

5th International Conference on Advanced Technology and Applied Sciences 2020 in conjunction with the 6th Malaysia-Japan Joint International Conference 2020 (ICATAS-MJJIC 2020)

IOP Conference Series: Materials Science and Engineering
Volume 1051

Online
7-9 October 2020

Editors:

**Fazrena Nadia Md Akhir
Norhuda Abdul Manaf
Fatimah Azizah Riyadi**

**Shazwana Sha'arani
Haslina Hussin
Muhammad Afiq Daniel Azmi**

ISBN: 978-1-7138-4567-6
ISSN: 1757-8981

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence.
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

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
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Preface	
Peer review declaration	
Real-Time Cow Detection and Identification Using Enhanced Particle Filter	1
<i>R W Bello, A Z Talib, A S A Mohamed</i>	
Development of a Single Camera Machine Vision System for Automatic 3D Size Detection	8
<i>Y. H. Tay, U. Khairuddin</i>	
Competitive and Co-Operative Analysis of Genetic-Programming	15
<i>Danish Hamid, Hammad Majeed, Zulhasni Abdul Rahim, Muhammad Saqib Iqbal</i>	
Visual-Based Motorcycle Detection using You Only Look Once (YOLO) Deep Network.....	26
<i>Fadhlwan Hafizhelmi Kamaru Zaman, Syahrul Afzal Che Abdullah, Noorfadzli Abdul Razak, Juliana Johari, Idnin Pasya, Khairil Anwar Abu Kassim</i>	
A Predictive Analytics Model for Students Grade Prediction by Supervised Machine Learning	37
<i>Siti Dianah Abdul Bujang, Ali Selamat, Ondrej Krejcar</i>	
Investigation on the Effect of the Feature Extraction Backbone for Small Object Segmentation using Fully Convolutional Neural Network in Traffic Signs Application.....	45
<i>H M Elhawary, M I Shapiaib, A Elfakharany</i>	
A Novel Aided Diagnosis Schema for COVID 19 Using Convolution Neural Network	54
<i>Mohammed Salih Mahdi, Yaser M. Abid, Alaa Hamza Omran, GH Abdul-Majeed</i>	
AIOT-Arch: Furthering Artificial Intelligence in Big Data IoT Applications.....	62
<i>Sandra Said, Rowan Ihab, Ossama Hesham, Islam Abou Tabl, Nu Maged, Sherin Youssef, Mazen Elagamy</i>	
A Systematic Review on Internet of Things in Language Practice	73
<i>S N Kew, T W Koh, Z Tasir, N F Jumaat, N D Abd Halim</i>	
A Conceptual Framework on Technology Integration in English Writing Flipped Classroom.....	81
<i>K. Sharom, S.N. Kew</i>	
A mobile based communication solution for monitoring remote agricultural locations.....	89
<i>O Elshamy, I Fayed, A Khalifa, A Abdeen, N Zaher</i>	
Critical Thinking Analysis Using Functional Near-Infrared Spectroscopy (fNIRS).....	100
<i>N Syazwani Dollah, M.A M Kamal</i>	
Stress Analysis Among University Students Using Psychometric Scale and Heart Rate Variability Approach	108
<i>A H M Sufian, M A M Kamal</i>	
Structure Base Virtual Screening for Identifying Inflammatory Inhibitors	116
<i>Fatahiya Mohamed Tap, Nurul Bahiyah Ahmad Khairudin, Iswaibah Mustafa</i>	
Resilience Building among University Students: A Heart Rate Variability Biofeedback Study.....	122
<i>N A Shahirah Sha'ari, M K M Amin</i>	

The effect of pore geometry on the mechanical properties of 3D-printed bone scaffold due to compressive loading	129
<i>M J Jahir-Hussain, N A Maaruf, N E F Esa, N Jusoh</i>	
Automativ assessment of systolic cardiac performance using PEP/LVET index.....	136
<i>A Mohamed Sameh, M A Abbas, M Hazem, M H Abd Elazeem</i>	
Eye tracking outcomes in smoking health warning labels.....	145
<i>N A M Kheder, M.A M Kamal</i>	
Computerized Maintenance Management System in IR4.0 Adaptation - A State of Implementation Review and Perspective.....	153
<i>H Mohd Noor, S A Mazlan, A Amrin</i>	
Towards Developing Test Case Plan for Medical Report Management System (MRMS)	161
<i>Norita, Firdaus, Johanna</i>	
4-Hydroxybenzohydrazide: A Potential Reactivator for Malathion-Inhibited Human Acetylcholinesterase.....	168
<i>R A Mohamed, K K Ong, N Abdul Halim, N A Mohd. Kasim, S A Mohd. Noor, VF Knight, R Muhamad, N S Abdul Latif, H Arif, W MZ Wan Yunus</i>	
Critical Implementation Factors for Cloud-Based Enterprise Resources planning in the Nigerian Maritime Transport and Supply Chain	179
<i>A Kuranga, M Maslin, N Maarop</i>	
Lightweight Hybrid Encryption System with FPGA Design Proposal.....	191
<i>H Mostafaa, S M Eisaa, H H Issaa, N H Shaker</i>	
Optimizing data security by using Integration between double stegging by pixel value difference and advanced encryption standard.....	200
<i>M S Elden, K Shehata, H Badwy, A Medny</i>	
Sustainable Energy in Telecommunications and IT Industries: Principles and Solutions	209
<i>Wessam M. Salama, Moustafa H. Aly</i>	
Optical Based Humidity Sensor by Using Zinc Oxide-PVA In Micro Cavity	219
<i>H M Burhanuddin, S J Tan, F Ahmad</i>	
Cascode Low Noise Amplifier (LNA) with Negative Feedback for Long Term Evolution (LTE).....	226
<i>A B Ibrahim, N H Kahar, C G Che Kob, A R Othman</i>	
Performance Enhancement of Massive MIMO Using Deep Learning-Based Channel Estimation.....	237
<i>H M N Helmy, S El Daysti, H Shatila, M Aboul-Dahab</i>	
Sodium Chloride Concentration Measurement via Optical Fiber Tip Sensor	249
<i>P N S S Ja'afar, N M Razali, S Ambran, F Ahmad</i>	
Dual-band substrate integrate waveguide slot antenna for 5G applications	256
<i>N Hamid, A H Omran</i>	
Compact wide band antenna for millimetric communications	262
<i>Mohamed S. Elsayed, Mohamed F. AboSree, Mohamed H. AbdElazem</i>	
Characterization of Objects based on the Polarization Tensor: Nature versus Artificial Intelligence.....	273
<i>Taufiq Khairi Ahmad Khairuddin, Nurhazirah Mohamad Yunos, Suzarina Ahmed Sukri</i>	

Recent Trends of the In-Pipe Inspection Robotic System from Academia and Industry Perspectives.....	280
<i>M Z A Rashid, F Yakub, S A S Salim, S A Roslan, H N M Shah, A Yeshmukhametov, Y Yamamoto</i>	
Optimal rotor blade control using Grey Wolf Optimizer for small signal stability of SCIG Wind Turbine	287
<i>A H Sule, A S Mokhtar, J J Bin Jamian, Z A Arfeen</i>	
The Application of TRIZ in The Development of Readiness Assessment Model for The Malaysian Industry4WRD Program.....	296
<i>A R Zulhasni, M Y Muhamad Roslan, W M A Wan Md Syukri</i>	
A Review of Risks for Bim Adoption in Malaysia Construction Industries: Multi Case Study.....	304
<i>B Q A Ahlam, Z Abdul Rahim</i>	
State of The Art on Development of Superhydrophobic Coatings for Corrosion in Marine Applications.....	310
<i>Y S Wy, N Johari, S A Mazlan</i>	
Whirling frequencies of rotor systems using ANSYS APDL.....	317
<i>N H Mohd Azman, Z Yusof, Z A Rasid, M Z Hassan, H Yahaya, F Yakub</i>	
Post-buckling of bamboo reinforced composite plates.....	325
<i>F A Mat Kasim, S A H Roslan, Z A Rasid, F Yakub, M Z Hassan, H Yahaya</i>	
Progressive failure analysis of laminated composite plates.....	333
<i>S S N Mohd Sabee, N Yusof, Z A Rasid, H Yahaya, F Yakub, M Z Hassan</i>	
Enhancing the efficiency of electric vehicle's motor using electro-mechanical continuously variable transmission.....	340
<i>W A S W Shakizar, I I Mazali, Z H C Daud, M S C Kob, A S Paimon, Z Asus, A M Doumin, M. H. A. Talib</i>	
Experimental and Numerical Investigation of Vibration Power Flow of Thin Plate Using Cross Power Spectral Density Based Technique.....	346
<i>O K Nyein, B A Aminudin, S Asnizah</i>	
Accelerated Non-Coaxial Rotating Flow of MHD Viscous Fluid with Heat and Mass Transfer.....	354
<i>W N N Noranuar, A Qushairi Mohamad, S Shafie, I Khan</i>	
Soil Erosion Morphology of An Embankment Failure.....	363
<i>Z Mohamed Yusof, A K Abd. Wahab, Z Ismail, S Amerudin</i>	
GIS-Based Crisis Response System for Electric Distribution Utility: A Case Study Of Covid-19 Pandemic In Malaysia	371
<i>N M F N M Kamil, K A Razak, F Mat Yatim, A H Hidzir</i>	
Prevention of Soil Erosion Using Microalgae in Malaysia	379
<i>T Kuwabara, K Iwamoto, H Hara, T Yamaguchi, S E Mohamad, N Abdullah, J Md Khudzari, F S Othman</i>	
Debris Flow Numerical Simulation Model Comparison with Field Events in Kuala Kubu Baru and Lentang, Malaysia	386
<i>N Kasim, K Abu Taib, A M A M Maturidi, W N A Wan Azahar, S A Masjuki</i>	
Absorption Cycle Heat Pump Integration for Locally Integrated Energy Sector	394
<i>W N Yong, K J Hong, P Y Liew, T G Walmsley</i>	

Solution for Sand Production Problem in Oil and Gas well	402
<i>S K Subbiah, A Mohamad-Hussein, A Samsuri, M Z Jaafar, Y R Chen, A Pearce, R N Paramanathan, R R Kumar</i>	
The Effect of Flight and Design Parameters of a Turbofan Engine on Global Warming Potential.....	411
<i>A Dinc</i>	
A Review on Data Reconciliation and Gross Error Detection for Process Plant Energy Management	419
<i>A S A Wahab, P Y Liew, N A Manaf</i>	
A Mini Review on Energy System Modelling for Enhancing Energy Efficiency in Malaysia	428
<i>M A F A Aziz, P Y Liew</i>	
Simulation of Palm Kernel Shell Gasification for Small Scale Power Generation Using Aspen Plus Software	436
<i>N A Najwa Annuar, N Kamarulzaman, Z F M Shadzall, I H I Abdullah, P Y Liew, N A Manaf</i>	
Performance Characteristics of Horizontal Axis Tidal Turbine with Tidal Current Interaction.....	444
<i>M A Hannan, Y A Ahmed, N D B Zaid, I Z M Kamal</i>	
Enzyme Immobilization Technology in Biofuel Production: A Review	454
<i>M I Shamsudin, L S Tan, T Tsuji</i>	
Power Coefficient Estimation of Floating Axis Wind Turbine by Lifting Line Theory.....	462
<i>H Senga, H Akimoto, K Fukai</i>	
Surface Physicochemical Modification of Kenaf Adsorbent for Hydrogen Adsorption Study	471
<i>S N Ezaty, B N Zaini, T Tsuji, W Jamalullail Putra Albaraqbah, D Mohd Sahri, N Alias, N S Shafei</i>	
Role of Microalgae in Sustainable Energy and Environment.....	479
<i>I Ahmad, A Yuzir, S E Mohamad, K Iwamoto, N Abdullah</i>	
Towards Zero-Waste Campus: Perception of the Community in UTHM Pagoh Campus on Solid Waste Management System	489
<i>R Ali, C L Lim, N Y Zainun, N M Sunar, N Hamidon, H Harun, N H Hamid, M S Muhamad</i>	
Mix Design of High-Strength Concrete Incorporating Spherical and Crushed CRT Funnel Glass Waste.....	497
<i>N N M Pauzi, A N Sadeghfam, M F M Zain</i>	
Adsorption of Contaminants from Palm Oil Mill Effluent Using Agricultural Biomass Wastes as Adsorbents.....	506
<i>G E Harimisa, N W C Jusoh, L S Tan, N A Ghafar, A Masudi</i>	
Natural Cellulosic Adsorbent for Recovery of Nitrate from Aquaculture Effluent.....	514
<i>M M Chong, L S Tan, N W C Jusoh, M Goto, T Tsuji</i>	
Landfill Leachate Treatment Methods and Its Potential for Ammonia Removal and Recovery - A Review.....	521
<i>H Haslina, J NorRuwaida, M Dewika, M Rashid, Abd Halim Md Ali, M P Khairunnisa, M Afiq Daniel Azmi</i>	
Separation of 17 β -Estradiol Hormone Using Newly Fabricated Nanofiltration Membrane	531
<i>H Mokhtar, D A Tholibon, Z Othman, J A Rahim, N A A Rahman, A Ayob</i>	

Investment decision of monoethanolamine based post combustion CO ₂ capture plant via application of control strategies	538
<i>N Abdul Manaf, A Abbas</i>	
Streamflow Simulation of Progo River by Using SWAT Model	544
<i>P N Wardhana, R Afif</i>	
Particulate Emission Characteristics from Palm Fibre and Shell Combustion with Alumino-Silicate Based Additives.....	552
<i>M Afiq Daniel Azmi, S Zahiruddin, S Shahidana, J NorRuwaida, M Rashid, Abd Halim Md Ali, M Dewika, M R Ammar, H Haslina</i>	
CFD Study on MR-deDuster As a Fine Particle Emission Control.....	560
<i>N Hasyimah, M Rashid, C M Hasrizam, H Norelyza, S Hajar</i>	
Predictive Growth Model of Indigenous Green Microalgae (<i>Scenedesmus</i> sp. UKM9) in Palm Oil Mill Effluent (POME)	567
<i>N Mohd, N H M Yasin, M S Takriff</i>	
A Review of Water Demand Framework for River Basin in Southeast Asia.....	577
<i>Y Fitry, H Norelyza, Z Z Noor, C Hafizan</i>	
Non-Thermal Plasma Conversion of N ₂ , CO ₂ And CH ₄	586
<i>A H M Ali, P A Christensen, J Norruwaida, M P Khirunnisa, Mohd Nor Syahrir Abdullah</i>	
Field study of the Occupant's Thermal Preferences for Cooling in Living Rooms Based on Different Set Point Temperatures.....	594
<i>N I Kamaruddin, S A Zaki, H B Rijal, A Hagishima, W Khalid, N Atikha, F Yakub, F L M Redzuan</i>	
Electrocoagulation Treatment of Sanitary Landfill Leachate in Malaysia	605
<i>M R Taib, B N Mook, M I H M Tahir, M A A Aziz</i>	
A Review On The Comparison Between Slow Pyrolysis And Fast Pyrolysis On The Quality Of Lignocellulosic And Lignin-Based Biochar	613
<i>H Tan, C T Lee, P Y Ong, K Y Wong, C P C Bong, C Li, Y Gao</i>	
Procedures for Verification of Instruments for Thermal Environment Measurement	621
<i>N W Tuck, S A Zaki, F Yakub, F L M Redzuan</i>	
Electrochemical Treatment of Palm Oil Mill Effluent using Graphite as Electrode Materials	629
<i>Rakhmania, M A Yuzir, F F Al-Qaim</i>	
Docking study for assessment of wound healing potential of isosakuratenin isolated from Chromolaena odorata: An In-silico approach.....	637
<i>N A Mokhtar, F M Tap, S Z A Talib, N A Khairudin</i>	
Variation of Green Synthesis Techniques in Fabrication of Zinc Oxide Nanoparticles – A Mini Review.....	646
<i>E D Mohamed Isa, K Shameli, N W Che Jusoh, S N A Mohamad Sukri, N A Ismail</i>	
Enhanced Conductivity of Corn Starch Polymer Film Doped with Sodium Phosphate.....	659
<i>Z Hafiq Aidil, M F Hassan, A Muhamad Firdaus, M P Khairunnisa</i>	
Biomass-Based Porous Adsorbent for Carbon Dioxide Adsorption.....	666
<i>N A Ghafar, G E Harimisa, N W C Jusoh</i>	

The Potential of Roselle as Health Supplement: Extraction, Phytochemicals and Future Perspective	674
<i>H Mohd-Nasir, L P Wong, Z A Abdul Aziz, S H Mohd-Setapar, H Hassan</i>	
Green Synthesis of Zinc Oxide-Based Nanomaterials for Photocatalytic Studies: A Mini Review.....	683
<i>S N A Mohamad Sukri, K Shameli, E D Mohamed Isa, N A Ismail</i>	
Preparation of Copper Nanoparticles by Green Biosynthesis Method: A Short Review.....	693
<i>N A Ismail, K Shameli, N W Che Jusoh, R Rasit Ali, S N A Mohamad Sukri, E D Mohamed Isa</i>	
Malaysian Medicinal Plant and Their Potential as Novel Anti-Arthritic Substances.....	702
<i>Z A Abdul Aziz, S H Mohd Setapar, H M Nasir</i>	
Evaluation of Henry Constant for Gas / Gas Mixture in Pure and Solvent Mixture Using Simple Functional Mixing Rule.....	709
<i>A J X Lai, A N Basha, L S Tan, T Tsuji, T Hoshina, T Funazukuri, R Bharath</i>	
Materials Characterisation and Fracture Mechanism of Recycled Aluminium Alloy AA6061 Reinforced with Alumina Oxide.....	713
<i>M L Issek, M K Mohd Nor, C S Ho, M A Lajis</i>	
Biopolymer-Based Green Synthesis of Zinc Oxide (ZnO) Nanoparticles.....	721
<i>H Hamrayev, K Shameli</i>	
First Principles Study on Electronic and Optical Properties of Single Walled Carbon Nanotube for Photonics Application	731
<i>S N M Halim, M F M Taib, F Ahmad</i>	
Biosynthesis of Gold Nanoparticles: A Simple Method of Size Controlled using Clitoria Ternatea Flower Extract	736
<i>J Z Chan, R Rasit Ali, K Shameli, Z I Tarmizi, M S N Salleh</i>	
Preparation and characterisation of irradiated waste eggshells as oil adsorbent.....	743
<i>N I Hasrin, S A Othman</i>	
Dissolution time and shelf life quality of Ficus deltoidea powder and granule.....	751
<i>A K Khamis, U A Asli, M N H Sarjuni, M A Jalal, H A A Karim, S Sulaiman, O P Ying</i>	
Development of new novel constitutive model for deep reservoir sandstone rock for sand production application	759
<i>S K Subbiah, A Mohamad-Hussein, A Samsuri, M Z Jaafar, Y R Chen, A Pearce, R N Paramanathan</i>	
Modeling of magnetorheological elastomer rheological properties using artificial neural network.....	768
<i>K D Saharuddin, M H Mohammed Ariff, I Bahiuddin, S A Mazlan, S A Abdul Aziz, N Nazmi, A Y A Fatah</i>	
Palm olein solid soap as a matrix for organophosphate decontamination agents	773
<i>N S Abdul Latif, H Ariff, R A Mohamed, N Abdul Halim, S A Mohamad Noor, O K Khim, N A Mohd Kasim, W M Z Wan Yunus</i>	
Preparation and characterization of polysaccharide mediated copper nanoparticle: The effect of time-varying exposure	783
<i>Z I Tarmizi, N I Arifin, R Rasit Ali, K Shameli, J C Zhe, M S N Salleh</i>	
Effect of protective layer deposition in cross-sectional analysis of focused ion beam in germanium substrate.....	790
<i>S R Aid, W R Wan Razali, H Ikenoue, K Yasuda, S Matsumura</i>	

Correlation Between Slump, VeBe and Compaction Factor of Concrete Containing Shredded PET Bottles, Manufactured Sand (M-sand) and River Sand as Fine Aggregate	796
<i>A Nadimalla, S A Masjuki, S A Saad, M Ali, N M Husain, W N A W Azahar, N Kasim</i>	
Sustainability Assessment in The Textile and Apparel Industry: A Review of Recent Studies	803
<i>F T Gbolarumi, K Y Wong, S T Olohungbe</i>	
Eichhornia Crassipes Transformation from Problems to Wide Unique Source of Sustainable Materials in Engineering Application.....	818
<i>A C Opia, A H Mohd Kameil, S Syahrullail, A B Abd Rahim, C A N Johnson</i>	
Life Cycle Assessment Framework Application in Malaysia.....	828
<i>C Hafizan, N Hussein, Z Z Noor</i>	
Analytical Study of Half Scissor Like Elements Deployable Structures.....	836
<i>T J Chai, C S Tan, H B Koh</i>	
The Relationship between Workplace Window and Seating Arrangement.....	846
<i>M I Achoba, R B Abdul Majid, C O Obiefuna</i>	

Author Index