

2022 Moratuwa Engineering Research Conference (MERCOn 2022)

**Moratuwa, Sri Lanka
27-29 July 2022**

Pages 1-420



**IEEE Catalog Number: CFP22B72-POD
ISBN: 978-1-6654-8787-0**

**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:	CFP22B72-POD
ISBN (Print-On-Demand):	978-1-6654-8787-0
ISBN (Online):	978-1-6654-8786-3
ISSN:	2831-5537

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

Value Engineering as a Pragmatic Value Enhancing Tool for Public Sector Construction Projects.....	1
<i>I. G. N. Anuradha, A. P. K. K. Ambagala, P. D. Dharmarathne, S. U. Liyanage, R. U. Halwatura, K. A. K. Devapriya</i>	
Appraising Vulnerabilities on Elders and Built Environment of Aging-In-Place in Tropics using Infrared Thermography	7
<i>Indrika Rajapaksha, Ravindu Jayasekara, Chandana Siriwardana</i>	
Development of a Cost-Optimized Model for Evacuation Route Planning for Tsunamis.....	13
<i>K. K. C. L. Kannangara, V. V. Adikariwattage, C. S. A. Siriwardana</i>	
A Conceptual Framework to Understand the Multi-Hazard Early Warning Mechanism in Communication Management.....	19
<i>P. L. A. I. Shehara, C. S. A. Siriwardana, D. Amaratunga, R. Haigh</i>	
Understanding the Interdependency of Resilience Indicators in Green Building Assessment Tools in Sri Lanka: An Application of SWARA Method.....	25
<i>Shaluka Heshan Rajapaksha, Dilum Vishmitha Rajapaksha, Chandana Siriwardana</i>	
3D Full-Field Deformation Measurement using Stereo Vision.....	31
<i>Lowhikan Sivanantha Sarma, Chinthaka Mallikarachchi</i>	
Study on Honeycombs in Structural Concrete Elements.....	37
<i>K. A. B. P. Kuruppu, M. Nanthakumar, K. Baskaran</i>	
Investigation of the Feasibility of Prestressed Concrete (PC) Over Conventional Reinforced Concrete (RC) in Water Retaining Structures	43
<i>W. L. A. Chathuri Madhushani, H. D. Hidallana-Gamage, K. Baskaran</i>	
Case Studies on Blast Behaviour of Glass Façades: Sri Lanka Easter Bombings	49
<i>G. C. S. Jayaweera, H. D. Hidallana-Gamage, B. Baleshan</i>	
Design Optimization of a Steel Bridge Bracket.....	55
<i>Sasini Liyanagunawardhana, Lowhikan Sivanantha Sarma, Sumudu Herath</i>	
Homogenization of Ultra Thin Woven Composite Structures at High Curvatures.....	61
<i>Uditha Weerasinghe, Sumudu Herath, Chinthaka Mallikarachchi</i>	
Rapid Risk Assessment of Sri Lankan School Buildings Against Tsunamis	66
<i>Chamalka Nawanandana, Priyan Dias</i>	
The Use of Plastic Aggregate in Concrete.....	72
<i>Sithy Ayesha Zahra Ameen, Shiromi Karunaratne</i>	
Investigation of Replacing Aggregate with Non-Homogeneous Waste Tire Rubber Aggregate in Concrete	78
<i>Vl Kuruwita Arachchi, JCPH Gamage, Kajanan Selvaranjan</i>	
A Comparative Study to Evaluate the Effectiveness of Different Structural Forms for Medium-Rise Apartment Buildings	84
<i>Sachintha Wijekoon, Thishan Jayasinghe, Sumudu Herath, Anuruddha Herath</i>	

Study on Concrete-Filled Double-Skin Circular Steel Tubes Under Axial Compression	90
<i>T. V. D. V. K. Vitharana, K. Baskaran</i>	
Framework for Sustainable Management and Utilisation of Wetland Resources: A Case Study of the Madinnagoda Marsh	96
<i>Hashini Pathirana, Jagath Manatunge</i>	
Study on Adequacy of Traditional Water Yield Forecasting Methods Focusing on Two Dry Zone Basins in Sri Lanka.....	102
<i>Deshan Pasindu, Lalith Rajapakse</i>	
Investigations on Wave Energy Characteristics in South-Western Coastline of Sri Lanka.....	108
<i>Thujanana Theivendren, Kasun De Silva</i>	
Climate Elasticity of Runoff in Kalu and Kelani River Basins in the Wet Zone of Sri Lanka.....	114
<i>Tharindi Wijekoon, Lalith Rajapakse</i>	
Study on Climate Elasticity of Runoff in Kirindi Oya and Maduru Oya Basins in Sri Lanka	120
<i>Ayesh Uthpala, Lalith Rajapakse</i>	
Using AHP to Develop Sustainable Walking Environment: Case in Hochiminh City, Vietnam.....	126
<i>Nguyen Tran Thanh Duy, Chonnipa Puppateravanit, Sano Kazushi</i>	
Perceived Walkability Evaluation in Transit Station Catchment Areas in Bangkok.....	132
<i>Varameth Vichiensan, Atsushi Fukuda, Sathita Malaitham</i>	
Crash Analysis on the Outer Circular Expressway.....	138
<i>Nipun Bandara, Ishani Dias</i>	
Methodology of Developing a Tour Mode Choice Model of Workers in Western Province, Sri Lanka.....	144
<i>Dilini Kariyawasam Pathirana, Namali Sirisoma, Dimantha De Silva</i>	
Effectiveness of Manual Control of Traffic Signals During Peak Hours	150
<i>A. Vajeeran, G. L. D. I. De Silva</i>	
Application of LSTM and ANN Models for Traffic Time Headway Prediction in Expressway Tollgates	156
<i>Quynh Thi Nhu Phan, Manik Mondal, Sano Kazushi</i>	
Cyclists and Motorcyclists Detection in Traffic Video Footage.....	162
<i>Manusha Eeshwara, Rohana Thilakumara, Niranga Amarasingha</i>	
A Study on Axial Performance of Helical Piles in Residual Soils	167
<i>C. N. Liyanage, L. I. N. De Silva</i>	
Effect of a Shear Key on the Behaviour and Stability of Cantilever Type Retaining Walls	173
<i>Gowshikan Arulananthan, Nalin De Silva</i>	
Effect of Dynamic Compaction on the Compressibility Characteristics of Municipal Solid Waste, Under the Saturated and Unsaturated Conditions.....	178
<i>Aloka Rathnayaka, Prasanna Ragavan, Athula Kulathilaka</i>	
Use of the Concept of Capillary Barriers to Optimize the Support Systems of Deep Vertical Excavations in Unsaturated Soils	184
<i>Prasanna Ragavan, Aloka Rathnayaka, Athula Kulathilaka</i>	

An Alternative Method to Reduce the Construction Cost and the Reinforcement Usage of the Rigid Pavement Near the Toll Plaza in Expressways.....	190
<i>Hasinee Kasthurirathne, Udayanga J. W. Edirisooriya</i>	
Quasi-Static Deployment Simulation of a Kapton Polyimide Creased Unit	196
<i>D. M. Sahangi P. Dassanayake, Sutharsanan Navaratnarajah, Chinthaka Mallikarachchi</i>	
Assessment of the Optimum Dimensions for Cobble-Type Paving Blocks using Finite Element Modeling	202
<i>N. R. Kumarage, C. Jayasinghe, K. P. H. Perera, K. K. G. K. D. Kariyawasam, S. Herath</i>	
Experimental Study on Tensile Strength Degradation of Carbon Fiber Reinforced Polymer (CFRP) Composite in Alkaline Environment	207
<i>Kannan Thushanthan, G. M. D. N. Aponsu, J. C. P. H. Gamage</i>	
Evaluating the Thermal Conductivity of Three-Phase Insulation Composite using Analytical and Numerical Methods	213
<i>L. G. Chamath, L. K. T. Srimal, Galhenage A. Sewvandi</i>	
Utilization of Paddy Husk Carbon Black as an Alternative Filler Material in Rubber Industry	219
<i>W. G. A. Pabasara, Ajith Saputhanthree, V. S. C. Weragoda</i>	
The Effect of Surface Topology on the EDL Capacitance: 1_D Case.....	225
<i>A. A. S. Amarathunga, L. P. J. Malshan, D. A. S. Amarasinghe, D. Attygalle</i>	
A Novel Method on Fitting a Short Prony Series using Creep or Stress Relaxation Data	231
<i>G. I. Janith, H. S. Herath, D. A. S. Amarasinghe, D. Attygalle, V. S. C. Weragoda, A. M. P. B. Samarasekara</i>	
Modelling and Simulation of a Vertically Integrated Zinc Oxide Piezoelectric Nanogenerator	237
<i>T. Vithusan, M. N. F. Nashira, S. U. Adikary</i>	
Study of Degradation Behavior of ASA Coated PVC Roofing Sheets.....	243
<i>Shashi Udayanga, Sampath C. Weragoda, K. G. Alahapperuma</i>	
Modeling and Validation of Nanoparticle Formation in Wet Chemical Synthesis of Nano-hydroxyapatite	249
<i>G. S. Dhananjaya, T. G. D. Madusanka, S. U. Adikary</i>	
Effects of Kaolin with High Silica Content on Properties of Ceramic Tiles	255
<i>J. M. N. Jayaweera, M. Narayana, S. U. Adikary</i>	
Potential of Chalcogenide Halide Bismuth Perovskites $\text{CH}_3\text{NH}_3\text{BiChI}_2$ (Ch = S, Se,) as Solar Absorbers Based on Theoretical Study.....	261
<i>J. T. S. T. Jayawardane, Galhenage A. Sewvandi</i>	
Mie-Theory-Based Investigation of the Effect of Size Distribution on the Surface Plasmon Absorption of Silver Nanoparticles	266
<i>R. A. A. D. O. Weerasekera, D. M. L. Y. Samarakoon, D. L. H. P. P. Dayalal, D. A. S. Amarasinghe, A. M. P. B. Samarasekara, Dinesh Attygalle</i>	
Effect of Nano-Silver Ions Pumps on Antimicrobial Activity of Ag-Nps Incorporated Polymer-Based Food Packings.....	272
<i>W. A. D. P. Madhuwanthi, D. N. S. Dammage, Sampath C. Weragoda, K. G. Alahapperuma</i>	

Direct Current Resistivity Based In-Situ Cure Monitoring Technique for Amine Cured Epoxy Resins	278
<i>H. S. Herath, G. I. Janith, V. S. C Weragoda, D. A. S. Amarasinghe, D. Attygalle, A. M. P. B. Samarasekara</i>	
Bottom-Up Cost Modeling of Lithium-Ion Battery Cells for Electric Vehicle Applications	283
<i>Dasuni Hewawasam, Lihil Subasinghe, Hirushie Karunathilake, Sanjeeva Witharana</i>	
Synthesis of Calcium Oxide Nanoparticles from Waste Eggshells	289
<i>Udakshi Nipunika, Yashodhya Jayaneththi, Galhenage A. Sewvandi</i>	
Modeling the Mechanical Behavior of Microcrystalline Cellulose-Based Polymer Composite Materials	294
<i>J. Amutheesan, S. Sukirtha, A. M. P. B Samarasekara, D. A. S Amarasinghe, L. Karunanayake</i>	
Synthesis & Utilization of Paddy Husk Carbon Black (PHCB) for Rubber Compounding	300
<i>Chuloda De Silva, V. S. C. Weragoda, Thilini Wathsala, K. G. Alahapperuma</i>	
Study on Thermal Endurance of Plasticizer in Locally Manufactured Electrical Cable Insulation.....	306
<i>D. P. Egodage, Roshan Dodampola, A. Ratnakumar, Sampath C. Weragoda, D. A. S. Amarasinghe, A. M. P. B. Samarasekara, Dinesh Attygalle</i>	
Multicomponent Heavy Metals Adsorption by Raw Coir Dust and Processed Coir Pith: Experimental Investigation and Life Cycle Analysis	311
<i>Ashika Dilshani, Prasad Amarasinghe, Mahinsasa Rathnayake</i>	
Multi-Objective Optimization Methodology for Cryogenic Air Separation Process	317
<i>Vishwa Panapitiya, Randika Randeniya, Nipuna Thennakoon, Mahinsasa Narayana, Adus Amarasinghe</i>	
Path to Predict the Vapor Pressure and Enthalpy of Vaporization of the Components in Essential Oils	323
<i>Nawammalie D. I. Kumarage, A. D. U. S. Amarasinghe, Mahinsasa Narayana</i>	
A Novel Brick Made from Clay Brick Waste/Rice Husk Ash/Cement to Adsorb Heavy Metals and Organic Dyes in Wastewater	329
<i>R. P. T. N. Rajapaksha, W. D. C. C. Wijerathne, I. A. Rambukwella</i>	
Remote Sensing and GIS Approach to Monitor the Land-Use and Land-Cover Change in Kaduwela Metropolitan Area	334
<i>Gamsavi Kanagasundaram, Kithsiri Dissanayake, Chaminda Samarasuriya</i>	
Rare Earth Element Enrichment in Intrusive Rocks of Sri Lanka as a Potential Low-Grade Source.....	340
<i>Nadeera Batapola, Nalin Ratnayake, B. Abeysinghe, Ranjith Premasiri, Sudath Rohitha, Nimila Dushyantha, I. M. Saman K. Ilankoon, Oscar Dissanayake, Pannipitye Dharmaratne</i>	
Smartphone Vs. Consumer-Grade GNSS for Field Studies: A Statistical Comparison	346
<i>Chulantha Jayawardena, Ravindi Jayasundara, Sureka Thiruchittampalam, Tharumarajah Thanujan</i>	
Spatiotemporal Growth Dynamics of Invasive Plant Distribution in Bolgoda Lake, Sri Lanka: A GIS Based Approach	352
<i>K. A. T. T Kannangara, M. B. Shoukie, M. P. A. Nayomi, S. M. Dassanayake, C. Jayawardane, A. B. N Anjula</i>	
Determinants of Integrated Citizen-Centric E-Services in the Public Sector of Sri Lanka	358
<i>MDS Fernando, Chandana Perera</i>	

A Study on How Organizations Perceive Synergy Between Lean and Industry 4.0	364
<i>Chiran Kodippili, Rajeev Karunanayake, Prasanna Illankoon</i>	
Framework to Promote Automotive Remanufacturing: Case Study of Automotive Repairing, Rebuilding, and Remanufacturing Industry in Sri Lanka	370
<i>Kasun Lakmal Karunarathna, J. R. Gamage</i>	
A Framework to Promote Mould Remanufacturing in Sri Lankan SME	376
<i>Buddhima K. Wanaguru, J. R. Gamage</i>	
Chitosan-Graphene Oxide Composite Membrane for Methylene Blue Removal	382
<i>Nethmi S. L. Dissanayake, Maadri A. Pathirana, Nandula D. Wanasekara, Gayani K. Nandasiri</i>	
Influence of Repeat Unit Size on the Auxetic Effect of Foldable Weft Knitted Fabrics	388
<i>Chamika Madhurangi, Charuka Wijethunga, Gamini Lanarolle</i>	
Copper Nanoparticle Synthesis on Plasma Treated Poly(lactic) Acid Nonwoven Fabrics.....	394
<i>Nilupuli C. Rathnayaka, Gayani K. Nandasiri, Nandula D. Wanasekara</i>	
Numerical Study to Investigate the Pressure Propagation Patterns by a Compression Sleeve with Miniaturised Air-Bladders.....	399
<i>Dilshan Hedigalla, Malindu Ehelagasthenna, Indrajith D. Nissanka, Ranjith Amarasinghe, Gayani K. Nandasiri</i>	
Reducing the Excess Energy Consumption on Higher Ventilation Flowrates to Control the CO ₂ Levels of the Central Air Conditioning Systems in Polluted Urban Areas by CO ₂ Capturing	404
<i>M. Anusha Wijewardane, H. M. P. Dinuka Herath, R. A. Chathura P. Ranasinghe</i>	
Heat Transfer Enhancement in Microchannels with Liquid - Liquid Slug Flow using Al ₂ O ₃ Nanoparticles.....	409
<i>Geethal Siriwardana, Thilaksiri Bandara, Chathura Ranasinghe</i>	
Development of a Numerical Model for Pollutant Dispersion Over 3D Building Array	415
<i>Sivakunalan Inparaja, Mahinsasa Narayana</i>	
An Analytical Approach for Designing Turbo Expanders for Organic Rankine Cycle.....	421
<i>R. M. S. A. Ratnayake, R. M. A. T. Bandara, P. H. P. L. Sandaruwan, M. A. Wijewardane, R. A. C. P. Ranasinghe</i>	
Energy Efficiency Enhancement of Container Boxes Converted as Living Spaces (Convertainers)	427
<i>D. Mahela Wanigasooriya, H. M. Lakshan T. Bandara, Yasiru Indeewara Wijayasiri, Anusha Wijewardane</i>	
A Theoretical Model to Analyze the Draft Force and Power Requirement of a Tillage Implement Consisting of Both a Disc Plough and a Subsoiler	433
<i>Akila Elangasinghe, Prageeth Fernando, Januka Colombage, Shehara Perera, Lihil Uthpala Subasinghe</i>	
Diagnosing Localized and Distributed Faults of Rolling Bearing using Kurstogram and Machine Learning Algorithms using Bearings Audio Signal in Comparison with Vibration Signal.....	439
<i>Kanakasuntharam Jathursajan, Akila Wijethunge</i>	
Effects of Restricting Ankle Joint Motions on Muscle Activity: Preliminary Investigation with an Unpowered Exoskeleton.....	445
<i>R. K. P. S. Ranaweera, A. H. Weerasingha, W. P. K. Withanage, A. D. K. H. Pragnathilaka, R. A. R. C. Gopura, T. S. S. Jayawardana, G. K. I. Mann</i>	

Design and Development of an Automated Paddy Transplanting Machine with a Novel Planting Mechanism	451
<i>E. M. P. M. De Saram, W. M. D. N. De Silva, Y. D. Dissanayake, S. A. M. Yazeer, Y. W. R. Amarasinghe</i>	
A Computational Study of the Aerodynamics of Plunging and Pitching Motions of Airfoils	457
<i>Lakshitha De Silva, Nalaka Samaraweera, Nirosh Jayaweera, Thusitha Sugathapala</i>	
Numerical Investigation to Improve the Performance of Induction Heating Oven for Tyre Mould Preheating.....	463
<i>Kavindu Kandearachchi, Thisara Samarasekara, Sithum Ganegoda, Lasith C. Balasooriya, Indrajith D. Nissanka</i>	
Design and Analysis of an Aerodynamic Structure for a Ground and Aerial Vehicle	469
<i>Rishan Sachinthana Wijenayaka, Ruvindu Bamunuge, Sham Sameem, Ranjith Amarasinghe, Nalaka Samaraweera</i>	
System Performance of Split Type A/C Units in High-Rise Residential Buildings with Different Condenser Arrangements	475
<i>V. M. Harithkhan, Indrajith D. Nissanka, M. M. I. D. Manthilake</i>	
Soft Pneumatic Grippers for Reducing Fruit Damage During Strawberry Harvesting.....	481
<i>Hashan N. B. Ranasinghe, Chamith Kawshan, Sasheeka Himaruwan, Asitha L. Kulasekera, Palitha Dassanayake</i>	
Variable Stiffness Soft Actuator using Layer Jamming for Food Handling.....	487
<i>Chanuka L. Tennakoon, Asitha L. Kulasekera, Damith S. Chathuranga, R. A. R. C. Gopura</i>	
Design and Characterization of a 3D Printed Wave Spring for Use in a Flexible Robotic Arm.....	493
<i>Chamil H. Gunarathna, Asantha D. Ranasinghe, Nansara A. Piyumal, Asitha L. Kulasekera, Nirosh D. Jayaweera</i>	
Development of a Steady State Voltage Regulation Method for Power Distribution Networks	499
<i>J. M. D. S. Jeewandara, K. A. Y. Sanju, S. B. Samarawickrama, M. A. J. Fernando, A. K. Senaka, J. V. U. P. Jayathunga</i>	
Application of Novel Evolutionary Algorithms for Analyzing the Impact of Integrating Renewables on the Adequacy of Composite Power Systems	505
<i>Gihan Amarasinghe, Saranga Abeygunawardane, Chanan Singh</i>	
Converting a Commercial-Consumer-Fed, Ring Distribution System into a Diesel-Solar Hybrid Microgrid: Technical Feasibility	511
<i>H. Dayan B. P. Herath, Lidula N. Widanagama Arachchige, P. S. Narendra De Silva</i>	
Analyzing the Optimum Contact Angles of Water Droplets to Mitigate the E-Field Stress on Polymer Insulator	517
<i>A. Demy Antony, B. A. T. N. K. B Arachchi, J. B. Gunasinghe, Manuja Gunawardana, Rasara Samarasinghe</i>	
Development of Multi-Winding-Transformer Assisted Diode Converters for Improved Utility Interface.....	522
<i>V. H. R. Abhishek, N. M. L. R. Nawarathna, H. S. H. De Zoysa, J. P. Karunadasa</i>	
Supervised Non-Intrusive Load Monitoring Algorithm for Identifying Different Operating States of type-II Residential Appliances	528
<i>Nimantha Madhushan, Nishan Dharmaweera, Uditha Wijewardhana</i>	

Active and Passive Based Hybrid Cell Balancing Approach to Series Connected Lithium-Ion Battery Pack	534
<i>E. M. A. G. N. C. Ekanayake, K. T. M. U. Hemapala, Upuli Jayathunga</i>	
Design of Complex Grounding System in Uniform Or Non-Uniform Soil Structure: Development of Grounding Design Software.....	540
<i>Muditha M. Warnakulasuriya, H. M. Yasod Yushmika, P. A. Andrahennadi, Asanka S. Rodrigo</i>	
Low Voltage Cable Path Optimization using Hightower's Algorithm and Simulated Annealing Algorithm	546
<i>Punsara H. Samarakkody, Liyana Patabendige R. Geethisha, Vimukthi D. Nanayakkara, Asanka S. Rodrigo</i>	
Benchmarking Energy and Water Consumption of Supermarkets in Sri Lanka	552
<i>S. M. C. Prageeth Senanayake, M. Anusha Wijewardane</i>	
Estimation of Embedded Energy of Some Selected Vegetables in the Vegetable Value Chain, Sri Lanka.....	558
<i>D. M. Charuni M. K. Dasanayake, M. Anusha Wijewardane, Chamila V. L. Jayasinghe</i>	
Sick Building Syndrome in Residential Apartments	564
<i>P. H. Alwis, N. R. Kumarage, C. Jayasinghe</i>	
Numerical Analysis and Performance Optimization of a Flap-Type Oscillating Wave Surge Converter in Irregular Waves	569
<i>N. H. D. S. Manawadu, I. D. Nissanka, H. C. P. Karunasena</i>	
Effect of Envelope Energy Performance Enhancement Strategies on Building Energy Loads: Case Study for a Tropical Institutional Building.....	575
<i>R. G. R. N. K Ariyaratne, H. P Karunathilake, H. K. G Punchihewa</i>	
Establishing Initial Hypothetical PLS-SEM for the Challenges of Converting Existing Office Buildings to Green Buildings in Sri Lanka.....	581
<i>Wasudha Prabodhani Abeyrathna, R. I. S Ariyaratna, R. U. Halwatura, F. R Arooz, A. S Perera, Arturas Kaklauskas</i>	
A Simulation Study on Novel Clay Secondary Walling System for Indoor Cooling: A Performance Assessment.....	587
<i>Viveha Sriskandaraja, Malthi Rajapaksha, Rangika Halwathura, Guttilla Yugantha Jayasinghe</i>	
Establishing the Relationship Between Indoor and Outdoor Temperature of an Existing Office Building using Hybrid Physics Based and Data Driven Models	593
<i>S. V. I. R. V. Serasinghe, I. D. Nissanka, M. A. Wijewardane</i>	
Role of Green Manufacturing Practices on Green Knowledge and Employee Green Behaviour in the Manufacturing Sector in Sri Lanka.....	599
<i>W. A S. Weerakkody, Lester W. Johnson, Hassan Kalantari Daronkola</i>	
Selection of Phase Change Materials for High Temperature Latent Heat Thermal Energy Storage for Concentrated Solar Power Plants.....	605
<i>Darsha Jayathunga, Hirushie Karunathilake, Mahinsasa Narayana, Sanjeeva Witharana</i>	
Fuel Stacking and Stove Choice Decisions: A Discrete Choice Model of Sri Lankan Household Preferences for Clean Cooking Solution	611
<i>Buwaneka Irantha Dissanayake, H. Niles Perera, M. Mavin De Silva</i>	

Fuel Efficiency and E-Mobility Policy Development in Sri Lanka.....	617
<i>M. Mavin De Silva, Madushan Madhava Jayalath</i>	
Language Model-Based Spell-Checker for Sri Lankan Names and Addresses.....	623
<i>Yasith Udagedara, Bashana Elikewela, Uthayasanker Thayasivam</i>	
MetaPCbin: Plasmid/Chromosome Classification for Metagenomic Contigs using Machine Learning Techniques	629
<i>Chamika Nandasiri, Sasindu Alahakoon, Gayal Dassanayake, Anuradha Wickramarachchi, Indika Perera</i>	
Erroff: A Tool to Identify and Correct Real-Word Errors in Sinhala Documents.....	635
<i>Pasindu Sudesh, Dilan Dashantha, Rashmika Lakshan, Gihan Dias</i>	
Segmentation and Significance of Herniation Measurement using Lumbar Intervertebral Discs from the Axial View.....	641
<i>Yuwin Siriwardhana, Dilshani Karunarathna, Imesh Udara Ekanayake</i>	
Enhanced Time Delay Neural Network Architectures for Sinhala Speech Recognition.....	647
<i>Disura Warusawithana, Nilmani Kulaweera, Lakshan Weerasinghe, Buddhika Karunarathne</i>	
Aspect Detection in Sportswear Apparel Reviews for Opinion Mining.....	653
<i>Sampath Rajapaksha, Surangika Ranathunga</i>	
Low Resource Multi-ASR Speech Command Recognition.....	659
<i>Isham Mohamed, Uthayasanker Thayasivam</i>	
Enhanced Feature Aggregation for Deep Neural Network Based Speaker Embedding	665
<i>Rajinthan Thevagumaran, Thuvarahan Sivaneswaran, Buddhika Karunarathne</i>	
Domain Specific Named Entity Recognition in Tamil.....	670
<i>Rubika Murugathas, Uthayasanker Thayasivam</i>	
MetaGraph: Plasmid/Chromosome Classification Enhancement using Graph Neural Networks	676
<i>Sasindu Alahakoon, Gayal Dassanayake, Chamika Nandasiri, Anuradha Wickramarachchi, Indika Perera</i>	
Adversarial Learning to Improve Question Image Embedding in Medical Visual Question Answering	682
<i>Kaveesha Silva, Thanuja Maheepala, Kasun Tharaka, Thanuja D. Ambegoda</i>	
Kansei Color Concepts for E-Commerce Website Design – A Case Study using Designerwear Websites	688
<i>K. A. A. S. M. Kandambi, J. Charles, L. S. Lekamge</i>	
Forecasting Model of Combining Mini Batch K Means and Kohonen Maps to Cluster and Evaluate Gait Kinematics Data	694
<i>Udeshika Indumini, Anuradha Jayakody</i>	
Chest X-Ray Caption Generation with CheXNet	700
<i>Vidura Wijerathna, Hemaka Raveen, Sachini Abeygunawardhana, Thanuja D. Ambegoda</i>	
A Deep Learning Ensemble Hate Speech Detection Approach for Sinhala Tweets.....	706
<i>Sidath Munasinghe, Uthayasanker Thayasivam</i>	

Performance Comparison of Sea Fish Species Classification using Hybrid and Supervised Machine Learning Algorithms	712
<i>Lakindu Induwara Mampitiya, Rizma Nalmi, Namal Rathnayake</i>	
Factors Influencing Online Fast-Food Ordering Intension Among Millennials and Generation Z– Evidence from Sri Lanka.....	718
<i>Prabhath Gunarathna, Lasitha De Silva</i>	
A Profit Maximization Approach for Organic Short Food Supply Chains.....	724
<i>Madushan Madhava Jayalath, H. Niles Perera, Amila Thibbotuwawa, Biman Darshana Hettiarachchi</i>	
Impact of Lean Manufacturing on Inventory Turnover Performances: Evidence from the Sri Lankan Apparel Industry	730
<i>Kasuni Jayawardane, Shaja Musthaffa, Maneesha Dias</i>	
Smart Traffic Light Control System Based on Traffic Density and Emergency Vehicle Detection	736
<i>K. D. S. A. Munasinghe, T. D. Waththegedara, I. R. Wickramasinghe, H. M. O. K. Herath, V. Logeeshan</i>	
Challenging Factors to Adopt Circular Economy in Sustainable Food Supply Chain	742
<i>Nimni Pannila, Madushan Madhava Jayalath, Amila Thibbotuwawa, H. Niles Perera</i>	
Leadership in Change Management Decisions for Successful ERP Implementation - A System Dynamics Perspective	748
<i>Manuka Lakdinu, M. Mavin De Silva, Kavith Balachandra, K. P. D. Frank Perera</i>	
Identifying Quality Related Risk Factors in Spices and Allied Products for Export Market	754
<i>Tharindu Niroshana, M. Mavin De Silva, Leonard Barnes</i>	
A Capacitated Vehicle Routing Problem Model for Stationery Industry	760
<i>Ruwani N Liyanage, Amila Thibbotuwawa, P M Edirisinghe</i>	
Selecting Optimum Seed Words for Wordle using Character Statistics.....	766
<i>Nisansa De Silva</i>	
Towards an Adaptive Communication Framework for Smart Devices.....	772
<i>Kavinda Perera, Jude Ranidu, Kutila Gunasekera</i>	
Ontology Based Question Answering System for Sri Lankan Online School Education.....	778
<i>J. M. G. R. Jayabahu, U. U. Samantha Rajapaksha</i>	
Elastic ORB: Non-Rigid Transformation Based SLAM	784
<i>Vihan Melaka, Sulochana Sooriyaarachchi, Chandana Gamage</i>	
Enhancing Human Robot Communication by Generating Spatial Information using Uncertain Terms.....	790
<i>H. M. Ravindu T. Bandara, K. S. Priyanayana, D. P. Chandima, A. G. Buddhika P. Jayasekara, R. A. R. C. Gopura</i>	
Experimental Evaluation of Steering Actuator Configuration on the Behaviour of a Soft Growing Robot	796
<i>Madhawa M. Premarathna, Ravindu K. Weerasinghe, Nimantha N. Peiris, Asitha L. Kulasekera, Paliitha C. Dassanayake</i>	
Shadow Removal for Documents with Reflective Textured Surface	801
<i>Ahrooran Ravindran, Uthayamalini Arudselvam, Uthayasanker Thayasivam</i>	

Segmentation Based Approach for Off-Line Handwritten Sinhala Word Recognition from Touch Screen Gestures	807
<i>Hashan Mahesh, Chathura Priyankara</i>	
Study of Stability Variations in Reaction Torque Observer Based Force Controllers.....	813
<i>W. M. Theekshana G. Wijewardhana, A. M. Harsha S. Abeykoon</i>	
Deep Learning for Arbitrary-Shaped Water Pooling Region Detection on Aerial Images.....	819
<i>Pravina Mylvaganam, Maheshi B. Dissanayake</i>	
Sinhala Fingerspelling Sign Language Recognition with Computer Vision	824
<i>Amal A. Weerasooriya, Thanuja D. Ambegoda</i>	
Performance Evaluation of UAV-Assisted Millimeter Wave NOMA Networks.....	830
<i>Tharani N. Sarathchandra, Kasun T. Hemachandra, Sachitha Kusaladharma</i>	
Development of a Bicondylar Surface for a Biomimetic Knee Joint Capable of 3D Motion.....	836
<i>Dakshina S. Senadheera, Akalanka Kaluarachchi, Pathum Thilina, Asitha L. Kulasekera, Damith S. Chathuranga</i>	

Author Index