) The information and communication technology (ICT) can be used to help facilitate the implementation of learning activities; (4) qualified teachers is competent in their field; (5) the implementation of school-based management; (6) involvement and closeness partner institutions facilitate the development of education in student development program.

The result of creativepreneur model development on vocational field of arts and creative industries consists of competence, creativity, and effectiveness. Internal test results can be concluded that the experts agree: (1) complete model components; (2) the structure of a clear model components; (3) the relationship between components models clearly; (4) The model has good readability; (5) the model feasible; and (6) the model effectively implemented.

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