2018 IEEE Region Ten Symposium (Tensymp 2018)

Sydney, Australia 4-6 July 2018



IEEE Catalog Number: ISBN:

CFP18TEO-POD 978-1-5386-6990-7

Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

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

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

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

IEEE Catalog Number:	CFP18TEO-POD
ISBN (Print-On-Demand):	978-1-5386-6990-7
ISBN (Online):	978-1-5386-6989-1

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



2018 IEEE Region Ten Symposium (Tensymp)

PS-5A Electronics 2

Heterogeneous IoT mobility framework for mobile robot agents	
	1

PS-5C WebEx Session

Mathematical Modeling and Analysis of Lane Number on Traffic Flow Liu Lin (Heilongjiang University, P.R. China)	
Mathematical Model of the Vehicles Percentage in Self-driving, Cooperating Systems and Traffic Flow Liu Lin (Heilongjiang University, P.R. China)	10

PS-6A General 5

Coverage Path Planning on Multi-depot, Fuel Constraint UAV Mission for Smart Farm Monitoring Anton Louise P. De Ocampo (De La Salle University, Philippines, Philippines), Argel Bandala (De La Salle University, Philippines), Elmer P. Dadios (De La Salle University, Philippines, Philippines)

PS-1B Electronics & Power 1

Distinguishing between Cyber Injection and Faults using Machine Learning Algorithms B M Ruhul Amin (Macquarie University, Australia), Adnan Anwar (University of New South Wales, Australia), M. J. Hossain (Macquarie University, Australia)	19
Single-Phase Switched-Capacitor Integrated-Boost Five-level Inverter	
Md Noman Habib Khan (University Technology of Sydney & University of Malaya, Australia), Yam Siwakoti (University Technology of Sydney, Australia), Li Li (University of Technology Sydney, Australia), Mojtaba Forouzesh (Queen's University, Canada)	25
Fault Protection Technique for ZSI- fed Single-phase Induction Motor Drive Vivek Sharma (Macquarie University, Australia)	30
On-chip Transient Detection Circuit for Microelectronic Systems against Electrical Transient Disturbances due to ESD Events Wen-Chieh Chen (National Chiao-Tung University, Taiwan), Ming-Dou Ker (National Chiao-Tung University, Taiwan)	36

PS-1C General 1

Combating SSDFA Reputation Mining and Reset Attacks in Cognitive Radio Networks Sasa Maric (Macquarie University, Australia), Sam Reisenfeld (Macquarie University, Australia), Robert Abbas (Macquarie University, Australia)	40
Sparsity Representation of Beat Signal in Weather Radar for Compressive Sampling	
Rita Purnamasari (Bandung Technology Institut, Indonesia), Andriyan B. Suksmono (Bandung Institute of Technology, Indonesia), Ian Yosef (ITB, Indonesia), Irma Zakia (Institut Teknologi Bandung & School of Electrical Engineering and Informatics, Indonesia)	45
Design and Development of a Cloud-based Flora Repository System with Geo-Location Mapping for Mt. Hamiguitan Sanctuary Exploration Jennifer Dela Cruz (School of EECE, Mapua University, Philippines), Delan Zoe Arenga (Mapua University, Philippines), Franch Maverick Lorilla (University of Southeastern Philippines, Philippines), Paul Tangian (Michael Page International Pty Ltd, Australia)	51
Fast Bootstrap of Routing Protocol for Low Power and Lossy Networks on Dense Wireless Sensor Networks through Adaptive Trickle Timer Settings	
Paul Vincent Alpaño (University of the Philippines Diliman, Philippines), Jhoanna Rhodette Pedrasa (University of the Philippines, Philippines)	57

PS-2A General 2

Dynamic Congestion Control in Information-Centric Networking utilizing Sensors for the IoT Rungrot Sukjaimuk (Waseda University, Japan), Quang Ngoc Nguyen (Waseda University, Japan), Takuro Sato (Waseda University, Japan)	63
Research on UWB-Based Indoor Ranging Positioning Technolog and a Method to Improve Accuracy	03
Ding Lei (School of Mechanical Engineering, Nanjing University of Science and Technology, NJUST & Nanjing University of S&T, NJUST, P.R. China), Tong Zhou (School of Mechanical Engineering Nanjing University of S&T, NJUST, P.R. China)	69
Performance Evaluation of CoAP Broker and Access Gateway Implementation on Wireless Sensor Network	

Aldwin Akbar Hermanudin (Universitas Indonesia, Indonesia, Indonesia), Fransiskus Astha Ekadiyanto (Universitas Indonesia, Indonesia), Riri Fitri Sari (University of Indonesia, Indonesia)

	Asynchronous MOUSETRAP Implementation of AES-128 encryption using 65nm standard cells Chris Vincent Densing (University of the Philippines Electrical and Electronics Engineering Institute, Philippines)	90
	Proposal of Price Presentation by Smartphone Application for Reducing Food Loss	00
	Yoichi Utsunomiya (Aichi Prefectural University, Japan), Takashi Okuda (Aichi Prefectural University, Japan)	85
	Predictive Analysis of 3D ReRAM-based PUF for Securing the Internet of Things Jeeson Kim (RMIT University, Australia), Hussein Nili (University of California Santa Barbara, USA), Gina Adam (University of California Santa Barbara, USA), Nhan Duy Truong (RMIT University, Australia), Dmitri Strukov (University of California Santa Barbara, USA), Omid Kavehei (The University of Sydney, Australia)	91
F	PS-3B Power Engineering 2	
	Novel High Efficiency H-Bridge Transformerless Inverter for Grid-Connected Single-Phase Photovoltaic Systems Md Noman Habib Khan (University Technology of Sydney & University of Malaya, Australia), Mojtaba Forouzesh (Queen's University, Canada), Yam Siwakoti (University Technology of Sydney, Australia), Li Li (University of Technology Sydney, Australia)	95
	The Technical, Operational and Energy Policy Issues for Developing Photovoltaic Systems: A Review Ibrahim Anwar Ibrahim (Macquarie University, Australia), M. J. Hossain (Macquarie University, Australia)	100
	Performance Analysis of Hybrid Solar-Wind-Microhydro System in Islanded mode Rinchin Mosobi (Deemed University, NERIST, India), Sarsing Gao (North Eastern Regional Institute of Science and Technology, India)	106
F	PS-2C Software 1	
	Developing and Integrating a Semantic Interoperability Testing Tool in F-Interop Platform Soumya Kanti Datta (EURECOM, France, France), Christian Bonnet (Institut Eurecom, France), Hamza Baqa (Easy Global Market, France), Mengxuan Zhao (Easy Global Market, France), Franck Le Gall (Easy Global Market, France)	112
	VREX: A Framework for Immersive Virtual Reality Experiences Vanessa Tan (University of the Philippines Diliman, Philippines), Ryan Blonna (University of the Philippines Diliman Campus, Philippines), Mel Stychen Tan (University of the Philippines Diliman, Philippines), Anna Patricia Mora (University of the Philippines Diliman, Philippines), Rowel O Atienza (University of the Philippines, Philippines)	118
	On the Necessity of Right Optimizations for Live Migration of Virtual Machines Subham Jain (National Institute of Technology, Calicut, India), Malayam Parambath Gilesh (Government Engineering College Wayanad, India), S D Madhu Kumar (National Institute of Technology Calicut, India), Lillykutty Jacob (National Institute of Technology Calicut, India)	124
F	PS-3A Electronics 1	
	Modeling of Errors in a Digital Energy Detector for On-Off Keying Receivers Christopher Santos (University of the Philippines - Diliman, Philippines), Louis Alarcón (University of the Philippines Diliman, Philippines)	130
	A Fault Detection Method for IGBT Bond Wires Partial Lift Off Based on Thermal Resistance Assessment Dan Luo (Chongqing University, P.R. China), Minyou Chen (Chongqing University, P.R. China), Yi Xiao (State Grid Chongqing Electric Power CO. Yongchuan Power Supply Branch Company, P.R. China), Wei Lai (University of Chongqing, P.R. China), Shengyou Xu (Chongqing	
		135
	Encoding Multichannel Audio for Ultra HDTV Based on Spatial Audio Coding with Optimization Ikhwana Elfitri (Andalas University, Indonesia), Doni Nursyam (Universitas Andalas, Indonesia), Fitrilina Fitrilina (Andalas University, Indonesia), Rahmadi Kurnia (Universitas Andalas, Indonesia)	140
F	PS-4A General 4	
	Super Long Range Small Empty Cavity UHF RFID Tag Antenna Design for a Metal Cart Byondi Franck Kimetya (Daegu University & Antenna and RFID Lab, Korea)	145
	A Fair Aggregation Scheme in Shared Space Settings Cheryl Siy (University of the Philippines, Philippines), Jhoanna Rhodette Pedrasa (University of the Philippines, Philippines)	149
	Energy Efficiency in Dynamic Cluster Selection for Cooperative Wireless Sensor Networks Azlan Abdul Aziz (Multimedia University, Melaka, Malaysia), Hadhrami Ab Ghani (Multimedia University, Malaysia)	155
	Porformance Evolucion of ideal Nearost Poplice Pouting (NPP) against source Forwarding Strategies on Named Pote Networking (NDN)	

Performance Evaluation of ideal Nearest Replica Routing (NRR) against several Forwarding Strategies on Named Data Networking(NDN) Bambang Susilo (University of Indonesia, Indonesia), Marion Renaldo Rotinsulu (University of Indonesia & PT. Media Telekomunikasi Mandiri, Indonesia), Riri Fitri Sari (University of Indonesia, Indonesia)

A Linearly Polarised Radial Line Slot Array Antenna with Reflection Cancelling Slots	
Mst Nishat Yasmin Koli (Macquarie University, Australia), Muhammad Usman Afzal (Macquarie University, Australia), Karu Esselle	
(Macquarie University, Australia), Raheel Maqsood Hashmi (Macquarie University & IEEE, Australia), Md Zahidul Islam (Rajshahi University	
of Engineering and Technology, Australia)	166

PS-4B Power Engineering 3

Development of a Compact-Sized Biodigester for Pig Manure and Organic Wastes with Raspberry Pi-Based Temperature, Pressure, and pH Level Monitoring	
Michael Pacis (Mapua University, Philippines), Glenn Magwili (Mapúa University, Philippines), Ronald Vincent M. Santiago (Mapua University, Philippines)	169
A Classification of Single-Phase Transformerless Inverter Topologies for Photovoltaic Applications	
Md Noman Habib Khan (University Technology of Sydney & University of Malaya, Australia), Mojtaba Forouzesh (Queen's University, Canada), Yam Siwakoti (University Technology of Sydney, Australia), Li Li (University of Technology Sydney, Australia), Tamas Kerekes (Aalborg University & Department of Energy Technology, Denmark), Frede Blaabjerg (Aalborg University, Denmark)	174
Optimal Overcurrent Relay Coordination of a Multi-loop Distribution Network with Distributed Generation Using Dual Simplex Algorithm Michael Pacis (Mapua University, Philippines), Rogelio Bersano, Jr. (Mindanao State University- Iligan Institute of Technology, Philippines), Ronald Vincent M. Santiago (Mapua University, Philippines)	180
Implementation of Maintenance Program to the Generators of the Mindanao Grid using Reliability Centered Maintenance (RCM) Rogelio Bersano, Jr. (Mindanao State University- Iligan Institute of Technology, Philippines), Rey Lagrada (Mindanao State University- Iligan Institute of Technology, Philippines), Rovick Tarife (Mindanao State University- Iligan Institute of Technology, Philippines), Michael Pacis (Mapua University, Philippines), Ronald Vincent M. Santiago (Mapua University, Philippines)	185

PS-5A Electronics 2

Performance of SIMO Channel Tracking using Doppler Shift Information in Rician Fading	
Irma Zakia (Institut Teknologi Bandung & School of Electrical Engineering and Informatics, Indonesia)	191
Stabilization of Internal Dynamics Using Time Multiplexing of Inversion and Sliding Mode Control for High Boost Converter	
Shiv Prakash (Indian Institute of Technology Gandhinagar, India)	196

PS-5B Healthcare

A Customized System to Assess Foot Plantar Pressure: A Case Study on Calloused and Normal Feet	
Asanka Rathnayaka (University of Moratuwa, Sri Lanka), Nipun D Perera (University of Moratuwa, Sri Lanka), Herath Savindu (University of Moratuwa, Sri Lanka), Si Lanka), Chamara Madarasingha (University of Moratuwa, Sri Lanka), Sandun Ranasinghe (University of Moratuwa, Sri Lanka), Anjula C De Silva (University of Moratuwa, Sri Lanka), Saroj Jayasinghe (Faculty of Medicine, University of Colombo, Sri Lanka), Thusitha Kahaduwa (National Hospital Sri Lanka, Sri Lanka), Pujitha Silva (University of Moratuwa, Sri Lanka), Viduranga Thuduwage (University of Moratuwa, Sri Lanka), Anuradha Kulathilaka (University of Moratuwa, Sri Lanka)	000
	202
Evaluation of single HMM as a Pre-Impact Fall detector based on different input signals Jie Kai Er (Nanyang Technological University, Singapore), Wei Tech Ang (Nanyang Technological University, Singapore)	207
Posture Alert Suhan Muppavaram (University of Auckland, New Zealand), Nipoon Patel (University of Auckland, New Zealand), Muhammad Nadeem (University of Auckland, New Zealand)	213

PS-5C WebEx Session

Talking Gloves: Low-Cost Gesture Recognition System for Sign Language Translation Hina Shaheen (Institute of Space Technology, Pakistan), Tariq Mehmood (Supervisor, Pakistan)	219
Reversible Data Hiding Based on the Random Distribution of Reference Pixels Ravi Uyyala (University of Hyderabad & Institute for Development and Research in Banking Technology (IDRBT), India), Rajarshi Pal (Institute for Development and Research in Banking Technology (IDRBT), Hyderabad, India)	225
Optimal Sizing and Sitting of TCSC devices for multi-objective operation of power system using meta-heuristic seeker optimization algorithm Ghamgeen Izat Rashed (Wuhan University, P.R. China), Muhammed Shafik (Wuhan University, P.R. China), Ragab A. El-Sehiemy (Kafrelsheikh University, Egypt), Chen Kun (Wuhan University, P.R. China)	231

PS-6A General 5

Sentiment Polarity Estimation of Emoticons by Polarity Scoring of Character Components Keisuke Utsu (Tokai University, Japan), Junki Saito (Tokai University, Japan), Osamu Uchida (Tokai University, Japan)

Computing the relations among three views based on artificial neural network Ying Kin Yu (The Chinese University of Hong Kong, Hong Kong), Kin Hong Wong (The Chinese University of Hong Kong, Hong Kong), Siu-	
	243
An Effective Hexapod Robot Control Design Based on a Fuzzy Neural Network and a Kalman Filter Hung-Yuan Chung (National Central University, Taiwan), Yao-Liang Chung (National Taiwan Ocean University, Taiwan), Yi-Jan Hung (National Central University, Taiwan)	248
Augmented Map based Traffic Density Estimation for Robot Navigation Baljit Kaur (Thapar Institute Of Engineering And Technology, India)	
Study on Training Convolutional Neural Network to Detect Distraction and Drowsiness	204
Whui Kim (Electronics and Telecommunications Research Institute, Korea), Hyun-Kyun Choi (ETRI, Korea), Byung-Tae Jang (Electronic	260
PS-1C General 1	
Formalisation of Problem and Domain Definition for Agent Oriented Smart Factory (AOSF)	
Fareed Ud Din (University of Newcastle, Australia), Frans A Henskens (University of Newcastle, Australia), David Paul (University of New	265
Lunch and Poster Session	
Development of an Adaptive Pipe Inspection Robot with Rust Detection Argel Bandala (De La Salle University, Philippines), Julianne Alyson I Diaz (De La Salle University, Philippines), Jose Martin Z Maningo (De La Salle University, Philippines), Manuel Ligeralde (De La Salle University, Philippines)	271
Supervising Vehicle Using Pattern Recognition: Detecting Unusual Behavior Using Machine Learning Algorithms Mihodi Lushan (BRAC University, Bangladesh), Manoshi Bhattacharjee (BRAC University, Bangladesh), Tarem Ahmed (Independent University, Bangladesh (IUB), Bangladesh), Muhammad Abdur Rahman (BRAC University, Bangladesh), Supriyo Ahmed (BRAC University, Bangladesh)	277
A Proposed The Internet of Things (IoT) Framework for Health Sector in Indonesia	
Sri Ariyanti (Ministry of Communications and Information Technology, Indonesia), Kautsarina Kautsarina (Universitas Indonesia, Indonesia)	282
Feasibility of a single port flexible antenna array for energy harvesting from ambient sources	
Abu Sadat Md. Sayem (Macquarie University, Australia), Syed Muzahir Abbas (Macquarie University, Australia), Raheel Maqsood Hashmi (Macquarie University & IEEE, Australia), Karu Esselle (Macquarie University, Australia)	287
Wastewater Management: An IoT Approach Adam Drenoyanis (University of Wollongong & Shoalhaven Water, Australia), Raad Raad (University of Wollongong, Australia)	291
PS-5C WebEx Session	
Care Robot Transparency Isn't Enough for Trust Adam Poulsen (Charles Sturt University, Australia), Oliver Burmeister (Charles Sturt University, Bathurst, Australia), Dapeng Tien (Charles Sturt University, Australia)	293
PS-6A General 5	
Potential of IoT System and Cloud Services for Predicting Agricultural Pests and Diseases Materne Ntihemuka (Shibaura Institute of Technology, Japan), Masahiro Inoue (Shibaura Institute of Technology, Japan)	298
PS-8A WebEx	

Demystifying IEC 62368-1: Types of persons	
Paul W Robinson (IBM Australia, Australia)	300