

2021 IEEE 11th International Conference on System Engineering and Technology (ICSET 2021)

**Virtual Conference
6 November 2021**



**IEEE Catalog Number: CFP2175P-POD
ISBN: 978-1-6654-3767-7**

**Copyright © 2021 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:	CFP2175P-POD
ISBN (Print-On-Demand):	978-1-6654-3767-7
ISBN (Online):	978-1-6654-3766-0
ISSN:	2470-6396

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

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

	Page
<i>Organizing Committee</i>	iii
<i>Technical Reviewers</i>	iv
<i>Table of Contents</i>	vi
<i>Paper Title & Authors</i>	
A Data Visualization Framework during Pandemic using the Density-Based Spatial Clustering with Noise (DBSCAN) Machine Learning Model	1
Hasyira Ahmad Wafa, Raihah Aminuddin, Shafaf Ibrahim, Nur Nabilah Abu Mangshor and Nor Izreen Fara Abdul Wahab	
Analysis of Load Current Ripples in a Five Level Buck Converter	7
Teo Hong Liang, Manickam Ramasamy and Mohamad Khan Afthan Ahmed Khan	
Statistical Analysis of Urban Heat Island: A Case Study in Bandung, Indonesia	13
Yulia Retnowati, Galang Adira Prayoga, Josua Dion Tamba, Fachri Ilman Fauzandi, Emir Mauludi Husni, Rahadian Yusuf and Bernardo Nugroho Yahya	
Application of ID Assignment Features in Rosebrocks' Simple Object Tracker	19
Fabiola Maria Teresa Retno Kinasih, Carmadi Machbub, Lenni Yulianti and Arief Syaichu Rohman	
A Sentiment Analysis Framework on COVID-19 in Major Cities of Malaysia Based on Tweets Using Machine Learning Classification Model	25
Raihah Aminuddin, Muhammad Akmal Bistamam, Shafaf Ibrahim, Nur Nabilah Abu Mangshor, Siti Feirusz Ahmad Fesol and Nor Izreen Fara Abdul Wahab	
Performance Evaluation of the Mobile Ad Hoc Network (MANET) for Eavesdropping Attacks by QualNet Simulator	31
Nadher Alsafwani, Musab A. M. Ali and Nooritawati Md Tahir	
Research Knowledge System Model for Higher Learning Institutions	36
Saad Alsaleh, Sabiroh Md Sabri and Haryani Haron	
Assessment of Conceptual Framework for Monitoring Poultry Farm's Temperature and Humidity	40
Fatria Jumara Adha, Rusyaizila Ramli, Mohammed Hazim Alkawaz, Md Gapar Md Johar and Asif Iqbal Hajamydeen	
Evaluation of the Mobile Ad Hoc Network (MANET) for Wormhole Attacks using Qualnet Simulator	46
Nadher Alsafwani, Musab A. M. Ali and Nooritawati Md Tahir	
Low-Cost Stockpile Scanner and Volume Calculator using Light Detection and Ranging Device	50
Sergio R. Peruda Jr., Einstein D. Yong, Leonardo Samaniego Jr., Risheene P. Dadoy, Veronica D.P. Gubatan and Hamill Jhon O. Marinda	

Industrial Profiling for Job Placement and Market Demand Analysis Using eMOTIKON	55
Muhamad Firdaus Ali, Shahrizwan Effendi Hashmi, Muhammad Akmal Hazim Hafizul Rasydan and Aziyati Yusoff	
Word-level Text Generation from Language Models	60
Ponrudee Netisopakul and Usanisa Taoto	
Smart Modular Parcel Locker System using Internet of Things (IoT)	66
Jing Zhi Ooi and Chye Cheah Tan	
Displacement of MyRTKNet Stations after M8.6 Earthquake of North Sumatera 2012 using GNSS Data	72
Muhamad Fariz Absl Kamarulazman, Adolfientje Kasenda Olesen, Shahrul Reza Natnan and Saiful Aman Hj Sulaiman	
Comparative Study of Optimal Nonlinear Control Schemes for Hanging Mass Actuated by Uncertain Pneumatic Muscle	78
Musaab Esam Sadiq, Amjad Jaleel Humaidi, Saleem Khalefa Kadhim, Abdulkareem Sh. Mahdi, Ahmed Alkhayyat and Ibraheem Kasim Ibraheem	
Optimal Sliding Mode Control of Single Arm PAM-Actuated Manipulator	84
Musaab Esam Sadiq, Amjad Jaleel Humaidi, Saleem Khalefa Kadhim, Ammar Al Mhdawi, Ahmed Alkhayyat and Ibraheem Kasim Ibraheem	
An Efficient Robust Color Watermarking Algorithm Based on DWT, DCT, BFO and Implementation	90
Omer Mohammed Salih Hassan, Adnan Mohsin Abdulazeez, Arman Ismael Mohammed, Sardar Omer Salih, Falah Y. H. Ahmed, Diyar Qader Zeebaree and Sarbast Husien Alih	
Virtual Channel Technology to enable Real-time Internet of Things Workload Consolidation	96
Kin Choy Yip and Cheah Wellington Wui Lun	
Low Latency Peer to Peer Robot Wireless Communication with Edge Computing	100
C. Asavasirikulkij, C. Mathong, T. Sinthumongkolchai, R. Chancharoen, W. Asdornwised	
Software Cost Estimation for Mobile Application Development – A Comparative Study of COCOMO Models	106
Maisarah Adibah Murad, Nur Atiqah Sia Abdullah and Marshima Mohd Rosli	
Fake News Detection using Naive Bayes	112
Nurshaheeda Shazleen Yuslee and Nur Atiqah Sia Abdullah	
Hybrid Autonomous Underwater Glider (HAUG) Obstacle Detection and Avoidance	118
A. A. Gde Jenana Putra, Bambang Riyanto Trilaksono and Egi Muhammad Idris Hidayat	
Sentiment Analysis on 10-K Financial Reports using Machine Learning Approaches	124
Gim Hoy Soong and Chye Cheah Tan	
Development of Speech Therapy Mobile Application for Speech Disorder Post-Stroke Patients	130
Halizah Basiron, Mohd Juzaila Abd Latif, Aiman Iskandar Mohd Zaidi, Muhammad Azri Azmi, Afiqah Iylia Kamaruddin and Wan Muhammad Fikri Wan Badruzaman	
Modeling Dynamic Patients Variables to Renal Failure in the Intensive Care Unit Using Bayesian Networks	134
N. N. H. Shah, N. N. Razak, A. Abu-Samah, A. A. Razak, A. K. Ramasamy and M. S. Hasan	
Calibration of Inverse Perspective Mapping from Different Road Surface Images	139
Muhamad Akmal Ahmad and Anuar Mikdad Muad	

Obstacle Avoidance of a 3WD Omni-Wheel Mobile Robot in Webots Environment	143
Nur Zalin Zailan, Mohammad Afif Ayob, Amirul Syafiq Sadun, Hazwaj Mhd Poad, Rosley Sawarno and Nurasyeera Rohaziat	
Dynamic Characteristics Study on a 3-Storey Building Model through Finite Element Analysis	147
Muhammad Mirza Azraei Abdul Zakir, Muhamad Azhan Anuar and Wan Sulaiman Wan Mohamad	
Model-based Control of a Gravimetric Dosing Conveyor for Alternative Fuels in the Cement Industry	153
Hareesh Konanki, Alexander Elbel, Benedikt Schmidt, Sairam Nandyala, Alfons Noe and Dominik Aufderheide	
Design and Development of a Novel Portable Optical System with a Shallow Neural Network to Characterise Liquid Turbidity	159
Jia Yi Goh and Weng Kin Lai	
Machine Learning Semi-Supervised Algorithms for Gene Selection: A Review	165
Diyar Qader Zeebaree, Adnan Mohsin Abdulzeez, Ramadan T. Hasan, Dathar Abas Hasan and Falah Y. H. Ahmed	
Analysis of Dense Descriptors in 3D Face Recognition	171
Dilovan Asaad Zebari, Dheyaa Ahmed Ibrahim, Gheyath M. Othman, Araz Rajab Abraham and Falah Y. H. Ahmed	
Facial Expression Recognition Using Aggregated Handcrafted Descriptors based Appearance Method	177
Dheyaa Ahmed Ibrahim, Dilovan Asaad Zebari, Diyar Qader Zeebaree and Falah Y. H. Ahmed	
MagRing-SASB: Static Authentication of Magnetism Sensor Using Semi-Biometric Interaction Magnetic Ring	183
A. S. Jouda, Ali Makki Sagheer and Moceheb Lazam Shuwandy	
Effective Deep Features for Image Splicing Detection	189
Ismail Taha Ahmed, Baraa Tareq Hammad and Norziana Jamil	
Internet of Things (IoT) Enhanced Educational Toolkit for Teaching & Learning of Science, Technology, Engineering and Mathematics (STEM)	194
Kaiser Habib, Elson Ee Teng Kai, Mohamad Hanif Md Saad, Aini Hussain, Afida Ayob and Ammar Syafiq Sabaahul Ahmad	
Secured Internet Office Network with the Internet of Things Using Packet Tracer Analysis	200
Azrai Danial Azhari, Norakmar Arbain Sulaiman and Murizah Kassim	
Automated Waterfall Water Level Monitoring for Warning Phenomena	206
Cik Ku Haroswati Che Ku Yahaya, Muhammad Hilal Hidayatullah Rosly, Meor Mohd Azreen Meor Hamzah and Murizah Kassim	
Automation of Facemask Production Process Using CX-Programmer and CX-Designer	212
Gibson Panyau Anak Jackson Rodi and Rosidah Sam	
Explainable Artificial Intelligence in Oriental Food Recognition using Convolutional Neural Network	218
Chee Hong Lim, Kam Meng Goh and Li Li Lim	
Joystick Controlled Passive Compliance Stewart-Gough Platform	224
Rahul Ramachndran Nair, Manickam Ramasamy, Elango Natrajan, Shahid Manzorr, Lim Wei Hong and Chun Kit Ang	

A Comparison Between External and Internal Cluster Validity Indices	229
Khairul Nurmazianna Ismail, Ali Seman and Khyrina Airin Fariza Abu Samah	
Immersive Virtual Reality in Preserving Historical Tourism	234
Khyrina Airin Fariza Abu Samah, Mohd Nor Hajar Hasrol Jono, Al-Afiq Che Mohamad Zulkepli, Noor Afni Deraman, Shahadan Saad, Alya Geogiana Buja and Lala Septem Riza	
Deep Reinforcement Learning Online Offloading for SWIPT Multiple Access Edge Computing Network	240
Teckchai Tiong, Ismail Saad, Kenneth Tze Kin Teo and Herwansyah Lago	
A Simple Multivariate Time Series Analysis Examining the Effect of Technological Advancement, Gross Fixed Capital Formation and Renewable Energy on Malaysia's Decarbonization	246
Siti Ayu Jalil, S. Sarifah Radiah Shariff, Abdul Khabir Rahmat, Siti Aimi Sarah Zainal Abidin and Nina Naquiah Ahmad Nizar	
NARX Neural Network Modeling of Batch Distillation Process	252
Adi Novitarini Putri, Carmadi Machbub and Egi Muhammad Idris Hidayat	
VaccineLand: Understanding Vaccine Through the Implementation of the SECI Model and Game-Based Learning	258
Nur Farahin Mohd Johari, Zuhri Arafah Zulkifli, Faiqah Hafidzah Halim, Nor Aimuni Md Rashid, Khairul Nurmaziana Ismail and Mohamad Nornazmi Mohd Nor	
Application of Artificial Intelligence in Adaptive Face Recognition System	263
Rhose Anne C. Garcia, Raymond Paolo Lacayanga and Febus Reidj G. Cruz	
Palmprint ROI Cropping Based on Enhanced Correlation Coefficient Maximisation Algorithm	269
Noor Aldeen A. Khalid, Muhammad Imran Ahmad, Thulfiqar H. Mandeel, Mohd Nazrin Md Isa, Raja Abdullah Raja Ahmad and Mustafa Zuhaer Nayef Al-Dabagh	
Development of a Non-contact Cough Recognition System with Face Mask Detection and Distance Assistance using Convolutional Neural Networks	275
Jhimver Lemuel B. Garcia, Darwyn James C. Goling and Jennifer C. Dela Cruz	
Evaluation of a Child Immunization Schedule Application using the Software Usability Measurement Inventor (SUMI) Model	281
Hazrati Zaini, Norshahidatul Hasana Ishak, Nur Farahin Mohd Johari, Nor Aimuni Md Rashid and Hamizan Hamzah	
Twitter Sentiment Analysis using Machine Learning Algorithms for COVID-19 Outbreak in New Zealand	286
Oras Baker, Jay Liu, Mayur Gosai and Suyog Sitoula	
Pavement Crack Treatment: Feasibility Study on using Plastic Waste as Sealant	292
Siti Zaharah Ishak, Nuraleeya M. Ilobshebru, Noor Azreena Kamaluddin, Juraidah Ahmad, Akhmad Hasanuddin and Raha Abd Rahman	
Design of an Arduino-Powered Sleep Monitoring System Based on Electrooculography (EOG) with Temperature Control Applications	297
Charmaine C. Paglinawan, Genesis M. Cruz and Kyle Reifel M. Del Villar	
Encrypted Steganography Quick Response Scheme for Unified Hotel Access Control System	303
Soon-Nyeon Cheong, Huo-Chong Ling and Pei-Lee Teh	
Smart Air Filtration System Using IoT and Kalman Filter Algorithm for Indoor Air Quality and Plant Monitoring	309
Micah Gabriel A. Mapili, Kathleen Anne D. Rodriguez and Julius T. Sese	

Performance Analysis of Adaptive Unsharp Masking Filter Techniques for Image Contrast Enhancement	315
Suit Mun Ng, Haniza Yazid, Nazahah Mustafa and Saufiah Abdul Rahim	
Machine Learning Sleep Phase Monitoring using ECG and EMG	320
Leila G. Ablao, Jennifer C. Dela Cruz, Zmantha Ysabel B. Tupaz and Jonathan Ibera	
Assessing the Effectiveness of Using Cashless System for Public Transport Bus Service in Sub-Urban City	326
Tarudin N. F., Sazalie N. N., Adlan M. A. A. and Abd Rashid M. F.	
Physical Distancing Violation Detector Using Arduino – Based Grid – EYE Sensors in Rail Transit Stations	331
Adrian Dale M. Gomez, Yannah Nicole A. San Juan and Julius T. Sese	
The New Hybrid Multilevel Inverter with Reduced Number of Switches	337
Law Kah Haw, Nur Atiqah Jefry and Wong Kiing Ing	
Application of Terrestrial Laser Scanner for Three Dimensional (3D) As-Built Indoor Civil Engineering Department UPNM Laboratory	342
Faris Murshidi, Wan Mohamed Syafuan, Abdul Aziz Ab Rahman, Neza Ismail, Rospi Mat Husin and Saiful Aman Hj Sulaiman	
Epilepsy Seizure Detection and Classification Analysis using Residual Neural Network	347
Raja Muhammad Hafiz Raja Khairul Annuar, Shahrani Shabbudin, Murizah Kassim and Farah Yasmin Abdul Rahman	
Fuzzy C-Means Clustering and New-Structure Particle Swarm Optimization for Modelling of Relative Dead-space and Carbon Dioxide Production	352
Siti Hazurah Indera Putera, Norbaiti Sidik and Murizah Kassim	
Quantifying Performance in Robotic Surgery Training Using Muscle-Based Activity Metrics	358
Valeriya Gritsenko, Trevor Moon, Brian A. Boone and Sergiy Yakovenko	
Feature Fusion with Deep Neural Network in Kernelized Correlation Filters Tracker	363
Devira Anggi Maharani, Carmadi Machbub, Pranoto Hidayat Rusmin and Lenni Yulianti	
Author’s Index	368