2022 IEEE International Conference on Artificial Intelligence in Engineering and Technology (IICAIET 2022)

Kota Kinabalu, Malaysia 13 – 15 September 2022



IEEE Catalog Number: CFP22Q84-POD ISBN:

978-1-6654-6838-1

Copyright © 2022 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:
 CFP22Q84-POD

 ISBN (Print-On-Demand):
 978-1-6654-6838-1

 ISBN (Online):
 978-1-6654-6837-4

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
IICAIET 2022 Organizing Committee	iii
Program Committee	iv
Table of Contents	viii
Prediction of Maximum Temperatures by Time Series and Artificial Neural Networks (Case Study: Isfahan Station) Mohammad Heydari, Hamed Benisi Ghadim and Mohammad Salarian	1
Comparing Machine Learning Models for Heart Disease Prediction Stephanie Chua, Valerine Sia and Puteri Nor Ellyza Nohuddin	7
Identification of COVID-19 from Chest CT Scan using CNN as Feature Extractor and Voting Classifier Ferdib-Al-Islam and Pintu Chandra Shill	12
GPU Accelerated Metaheuristics for Integrated Production Lot Sizing and Scheduling Problems Attilio Sbrana, Deisemara Ferreira and Renato Fernandes Cantão	18
A Comparative Study of Chatbot Catered Towards Mental Health Pranto Dev, Sameeha Haque, Asmita Noor, Abir Alam Srabon, Mashruk Mohammed Wasik, Sumaiya Mim, Shadman Bin Sharife, Fariha Rahman, Syeda Rifa Syara, Shadab Iqbal, Md Humaion Kabir Mehedi and Annajiat Alim Rasel	24
Bengali Speech Recognition: An Overview Mashuk Arefin Pranjol, Farhin Rahman, Ehsanur Rahman Rhythm, Rajvir Ahmed Shuvo, Tanjib Ahmed, Bushra Yesmeen Anika, Md. Abdullah Al Masum Anas, Jahidul Hasan, Saiadul Arfain, Shadab Iqbal, Md Humaion Kabir Mehedi and Annajiat Alim Rasel	30
Rice Leaf Disease Detection with Transfer Learning Approach A.K.M. Salman Hosain, Md Humaion Kabir Mehedi, Tamanna Jahan Jerin, Md. Manik Hossain, Sanowar Hossain Raja, Humayra Ferdoushi, Shadab Iqbal and Annajiat Alim Rasel	36
Bangladeshi Paper Currency Recognition Using Lightweight CNN Architectures Tazwar Mohammed Shoumik, Sartaj Jamal Chowdhury, Tanzim Mostafa, Adib Muhammad Amit, Shah Abul Hasnat Chowdhury, Oyshik Ahmed Aadi, Sifatul Amin, Md Humaion Kabir Mehedi, Shadab Iqbal and Annajiat Alim Rasel	42
Four Wheeled Mobile Robots: A Review Jovina Seau Ling Leong, Hou Pin Yoong and Kenneth Tze Kin Teo	48
A Review of SCARA Robot Control System See Han Tay, Hou Pin Yoong and Wai Heng Choong	54
Snail Recognition using YOLO Juan Ricardo Borreta, Justin Bautista and Analyn Yumang	60
Stock Market Price Prediction: Text Analytics of the GameStop Short Squeeze Ng Wei Xiang and Mohammad Dabbagh	66
Performance Evaluation of HMI based on AHP and GRT for GUI Jian Bang Liu, Mei Choo Ang, Jun Kit Chaw and Kok Weng Ng	72

Wasserstein Generative Adversarial Networks with Meta Learning for Fault Diagnosis of Few-shot Bearing Ouyang Chengda and Noramalina Abdullah	77
Energy Saving and Safety Street Lighting System Yii Sze Hang, Nurfauza Jali, Lau Sei Ping, Cheah Wai Shiang, Suriati Khartini Jali and Lim Phei Chin	83
Rice (Oryza Sativa) Grading Classification using Hybrid Model Deep Convolutional Neural Networks – Support Vector Machine Classifier Kevin Marc Bejerano, Carlos Hortinela IV and Jessie Jaye Balbin	89
Classification of Lanzones Tree Leaf Diseases using Image Processing Technology and a Convolutional Neural Network (CNN) Adzmer Muhali and Noel Linsangan	95
Performance Evaluation of Machine Learning Algorithms for Intrusion Detection in IoT Applications	101
Yee Jien Ng, Mohammad Tahir, Mohammad Dabbagh, Kian Meng Yap and Ali Farooq	
Application Water Level Prediction through Seasonal Autoregressive Integrated Moving Average: Red Hills Reservoir Case Study Abdus Samad Azad, Rajalingam Sokkalingam, Hanita Daud and Sajal Kumar Adhikary	107
Classification of Contaminants in Glass Recycling Using Hybrid CNN-SVM Model Juliana Ho Qiu Ann, Novita Sakundarini and Lim Chin Seong	113
Simulation of Smart Traffic Light by using Image Processing and Reinforcement Learning Chin Chun Keat and Sharifah Sakinah Syed Ahmad	119
Discrete Wavelet Transform based EEG Feature Extraction and Classification for Mental Stress using Machine Learning Classifiers Kah Kit Ng, Hafeez Ullah Amin and Ahmad Rauf Subhani	125
Optical Character Recognition of Baybayin Writing System using YOLOv3 Algorithm Angel Mikaela Ligsay, John Rivera and Jocelyn Villaverde	130
Intelligent Modular Camera Rig for Classroom Lecture Video Recording System with Automatic Lighting Adjustment Rolland Christopher Gamez, Gio Tolores and Jesus Martinez	135
Hand-foot-mouth Disease Classification using Features from Fibre Grating Biosensor Spectral Data	141
Atif Mahmood, Saaidal Razalli Azzuhri, Adnan N. Qureshi, Palwasha Jaan and Iqra Sadia	
Medicinal Plant Classification using Convolutional Neural Network and Transfer Learning Daryl Valdez, Chris Jordan Aliac and Larmie Feliscuzo	147
An Investigation of Automating Fungus Inspection Process of Aircraft Fuel Tank via Image Processing	153
Sin Yee Beh, Veronica Jauw, Chin Seong Lim and Leong Liew Chee	
Real Time Bangla License Plate Recognition with Deep Learning Techniques Mahmudol Tusar, Md. Bhuiyan, Md. Hossain, Anika Tabassum and Riasat Khan	158
A Small Scale COVID-19 Diagnosis Program: A Philippine Perspective Renann Baldovino and Justin Bernard Carlos	164

A Microcontroller-based and Cost-efficient Computer Numerical Control (CNC) Soldering Station	170
Bryan Christopher Wong, Mario Laureta, Olwyn Barcoma, Angelino Pimentel and Renann Baldovino	
GAN-based Privacy-Conscious Data Augmentation with Finger Vein Images Yusuke Matsuda, Tomo Miyazaki and Shinichiro Omachi	175
Blended QR Code for Digital Advertising Wan-Er Ho, Lee-Yeng Ong and Meng-Chew Leow	179
Improved VGG Architecture in CNNs for Image Classification Nurzarinah Zakaria and Yana Mazwin Mohmad Hassim	185
Computer-assisted Table Tennis Posture Analysis using Machine Learning Mel Jay Llanos, Jecee Ryn Obrero, Lhora Mae Alvarez, Chun-Hung Yang and Chris Jordan Aliac	189
A Spoof Detecting Fingerprint Reader Based on a Combination of Total Internal Reflection and Direct Image Capture	195
Noel Linsangan, Bob Laurence Caridad, Ar Jay De Vera and Roben Juanatas	
Comparison of Dark Channel Prior and Contrast Limited Histogram Equalization for the Enhancement of Underwater Fish Image Mohd Hanafi Ahmad Hijazi and Jing Mei Leong	201
A Comparative Analysis of Lumpy Skin Disease Prediction through Machine Learning Approaches Dibyo Fabian Dofadar, Hasnat Md. Abdullah, Riyo Hayat Khan, Rafeed Rahman and Md. Sabbir Ahmed	206
Hand Gesture Recognition for Filipino Sign Language under Different Backgrounds Mark Christian Ang, Karl Richmond Taguibao and Cyrel Manlises	210
IoT-Based Smart Agriculture Monitoring System Riasat Khan, Md Musfiq Us Saleheen, Md Shariful Islam, Rabbul Fahad and Md Jayed Bin Belal	216
Health Classification System of Romaine Lettuce Plants in Hydroponic Setup using Convolutional Neural Networks (CNN) Jerome Martin Desiderio, Angelo John Tenorio and Cyrel Manlises	222
Development of a Virtual Vehicle Identification for Tracking Hit-and-run Vehicle Khoo Boon Sheng, Abdullah Aziz Bin Saad and Mohamad Khairi Bin Ishak	228
K-Zones: A Machine Learning-Based System to Estimate Social Distancing Violations during Pandemic Eras Mohammad Saatialsoruji and Eihab Saatialsoruji	234
Classification of Cacao Pod if Healthy or attack by Pest or Black pod Disease using Deep Learning Algorithm Rey Anthony Godmalin, Chris Jordan Aliac and Larmie Feliscuzo	240
Open Agricultural Burning Detection with Natural Inspired Swarm-based Detection Platform Liew Jia Jun, Kian Meng Yap, Kok Seng Eu and Qiang Ni	245
A Prototype Model of Monitoring Energy Consumption and Optimizing Distribution of Smart Buildings Abdulrahman Shalaby, Manjit Singh Sidhu, Weng Chun Tan, Zhia Wei Low, Jing Yong Chua and Yun Xi Lee	250

A Volume and Assist Controlled Mechanical Emergency Ventilator for Respiratory Support Asher Angelo Buan, Erika Faye Cataina, Glynn Kenneth Marañon, Silverio Magday, Angelino Pimentel and Renann Baldovino	255
Comparisons of DNA Sequence Representation Methods for Deep Learning Modelling Shu En Chia and Nung Kion Lee	261
A GA Optimization Model for the Appliance Category-based Electricity Consumption of Philippine Households Renann Baldovino and Justin Bernard Carlos	267
Smart Wheelchairs: A Review on Control Methods Norheliena Aziz, Zulkifli Mohamed, Nurul Syuhadah Khusaini, Aminuddin Hamid, Ya'Akob Yusof and Mohd Rozaiman Aziz	273
Analysis and Forecasting of Blockchain based Cryptocurrencies and Performance Evaluation of TBATS, NNAR and ARIMA Iqra Sadia, Atif Mahmood, Miss Laiha Binti Mat Kiah and Saaidal Razalli Bin Azzuhri	279
Optimizing Deep Learning Inference to Detect PCB Soldering Defects Mau-Luen Tham, Boon Yoong Chong, Yu Han Tan, Yen Khai Wong, Swee Ling Chean and Wei Kun Tan	285
Extracting Graphological Features for Identifying Personality Traits using Agglomerative Hierarchical Clustering Algorithm Noor Fazilla Abd Yusof, Nur Zareen Zulkarnain, Sharifah Sakinah Syed Ahmad, Zuraini Othman and Azura Hanim Hashim	290
Performance of Content-Based Features to Detect Depression Tendencies in Different Text Lengths Nur Zareen Zulkarnain, Noor Fazilla Abd Yusof, Sharifah Sakinah Syed Ahmad, Zuraini Othman and Azura Hanim Hashim	295
Forest Fire Detection for Edge Devices Khai Xian Teo and Hermawan Nugroho	300
Diagnosis of Acute Respiratory Syndromes from X-Rays using Customised CNN Architecture Palaniappan S, Varshaa Sai Sripriya S, Lalitha Pranathi Amalladinna Rama and Muthulakshmi M	304
Fuzzy-based Control System of Unmanned Surface Vehicle (USV) for Floating Garbage Collection Adam Mun Wai Wong, Jia Long Chong, Han Shen Kew, Jian An Ong, Hermawan Nugroho and Muhammad Ilhamdi Rusydi	309
Conceptualizing A Battery Swapping Station: A Case Study in Malaysia Elvin E.S. Cheah, Christina Chin May May, Novita Sakundarini and Akhil Garg	314
Concurrent Architecture of High Speed Viterbi Decoder using Xilinx HLS Tool Jyoti Zunzunwala and Atul Joshi	319
Third Eye Hand Glove Object Detection for Visually Impaired using You Only Look Once (YOLO)v4-tiny Algorithm Angelika Ice Labininay, Jeloux P. Docto and Jocelyn Villaverde	325
Determination of Tomato Fruit Stages Using Principal Component Analysis and Fuzzy Logic Algorithm Cochise Alfonso Dela Cruz, Erson Macatangay and Jocelyn Villaverde	331
Pick-by-vision of Augmented Reality in Warehouse Picking Process Optimization – A Review Shaliza Jumahat Manjit Singh Sidhu and Sharulhizam Mohamad Shah	337

Online Courier Management System with Text Blast and QR Code Technology Alfio Regla and Bryan Dadiz	343
A Low-Cost Prototyping Approach for Autonomous Unmanned Ground Vehicle for Real-Time Surveillance	349
Vishnu S, Anil Kumar M, Manjesha G M, Zaheer Pasha and Madhu S	
Chicken Meat Freshness Classification Based on VGG16 Architecture Mary Bettina P. Garcia, Eugene A. Labuac and Carlos C. Hortinela IV	355
Toxic Voice Classification Implementing CNN-LSTM & Employing Supervised Machine Learning Algorithms Through Explainable AI-SHAP Mahmudul Hasan Shakil and Md. Golam Rabiul Alam	361
A PI Controller-based Water Supplying and Priority Based SCADA System for Industrial Automation using PLC-HMI Scheme Ahsan Kabir Nuhel, Mir Mohibullah Sazid, Kaushik Ahmed, Md. Nafim Mahmud Bhuiyan and Md Yeasib Bin Hassan	367
Improving Dynamic Hand Gesture Recognition based IR-UWB using Offline Data Augmentation and Deep Learning Djazila Korti and Zohra Slimane	373
A Real-Time Web-Based Monitoring System for Stingless Bee Farming Bill Acherllys Jailis, Aroland Kiring, Hoe Tung Yew, Liawas Barukang, Yan Yan Farm and Farrah Wong	379
Voice Recognition System for User Authentication using Gaussian Mixture Model Novario Perdana, Dyah Herwindiati and Nor Sarmin	384
Real-time Detection of Aquarium Fish Species using YOLOv4-tiny on Raspberry Pi 4 Cyril Jay Chan, Ethan James Reyes, Noel Linsangan and Roben Juanatas	389
Image Quality Assessment for Wood Images Heshalini Rajagopal, Norrima Mokhtar and Anis Salwa Mohd Khairuddin	395
Classification of Defects in Robusta Green Coffee Beans using YOLO Vince Amiel Luis, Marc Vincent Quiñones and Analyn Yumang	400
A Chinese Business License Text Detection Algorithm based on Multi-Scale Features Xingxing Sun, Mohan Wu, Boquan Cheng, Aidong Yang, Xiaozhou Ye and Ye Ouyang	406
Detection of Forged Handwriting through Analyzation of Handwritten Characters using Support Vector Machine Ma. Crisanta Jasmin, Mark Jayson Dela Cruz and Analyn Yumang	412
Non-destructive Determination of Sweetness of Philippine Fruits using NIR Technology Alvin Borras, Ronald Andrew Ganotisi, Noel Linsangan and Roben Juanatas	417
Ad-Gency: Hospital Patients' Admission Management Information System and Analytics Development on Health Emergency Situation Alyssa Bautista, Ailah Carelle Bunag, Mariz Menorca and Alfio Regla	423
A Real-Time Approach to Classify the Water Quality of the River Ganga at Mehandi Ghat, Kannuaj Abhishek Bajpai, Srishti Chaubey, Bdk Patro and Abhineet Verma	429
Detection and Identification of Intestinal Parasites on Dogs using AlexNet CNN Architecture Khaye Fajardo, Jerald Gonzales and Carlos Hortinela IV	435

Bacterial Leaf Blight Identification of Rice Fields using Tiny YOLOv3 Jeruel Krystian Tulfo, Mc Henry Tan, Analyn Yumang and Jocelyn Villaverde	441
Investigating Vision based Sorting of used Items Praneel Chand	446
A Hybrid TDNN-HMM Automatic Speech Recognizer for Filipino Children's Speech John Andrew Ing, Ronald Pascual and Francis Dimzon	451
EZM-AI: A Yolov5 Machine Vision Inference Approach of the Philippine Corn Leaf Diseases Detection System Yolanda C. Austria, Maria Concepcion A. Mirabueno, Dylan Josh D. Lopez, Dexter James L. Cuaresma, Jonel R. Macalisang and Cherry D. Casuat	457
Depression Detection on Social Media with User Network and Engagement Features using Machine Learning Methods Aik Seng Liaw and Hui Na Chua	463
Ripeness Classification of Cacao using Cepstral-based statistical features and Support Vector Machine	469
Juvy Amor Galindo, Jamie Eduardo Rosal and Jocelyn Villaverde	
Comparing Zero-Shot Text Classification and Rule-based Matching in Identifying Cyberbullying Behaviors on Social Media Wei Jiek Chong, Hui Na Chua and May Fen Gan	474
Development of Smart Elderly Care Mobile Application for Health Management System Zuraini Dahari, Choong Chee Jun, Poh Jin Ze, Nurul Najwa Mohd Zakir, Mohd Noor Faidhi Mohd Fauzi, Muhammad Hafiz Syazwan Mohamad Azam and Nurhaniza Hamiri	479
A Feature-based Stochastic Morphological Analyzer for Filipino Affixed Words Great Allan Ong and Melvin Ballera	485
Dense-par-AttNet: An Attention Based Deep Learning Model for Skin Lesion Classification by Transfer Learning Approach Mohammad Rakin Uddin and Talha Ibn Mahmud	491
A Hybrid Xception-Ensemble Model for the Detection of Computer Generated Images Sychandran C S and Shreelekshmi R	496
Modelling and Simulation of Bioretention System with HYDRUS-1D Jason Lowell Jitolis, Farrell Nereus Aegidius and Nurmin Bolong	502
Efficient Spectrum Allocation in Cognitive Radio using Yellow Saddle Goatfish Algorithm Debashree Brahma, Swati Swayamsiddha and Ganapati Panda	506
Performance Evaluation of V2V Propagation Channels under Different Link Types Azlan Abd Aziz, Azwan Mahmud, Nur Asyiqin Amir Hamzah, Hadhrami Ab Ghani and Nurul Asyiqin Mamat	511
Detection of Sickle Cell Anemia in Blood Smear using YOLOv3 John Paolo De Leon, John Michael Vincent Dayego, Noel Linsangan and Roben Juanatas	517
Vehicle Type Classification and Counting using YOLOv4 Algorithm Ana Lowela Lucas, Samuel Ii Imperial and Meo Vincent Caya	523
Text Classification of Medical Transcriptions using N-Gram Machine Learning Approach Kah Win Lee and Keng Hoon Gan	529

An Empirical Model of Classifying Lung Affected Diseases to Detect COVID-19 using Chest X-ray Employing Convolutional Neural Architecture Ovi Sarkar, Md. Robiul Islam, Tahmim Hossain, Md Khalid Syfullah, Md. Tohidul Islam and Md Moniruzzaman	535
Real-Time Trajectory Tracking Control of an Electro-Hydraulic System Using a Fuzzy Logic Sliding Mode Controller Muhamad Fadli Ghani, Rozaimi Ghazali, Hazriq Izzuan Jaafar and Chong Chee Soon	541
Energy Efficient Scheduling in Smart Home using Deep Reinforcement Learning Fauzun Abdullah Asuhaimi, Muhammad Akram Roslann and Khairul Nabilah Zainul Ariffin	547
Detection of Social Media Hashtag Hijacking Using Dictionary-based and Machine Learning Methods Wei Ling Cheah and Hui Na Chua	553
A New Face Image Manipulation Reveal Scheme based on Face Detection and Image Watermarking Zahraa Aqeel Salih, Rasha Thabit, Khamis A. Zidan and Bee Ee Khoo	559
Fall and Normal Activity Classification via Multiple Wearable Sensors Rabia Khalid, Sharjeel Anjum and Chansik Park	565
Harmonic Minimization in Multilevel Inverter using PSO-based Soft-computing Technique Yee Wei Sea, Wei Tik Chew, Siok Lan Ong, Wui Ven Yong and Jenn Hwai Leong	571
GA-Optimized Switching Angles for 13-level Asymmetrical Multilevel Inverter Wei Tik Chew, Yee Wei Sea, Siok Lan Ong, Wui Ven Yong and Jenn Hwai Leong	576
A Comparative Study of COVID-19 CT Image Synthesis using GAN and CycleGAN Kin Wai Lee and Renee Ka Yin Chin	582
Highway Surveillance System using Deep Learning Artificial Neural Networks Chuan-Hsian Pu and Chun-Shen Sea	588
Artificial Intelligence-based Safety Helmet Recognition on Embedded Devices to Enhance Safety Monitoring Process Sharjeel Anjum, Syed Farhan Alam Zaidi, Rabia Khalid and Chansik Park	594
Visual Odometry Based Vehicle Lane-changing Detection Dayang Nur Salmi Dharmiza Awang Salleh, Emmanuel Seignez and Kuryati Kipli	598
Efficient Distributed Consensus Algorithm for Swarm Robotic Sathishkumar Ranganathan, Muralindran Mariappan and Karthigayan Muthukaruppan	604
Factors Promoting Digital Transaction through Adoption of NFC Technology Chinnasamy Agamudainambhi Malarvizhi, Rajee Supramani and Sreenivasan Jayashree	610
Environment-Based Oil Palm Yield Prediction using K-Nearest Neighbour Regression Nuzhat Khan, Mohamad Anuar Kamaruddin, Muhammad Paend Bakht, Usman Ullah Sheikh and Yusri Yusup	616
Automated Retinal Blood Vessel Feature Extraction in Digital Fundus Images Nasiruddin Zaman Huri, W Mimi Diyana W Zaki, Assyareefah Hudaibah Saad and Nur Asyiqin Amir Hamzah	622
Sleep-Wake Scheduling Scheme for Small Cell Base Stations: A Review Charis Shwu Chen Kwan, Yeh Ching Low and Kok-Lim Alvin Yau	627

A Hybrid Biosignal Compression Model for Healthcare Sensor Networks Dheepa T., Sekar K., Satish Kumar Satti and Raja Reddy Gnv	633
Pre-trained Deep Learning Models for COVID19 Classification: CNNs vs. Vision Transformer Maisarah Mohd Sufian, Ervin Moung, Jamal Dargham, Farashazillah Yahya and Sigeru Omatu	638
A Comparison of RGB and RGNIR Color Spaces for Plastic Waste Detection using the YOLOv5 Architecture Owen Tamin, Ervin Moung, Jamal Dargham, Farashazillah Yahya, Sigeru Omatu and Lorita Angeline	644
River Water Level Prediction for Flood Risk Assessment using NARX Neural Network Mazlina Mamat, Zizi Zulaikha Zulkifli and Hoe Tung Yew	650
Evaluation of an Electronic Sensor-Based Agility Test System for Badminton Players' Development Jeckta Emmi Marrylin Yalin, Hazlihan Haris, Megat Muhammad Ikhsan Megat Hasnan and Ismail Saad	656
Internet-of-Things for Smart Dryers: Enablers, State of the arts, Challenges, and Solutions Mohd Khairulanwar Rizalman, Ervin Moung, Jamal Ahmad Dargham, Zuhair Jamain, Nurul'Azah Mohd Yaakub and Sigeru Omatu	662
Improved Performance in Distributed Estimation by Convex Combination of DNSAF and DNLMS Algorithms Ahmad Pouradabi, Amir Rastegarnia, Azam Khalili and Ali Farzamnia	668
Journaling System with Embedded Machine Learning Text Depression Detection Alert Lai Po Hung and Esther Mary Tadius	674
Design and Analysis of Solar Powered Portable Refrigerator Unit Yuslinda Wati Mohamad Yusof, Murizah Kassim and Wan Amir Azrin Wan Shuhaimi	680
UAV Path Planning using Rotated TOR in Structured Environment Shaliza Hayati A. Wahab, Azali Saudi, Nordin Saad and Ali Chekima	686
Factors Affecting Customer Loyalty on Starbucks Malaysia using Binary Logistics and Probit Model Ng Tze Ling, Mohd Saifullah Rusiman, Suparman Suparman, Firdaus Mohamad Hamzah and Nur Ain Ebas	692
A Safe Overtaking Control Scheme for Autonomous Vehicles using Rapid-Exploration Random Tree Yincong Ma, Kit Guan Lim, Min Keng Tan, Helen Sin Ee Chuo, Lorita Angeline and Kenneth Tze Kin Teo	697
Energy-Efficient Ant Colony based LEACH Routing Algorithm in Wireless Sensor Network Muhammad Zahir Abd Latif, Kit Guan Lim, Min Keng Tan, Helen Sin Ee Chuo, Tienlei Wang and Kenneth Tze Kin Teo	703
Efficient Transmission based on Genetic Evolutionary Algorithm Jin Fan, Kit Guan Lim, Min Keng Tan, Helen Sin Ee Chuo, Ali Farzamnia and Kenneth Tze Kin Teo	709
Optimizing High-Density Aquaculture Rotifer Detection using Deep Learning Algorithm Alixson Polumpung, Kit Guan Lim, Min Keng Tan, Sitti Raehanah Muhamad Shaleh, Renee Ka Yin Chin and Kenneth Tze Kin Teo	715

Adapting Perturbation Voltage for Variable Speed Micro-Hydro using Particle Swarm Optimization (PSO) Kit Guan Lim, Mohd Izzat Fikri Md Zainal, Min Keng Tan, Ahmad Razani Haron, Chang Yii Chai	721
and Kenneth Tze Kin Teo	
On-Demand Priority Traffic Optimizer with Fuzzy Logic Microcontroller Helen Sin Ee Chuo, Yee En Seah, Min Keng Tan, Kit Guan Lim, Chung Fan Liau and Kenneth Tze Kin Teo	727
Maximizing Power Generation in Variable Speed Micro-Hydro with Power Point Tracking Min Keng Tan, Norafe Maximo Javinez, Kit Guan Lim, Ahmad Razani Haron, Pungut Ibrahim and Kenneth Tze Kin Teo	733
Computing Non-Contactable Drowsiness Monitoring System with Mobile Machine Vision Alixson Polumpung, Lorita Angeline, Helen Sin Ee Chuo, Min Keng Tan, Kit Guan Lim and Kenneth Tze Kin Teo	739
Traffic Signal Optimization using Cultural Algorithm <i>Min Keng Tan, Hon Yang Vun, Helen Sin Ee Chuo, Kit Guan Lim, Soo Siang Yang and Kenneth Tze Kin Teo</i>	745
Speech-based Number Recognition using KNN and SVM Rosalyn R Porle and Suzanih Embok	751
Local Traffic Network Formulation and Signalisation via Benchmark Webster Model Helen Sin Ee Chuo, Min Keng Tan, Kit Guan Lim, Lorita Angeline, Tienlei Wang and Kenneth Tze Kin Teo	756
Author Index	762