## 2019 IEEE 15th International Colloquium on Signal Processing & Its Applications (CSPA 2019)

Penang, Malaysia 8-9 March 2019



IEEE Catalog Number: CFP1 ISBN: 978-1

CFP1979G-POD 978-1-5386-7564-9

## Copyright © 2019 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:
 CFP1979G-POD

 ISBN (Print-On-Demand):
 978-1-5386-7564-9

 ISBN (Online):
 978-1-5386-7563-2

## **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



## **Table of Contents**

	Page
Organizing Committee	iii
Reviewers	iv
Table of Contents	vi
Paper Title & Authors	
Simplified Sinusoidal Pulse Width Modulation of Cross-switched Multilevel Inverter Sheikh Tanzim Meraj, Law Kah Haw and Ammar Masaoud	1
<b>An Implementation of DBF and CFAR Models in OTHR Signal Processing</b> Nikola Stojkovic, Dejan Nikolic, Pavle Petrovic, Nikola Tosic, Ivan Gluvacevic, Nikola Stojiljkovic and Nikola Lekic	7
<b>Tailoring OTHR Deployment in Order to Meet Conditions in Remote Equatorial Areas</b> Dejan Nikolic, Nikola Tosic, Bojan Dzolic, Nemanja Grbic, Pavle Petrovic, Ana Djurdjevic and Nikola Lekic	12
Simultaneous Isolation of Software Faults for Effective Fault Localization Abubakar Zakari and Sai Peck Lee	16
Subject-Independent Emotion Recognition During Music Listening Based on EEG Using Deep Convolutional Neural Networks Panayu Keelawat, Nattapong Thammasan, Boonserm Kijsirikul and Masayuki Numao	21
Modified Adaptive Bats Sonar Algorithm with Doppler Effect Mechanism for Solving Single Objective Unconstrained Optimization Problems N. A. Azlan and N. M. Yahya	27
Synchronization of Public Timekeeping Devices in Malaysia to Malaysian Standard Time Aimi Musa, Mustafa Din Subari and Othman Zainon	31
Direct Blind Equalization corresponding to Noisy Environment using Rayleigh Quotient  Minoru Komatsu, Nari Tanabe and Toshihiro Furukawa	35
Comparison of DC Motor Position Control Simulation using MABSA-FLC and PSO-FLC N. Elias and N. M. Yahya	39
Automated Detection of Exudates in Retinal Images Dulanji Lokuarachchi, Kasun Gunarathna, Lahiru Muthumal and Tharindu Gamage	43
Excited Discrete Force for Piezo generator Undergone Ultra-Low Vibrations on Air-Compressor and Possible Application Panu Thainiramit, Yufridin Wahab, Kua-Anan Techato, Pisan Sukwisute and Nantakan Muensit	48
<b>DSP Based Implementation of SHE-PWM for Cross-Switched Multilevel Inverter</b> Sheikh Tanzim Meraj, Arsalan Ahmed, Law Kah Haw, Adeel Arif and Ammar Masaoud	54

Automatic Disease Symptoms Segmentation Optimized for Dissimilarity Feature Extraction in Digital Photographs of Plant Leaves Aliyu Muhammad Abdu, Musa Mohd Mokji, Usman Ullah Sheikh and Kamal Khalil	60
Difference Comparison of SAP, Oracle, and Microsoft Solutions Based on Cloud ERP Systems: A Review Faisel Mohamed Elbahri, Omar Ismael Al-Sanjary, Musab A. M. Ali, Zakiya Ali Naif, Omar Ahmed Ibrahim and M. N. Mohammed	65
Highly Sensitive SnO2-Reduced Graphene Oxide Hybrid Composites for Room Temperature Acetone Sensor Lee Zhi Yan, Huzein Fahmi Hawari and Gunawan Witjaksono Djaswadi	71
An Investigate on the Critical Factors that can Affect the Implementation of E-Government in Oman Salim Al-Shuaili, Musab Ali, Adam Amril Jaharadak and Mohammed Al-Shekly	75
Super Resolution of Car Plate Images Using Generative Adversarial Networks Tan Kean Lai, Aymen F. Abbas, Aliyu M. Abdu, Usman U. Sheikh, Musa Mokji and Kamal Khalil	80
<b>Detection of Inhibitor Content in Transformer Oil at Wavelengths below 1000 nm</b> Vimal Angela Thiviyanathan, Pin Jern Ker, Yang Sing Leong, Nur Afini Fauzi, M. Z. Jamaludin, H. M. Looe and C. K. Lo	86
<b>Bottom-hat filtering for Defect Detection with CNN Classification on Car Wiper Arm</b> JiWei Ooi, Lee Choo Tay and Weng Kin Lai	90
AncDE with Gaussian Distribution for Numerical Optimization Problem Siti Khadijah Mohd Salleh, Siti Azirah Asmai, Zuraida Abal Abas, Abd Samad Shibghatullah and Diarmuid O'Donoghue	96
<b>Enhanced Region-specific Algorithm: Image Quality Analysis for Digital Kirlian Effect</b>	102
Razak Mohd Ali Lee and Janifal Alipal	
Performance Comparison of Various LEACH Protocols in Wireless Sensor Networks Adnan Yousaf, Faiza Ahmad, Shahzaib Hamid and Fahad Khan	108
Comparative Features of Unmanned Aerial Vehicle (UAV) for Border Protection of	114
<b>Libya: A Review</b> Rema Ibrahim Hamad Abushahma, Musab A. M. Ali, Nur Adilah Abd Rahman and Omar Ismael Al-Sanjary	
Smart Manufacturing with an Artificial Neural Network to Predict Manufacturing Healthiness Eng Chai Ang and Shahrel Azmin Suandi	120
Structural Efficient Demultiplexer Luyun Wang, Ronggang Qi, Yuchen Li and Guoan Bi	124
Accuracy Assessment of DEM from UAV and TanDEM-X Imagery Noradila Rusli, M. Rafee Majid, Nur Fakihin Auni A. Razali and Nur Fatma Fadilah Yaacob	127
Automatic QRS Onset Detection of ECG Signal using Secant Line Slope Formula Shaliza Jumahat, Gan Kok Beng, Norbahiah Misran, Mohammad Tariqul Islam and Nurhafizah Mahri	132
Relationship of Environmental Factors Toward Accident Cases using GIS Application in Kedah Nur Fatma Fadilah Yaacob, Noradila Rusli and Sharifah Norashikin Bohari	137

Enhancement of Cell Migration and Proliferation with the Assistance of Pulse Electric Field  Muhammad Mahadi Abdul Jamil, Nur Adilah Abd Rahman and Mohamad Nazib Adon	142
Pulse Electric Field Effect on Hela Cell Behaviour Muhammad Mahadi Abdul Jamil, Nur Adilah Abd Rahman, Mohd Norzali Hj Mohd and Mohamad Nazib Adon	147
Fault Tree Analysis for Control Valves in Process Plants by using R Nirbhay Mathur, Vijanth S. Asirvadam, Azrina Abd Aziz and Rosdiazli Ibrahim	152
An MFL Probe using Shiftable Magnetization Angle for Front and Back Side Crack	157
<b>Evaluation</b> Mohd Aufa Hadi Putera Zaini, Mohd Mawardi Saari, Nurul A'in Nadzri, Aiman Mohd Halil and Keiji Tsukada	
UAV Based Multi-spectral Imaging System for Mapping Landslide Risk Area Along	162
Jeli-Gerik Highway, Jeli, Kelantan Udin W. S, Norazami N. A .S., Sulaiman N., Che Zaudin N. A., Ma'ail S. and Mohamad Nor A. N.	
High Performance Flux Switching Machine using Segmented Rotor and PM Technology for In-Wheel Motorcycle and Scooter Applications Enwelum I. Mbadiwe, Laili Iwani Jusoh, Syed Muhammad Naufal and Erwan Sulaiman	168
Design of Multi-tooth Permanent Magnet Flux Switching Machine for Electric Bicycle Application	174
Laili Iwani Jusoh, Erwan Sulaiman, Enwelum Mbadiwe and Hassan A. Soomro	
Evaluation of Feature Descriptor on D-Saddle Keypoint Detection in Retinal Image Registration  Nurshafira Hazim Chan, Khairunnisa Hasikin and Nahrizul Adib Kadri	178
A New Modular Rotor Permanent Magnet Switched Flux Machine for Light Weight	182
EV Irfan Ali Soomro, Erwan Sulaiman and Hassan Ali Soomro	102
Design Improvement and Comparison of Hybrid Excitation FSM Using Segmental	186
Rotor Hassan Ali, Erwan Sulaiman, Mahyuzie Jenal, Faisal Amin, Irfan Ali and Asadullah	
Micro-Expression Spotting Using Facial Landmarks Kai Xin Beh and Kam Meng Goh	192
A Review on Alternative Oils as Dielectric Insulating Fluids on Power Transformer Shakira Azeehan Azli, Mohd Hezri Fazalul Rahiman, Zakiah Mohd Yusoff, Noor Fadzilah Razali, Siti Sufiah Abd Wahid and Mohd Sufian Ramli	198
An Improved Enhancement Technique for Mammogram Image Analysis: A Fuzzy Rule-Based Approach of Contrast Enhancement Nurshafira Hazim Chan, Khairunnisa Hasikin and Nahrizul Adib Kadri	202
Application of Hybrid Soft Computing for Classification of Reinforced Concrete Bridge Structural Health Based on Thermal-Vibration Intelligent System Parameters Ronnie S. Concepcion II and Lorena C. Ilagan	207
EMG Activity of Leg Muscles with Knee Pain during Islamic Prayer (Salat) Mohammad Fazle Rabbi, Nurul Wahidah Arshad, Kamarul H. Ghazali, Rohana Abdul Karim, Mohd Zamri Ibrahim and Tasriva Sikandar	213
An Improved Deep Neural Network for Classification of Plant Seedling Images Catherine R. Alimboyong and Alexander A. Hernandez	217

Investigating the Effect of Mass Variation for Sliding Mode Control of Functional Electrical Stimulation Aided Sit-to-Stand in Paraplegia Mohammed Ahmed, M. S. Huq and B. S. K. K. Ibrahim	223
Review on Current Methods of Gait Analysis and Recognition using Kinect Rohilah Sahak, Nur Khalidah Zakaria, Nooritawati Md. Tahir, Ahmad Ihsan Mohd Yassin, and Rozita Jailani	229
Study on RFID Based Book Tracking and Library Information System M. N. Mohammed, Wan Muhamad Alif Wan Radzuan, S. Al-Zubaidi, Musab A. M. Ali, Omar Ismael Al-Sanjary and Lilysuriazna Raya	235
Investigation on Carbon Monoxide Monitoring and Alert System for Vehicles M. N. Mohammed, Yugenthran Ghanesen, S. Al-Zubaidi, Musab A. M. Ali, Omar Ismael Al-Sanjary and Nur Shazwany Zamani	239
Developing a Predictive Model on Assessing Children in Conflict with the Law and Children at Risk: A Case in the Philippines Eltimar T. Castro Jr. and Alexander A. Hernandez	243
User Acceptance on Coffee Farm-to-Market Information System in the Philippines: A Conceptual Framework Teresita R. Tolentino and Alexander A. Hernandez	249
Light Database Encryption Design Utilizing Multicore Processors for Mobile Devices Mohammad Ahmed Alomari, M. Hafiz Yusoff, Khairulmizam Samsudin, R. Badlishah Ahmad	254
Developing a Flood Risk Assessment Using Support Vector Machine and Convolutional Neural Network: A Conceptual Framework Joe Marlou A. Opella and Alexander A. Hernandez	260
Feasible Personal Identification by Eye Blinking Using Wearable Device Kota Suzaki, Koya Shimizu and Kimio Oguchi	266
Fire Fighter Robot with Night Vision Camera Kalaivani A/P Perumal, Musab A. M. Ali and Zainab Hussein Yahaya	270
Author's Index	275