

2023 IEEE 17th International Conference on Industrial and Information Systems (ICIIS 2023)

**Peradeniya, Sri Lanka
25-26 August 2023**



**IEEE Catalog Number: CFP2358A-POD
ISBN: 979-8-3503-2364-1**

**Copyright © 2023 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:	CFP2358A-POD
ISBN (Print-On-Demand):	979-8-3503-2364-1
ISBN (Online):	979-8-3503-2363-4
ISSN:	2164-7011

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

Technical Sessions

Inaugural Session

Friday 25th August, 08.50 – 10.10

Keynote Session 1

Friday 25th August, 10.45 – 11.30

Prof. Mathini Sellathurai

Dean, Science and Engineering of Heriot Watt University, Edinburgh, UK

“Edge Cloud-Assisted Assistive Care”

Session 01

Session 01 - Track A (Room A)

Friday 25th August, 11.45 – 13.00

Artificial Intelligence, Signal and Image Processing (Hybrid session)

Session chairs: Dr. Uditha Wijewardhana (University of Jayawardhanapura), Dr. Tharindu Weerakoon (University of Peradeniya)

Enhanced YOLOv4 for Facilitating Public Safety Management Amidst Protests and Riots	01
K. Thiruthanigesan, Ruwan D. Nawarathna and Roshan G. Ragel	
Transformer Load Forecasting Method Based on SARIMA, FBProphet and LSTM Models	07
Dilanka P Wijesena, Kapila Bandara, Priyashantha Tennakoon and Bhagya Wickramasinghe	
A Review of Classification of Insincere Questions in Quora Using Deep Learning Approaches	13
Nishad Ahamed, Supunmali Ahangama	
Multi-Document Summarization: A Comparative Evaluation	19
Kushan Hewapathirana, Nisansa de Silva and C.D. Athuraliya	
An Image Analysis-Based Automated Method Using Deep Learning for Grain Counting	25
Ramesh Ajikaran, Ashen Iranga Hewarathna, Vigneshwaran Palanisamy, Charles Joseph	

Session 01 - Track B (Room B)

Friday 25th August, 11.45 – 13.00

Computer, Intelligent Systems and Data Engineering (Physical session)

Session chairs: Prof. Pradeep Abeygunawardhana (SLIIT), Dr. Chamila Walgampaya (University of Peradeniya)

Real-Time Multiple Dyadic Interaction Detection in Surveillance Videos in the Wild	31
I.M. Insaf* , A. A. P. Perera* , R. Thushara, G. M. R. I. Godaliyadda, M. P. B. Ekanayake, H. M. V. R. Herath, J. B. Ekanayake	
RV32IMF Five-Stage Pipeline Implementation With Interrupt and Random Number Generation Units	37
Dinindu Thilakarathna, Heshan Dissanayake, Buddhi Perera, Prof. Roshan Ragel, Dr. Isuru Dasanayake, Dr. Mahanama Wickramasinghe and Dr. Isuru Nawinne	
A Comprehensive Analysis of the Correlation Between Electricity Usage and Greenhouse Gas Emissions in London Boroughs	43
Dinusha Herath and Nethmi Imesha	
A Truly Decentralized Consensus Protocol That Avoids Centralization of Power	49
Kesara Wimal and Geethapriya Liyanage	
SHADE: Semantic Hypernym Annotator for Domain-Specific Entities - DnD Domain Use Case	55
Akila Peiris, Nisansa de Silva	

Session 01 - Track C (Room C)

Friday 25th August, 11.45 – 13.00

Computer, Intelligent Systems and Data Engineering track (Online Session)

Prof. S Vasanthapriyan (Sabaragamuwa University), Prof. Lasith Gunawardena (University of Sri Jayewardenepura)

Sinhala-English Parallel Word Dictionary Dataset	61
Kasun Wickramasinghe and Nisansa de Silva	
Analyzing Trends and Topics of Sinhala Hate Speech on Twitter: A Time Series Approach	67
D.A. Rajapaksha, Dr. Supunmali Ahangama, M.D. Dushanthi and K.D.G.I Madhurangi	
A Social Wallet Scheme With Robust Private Key Recovery	73
Avishka Rathnavibhushana, Tharinda Thamaranga, Sandaru Kaveesha and Chandana Gamage	
Use of Data Warehousing Techniques to Analyze the LMS Usage Among Sri Lankan Universities Students	79
R.J.P.K. Rajakaruna, K.M.P.U. Padmasiri, M. S. M. Siriwardane, R.K.N.D. Jayawardhane, S. M. M. Nishadika and Dinesh Asanka	
Digital Twin & Virtual Reality Enabled Conveyor System to Promote Learning Factory Concept	85
N.N Liyanawaduge, E.M.H.K. Kumarasinghe, Smirthya Somaskantha Iyer and A.K. Kulatunga	

Session 01 - Track D (Room D)Friday 25th August, 11.45 – 13.00*Communication and Information Engineering (Online Session)*

Session chairs: Prof. Jeewani Jayasinghe (Wayamba University of Sri Lanka), Dr. Samiru Gayan (University of Moratuwa)

Compact Battery-Free UHF RFID Tag for Temperature Measurement in Poultry Egg Incubators	91
Shyama Wickramasinghe, Jeevani Jayasinghe and Melaka Senadeera	
m-Segment Printed Log Periodic Dipole Array Antennas	97
H.M.S.M. Herath, J.M.J.W. Jayasinghe and D.N. Uduwawala	
Invited Paper: SNR Analysis of Differential Modulation for Distributed Massive MIMO Systems	103
Supuni Gunasekara, Peter Smith , Margreta Kuijper and Rajitha Senanayake	
Joint Relay Selection and Power Control to Maximize Sum-Rate in Multi-Hop Networks	109
Shalanika Dayarathna, Rajitha Senanayake, Jamie Evans	
Building a Digital Bridge Between Sri Lankan Farmers and Retailers: Conceptual Mobile Application Prototype	115
Nethmi Imesha, Maneesha Rajapaksha, Jayath Wickramarachchi, Dinusha Herath, Chethana Rupasinghe, Sanuji Rabel and Udaya Dampage	

Session 02**Session 02 - Track A (Room D)**Friday 25th August, 13.45 – 14.50*Artificial Intelligence, Signal and Image Processing (Physical session)*

Session Chairs: Dr. Janaka Wijayakulasooriya (University of Peradeniya), Dr. Achala Pallegedara (University of Peradeniya)

Speech Deception Detection - Build A Model to Classify Whether Customer Can Pay Loan Payment	121
Kumara K.J.A.M.V., Kumari T.P.S., Ahilan. K and Valluvan. R	
CNN for Facial Emotion Recognition in Online Learning Platforms to Identify Learner Engagement	128
Hashini Athauda, Upul Jayasinghe and Roshan Ragel	
Importance of Web Scraping as a Data Source for Machine Learning Algorithms - Review	134
SCM de S Sirisuriya	
Enhanced Frequency Domain Analysis for Detecting Wild Elephants in Asia Using Acoustics	140
Udula Ranasinghe, Saumya Abeyrathne, Lilantha Samaranayake, Tharindu Weerakoon, Nalin Harischandra and Gamini Dissanayake	

Session 02 - Track B (Room B)

Friday 25th August, 13.45 – 14.50

Computer, Intelligent Systems and Data Engineering and Communication and Information Engineering (Physical Session)

Session chairs: Prof. Disala Uduwawala (University of Peradeniya), Dr. Krishanthmohan Ratnam (University of Jayawardenepura)

I-Advert: Precision Marketing by Leveraging Gender and Age Identification for Automated Digital Advertising in Shopping Malls	146
Kavin Sewmina, Rajitha Navarathna, Anutthara Senanayaka	
The Feasibility of Visible Light Communication for Deep Sea Communication	152
Hanojhan Rajahrajasingh, Sampath Edirisinghe	
Low Profile Curved Shape Bluetooth Antenna for IoT Applications	158
Lalit Kumar Baghel, Radhika Raina, Suman Kumar	

Session 02 - Track C (Room C)

Friday 25th August, 13.45 – 14.50

Computer, Intelligent Systems and Data Engineering track (Online Session)

Session chairs: Prof. Amalka J. Pinidiyaarachchi (University of Peradeniya), Dr. Hiruni Madhusa Rupasingha (Sabaragamuwa University of Sri Lanka)

BERT Layer Weighting Comparison with Short Text Classification	163
JRKC Jayakody, VGTN Vidanagama, Indika Perera and HMLK Herath	
Grammar Error Correction for Less Resourceful Languages: A Case Study of Sinhala	169
Pradeep Jayasuriya, Malitha Wijesundara, Samantha Thelijjagoda and Nuwan Kodagoda	
HABARALA – A Comprehensive Solution for Food Security and Sustainable Agriculture through Alternative Food Resources and Technology	175
Weerasinghe N.C., Amarakoon A.V.G.H.S., Fernando W.W.R.S., Rajapaksha P.R.K.N., Samanthi E.R Siriwardana and Madhuka Nadeeshani	
Use of PneuNets for Soft Robotic Rehabilitation Glove From Silicon Rubbers - A Computational and Experimental Investigation	181
G. J. K. I. U. Jayawardhana, W.D.C.C. Wijerathne and R.M.T.C.B. Ekanayake	

Session 02 - Track D (Room D)

Friday 25th August, 13.45 – 14.50

Electronics, Instrumentation and Bio-Medical Engineering (Hybrid session)

Session chairs: Dr. K.R.M.N. Rathnayake (University of Peradeniya), Dr. Tharindu Weerakoon (University of Peradeniya)

Standalone Optode for Functional Near-Infrared Spectroscopy Acquisition	188
Dineth Navodya Mudalige, Chathura Jayasankha Uluwitike Gamage, Ashan Thamara Palihakkara, Sandali Nisansa Liyanagoonawardena, Anjula C De Silva and Thashi Chang	
Use of SerDes to Reduce the Cost of Packaging of VLSIs	194
J M Tharinda Rangana Jayawickrama, Subramaniam Thayaparan	
Analysis of Fetal ECG Signal Associated QRS Complex Features for Early Detection of Congenital Heart Diseases	197
P.R. Barayazi and K.G. Samarawickrama	
Design of Virtual Instrumentation System for Paralytics Using LabVIEW	203
Chamod Rathnayake, Eranda Dhanushka, Chamika Jayasanka, Kasun Sandaruwan, Harsha Kaluarachchi and B.L.Sanjaya Thilakarathne	

Keynote Session 2

Friday 25th August, 14.55 – 15.40

Mr. Takanori Shiozawa

Senior Managing Director and Chief Operating Officer of the Institute of Energy Economics (IEEJ) in Japan
“Electricity Policy in Japan”

Keynote Session 3

Friday 25th August, 16.00 – 16.45

Dr Priyantha D.C. Wijayatunga

Senior Director for ADB’s Energy Sector Office.
“Energy Markets: Present and Future Trends”

Session 03

Session 03 - Track A (Room B)

Friday 25th August, 16.50 – 18.15

Artificial Intelligence, Signal and Image Processing (Hybrid session)

Session chairs: Dr. Sampath Perera (University of Moratuwa), Dr. Mahasen Dehideniya (University of Peradeniya)

Data Augmentation vs. Synthetic Data Generation: An Empirical Evaluation for Enhancing Radiology Image Classification	209
Shashank Shetty, Ananthanarayana V. S. Ajit Mahale	

A Systematic Approach of Object Detection in Unconstrained Environments	215
K. Thiruthanigesan, Ruwan D. Nawarathna and Roshan G. Ragel	
A Mobile Application That Employs Artificial Intelligence to Forecast the Required Number of Beds for Intensive Care Units in Sri Lanka	221
Mishka Marzook, Maneesha Rajapaksha, Thamal Chanakya and Udaya Dampage	
Fetal Movement Identification Using Spectrograms With Attention Aided Models and Identifying a Set of Correlating Parameters With Gestational Age	227
L.B.I.P. Thilakasiri, D.M.P.M. Alwis, R.T. Nanayakkara, G.M.R.I. Godaliyadda, M.P.B. Ekanayake, J. V. Wijayakulasooriya, R.M.C.J. Rathnayake	
Evaluation of Noise Reduction Methods for Sentence Recognition by Sinhala Speaking Listeners	233
Malitha Gunawardhana, Chathuki Navanjana, Dinithi Fernando, Nipuna Upeksha, Anjula C De Silva	

Session 03 - Track B (Room C)

Friday 25th August, 16.50 – 18.15

Computer, Intelligent Systems and Data Engineering track (Online Session)

Session Chairs: Prof. Roshan Yapa (University of Peradeniya), Prof. Amirthalingam Ramanan (University of Jaffna)

Performance Analysis for Exercise Pose Prediction Using RFE Based Feature Selection	239
Rukshani Puvanendran, Sharnidha Thangasundram	
An Improved Decision Tree Model for Forecasting Consumer Decision in a Medium Groceries Store	245
Intan Rahmatillah, Eriana Astuty, Ivan Diryana Sudirman	
Classifying YouTube Videos Based on Their Quality: A Comparative Study of Seven Machine Learning Algorithms	251
N.H.T.M. De Siva and R.A.H.M. Rupasingha	
Ensemble Learning Approach for Predicting the Necessity of Mental Health Treatments of Employees	257
J.K. Imanthika, K.S. Ranasinghe and R.A.H.M. Rupasingha	
System Modelling and Simulation to Improve Laundry Business Productivity	263
Lina Gozali, Louis Valentino, Thomson Richard, Dennis Marcello	

Session 03 - Track C (Room D)

Friday 25th August, 16.50 – 18.15

Power, Energy and High Voltage Engineering (Online Session)

Session Chairs: Prof. A. Atputharajah (University of Jaffna), Dr. Vidura Jayasinghe (University of Jayawardenepura)

Efficiency Enhancement of CIGS Solar Cells With BSF Layer and Graded-Bandgap Absorber Layer	269
J.R. Wijesingha, R.M.T Damayanthi, G.I.P De Silva	

Investigation on Multiphase Multistage Bidirectional DC-DC Converter for Electric Vehicles Using Virtual Vehicle Driving Platform	275
Aaruththiran Manoharan, K.M Begam	
Locating Faults in Medium Voltage Overhead Power Lines by Monitoring the Magnetic Field Vector	281
W. A. Vinura U. Wickramasinghe, H. Lahiru Sudharaka Perera, Gihara N. Wickramatunge, W. D. Prasad and D. G. Rienzie Fernando	
Development of Dual Temperature Sensing Approach for In-Situ Temperature Monitoring of a Lithium-Ion Battery	287
Di Wang, Begum Gulsoy, James Marco	
<i>Study on Voltage Harmonic Amplification of Transmission Network of Sri Lanka and Selection of Mitigation Method</i>	293
Iranga Gunathilaka, Kasun Ariyaratna, Kusum Shanthi and Athula Rajapakse	

Session 03 - Track D (Room A)

Friday 25th August, 16.50 – 18.15

Computer Systems with Power, Energy and High Voltage Engineering (Hybrid track) (Physical Session)

Session Chairs: Prof. Janaka Ekanayake (University of Peradeniya), Prof. Lidula N. Widanagama Arachchige (University of Moratuwa)

DC Signature Analysis Aided Power Source Identification	299
Rajdeep Choudhury, Akash Kumar Mandal, Swades De, Kaushik Saha and Ranjan K. Mallik	
Harmonic Emission by Smart LED Systems Under Phase Unbalanced Conditions	305
Sarani Wijerathne, N.W.A. Lidula and Asanka S. Rodrigo	
A Supply-Demand Schedule Estimation Method for Japanese Spot and Balancing Markets	311
Yutaka Tanabe, Mitsuteru Hattori, Yuto Inagaki, Atsushi Nobori, Taisuke Masuta and Kenichi Kawabe	
Neural Network-Based Pipeline for Detection of Sensor Anomalies in Battery Energy Storage Systems	317
H.G.I.Thiranga, M.S.Weeraman, P.A.L.Pathirage, V.Logeeshan and S.Kumarawadu	

Session 04**Session 04 - Track A (Room A)**Saturday 26th August, 08.30 – 09.45*Artificial Intelligence, Signal and Image Processing (Physical Session)*

Session Chairs: Prof. Roshan Godaliyadha (University of Peradeniya), Prof. Vijitha. Hearth (University of Peradeniya)

Narrataa: Learning Tool for Generating Kid-Friendly Sinhala Names for Objects	323
Dilum Nethmi, Rajitha Navarathna and Anutthra Senanayake	
Machine Learning Approach to Detect the Anxiety and Depression Level of Video Game Dependent Individuals	329
Sabanayagam Vaanathy, Charles Joseph and Sugeeswari Lekamge	
Empirical Analysis for the Selection of Baseline Performances for Short Text Classification Research	335
JRKC Jayakody, VGTN Vidanagama, Indika Perera and HMLK Herath	
Comparison of Machine Learning Optimization Techniques for EEG-Based Confusion Emotion Recognition	341
Dasuni Ganepola, MWP Maduranga and Indika Karunaratne	
Weighted Ensemble Algorithm for Aerial Imaging Based Mosquito Breeding Sites Classification	347
Niluksha Thevarasa, Gabaalini Ananthajothy, Rudsika Navaratnam and Maheshi B. Dissanayake	

Session 04 - Track B (Room B)Saturday 26th August, 08.30 – 09.45*Communication and Information Engineering (Physical Session)*

Session Chairs: Prof. Aruna Gunawardena (University of Peradeniya), Prof. Dushantha Nalin K. Jayakody (SLTC)

Intelligent Reflecting Surface-Aided Spatial Modulation in VLC Systems	353
Nethmi S. Hewawiththi, Kapila W. S. Palitharathna, M. Mahesha Viduranga and Bho Matthiesen	
RSMA for Future Generation Multiple Access: Challenges and Opportunities	359
Sameer Kumar Singh, Sagnik Bhattacharyya, Rohit Singh, Brijesh Kumbhani and Sam Darshi	
Machine Learning Based Zero Trust Architecture for Secure Networking	365
Saubhagya Munasinghe, Nuwan Piyarathna, Erandana Wijerathne, Upul Jayasinghe and Suneth Namal	
Beamforming in Intelligent Reflecting Surfaces: Simulation, Prototype Design and Field Measurements	371
Gavishta Liyanage, Kaveesha Gimhana, Supun Rathnayake, Aruna U. A. W. Gunawardena and Disala N. Uduwawala	

Machine Learning Based Atmospheric Duct Interference Evaluation in TD-LTE Networks	377
Rasendram Muralitharan, Upul Jayasinghe, Roshan G. Ragel	

Session 04 - Track C (Room C)Saturday 26th August, 08.30 – 09.45*Power, Energy and High Voltage Engineering (online session)*

Session Chairs: Prof. Sunil Abeyratne (University of Peradeniya), Dr. Kamalanath Samarakoon (University of Peradeniya)

Laboratory Tests of Distribution Feeder Protection Response With Inverter-Based Resources	383
Noah Gruman, Paul Moses	
Image-Based Condition Monitoring of Transmission Line Conductors Using Image Processing and Deep Neural Networks	388
Shehan Kaushalya Senavirathna, Harith Udawatte, Nalin Harischandra, Manjula Fernando, Chandima Ekanayake	
Electric Field Analyses on High Voltage Insulator Surfaces Under Different Water Droplet Behaviors	394
S.H. Meetiayagoda, R.W.N.W.M.R.O.K.B. Galagoda, T.D.T.L. Dissanayake, M.A.R.M. Fernando and W.L. Abeygunasekara	
Performance of Line Surge Arresters for Lightning Protection of Overhead Transmission Lines: A Case Study for Kukule - Mathugama 132 kV Transmission Line	400
Rishanthi Sinniah, Kusum Shanthi , Chamil Edirimuni	
Flexibility Enhancement Process for Power System Planning	406
Akila Herath, Kithsiri M. Liyanage, M.A. Mohammed Manaz and Taisuke Masuta	

Session 05**Session 05 - Track A (Room C)**Saturday 26th August, 09.45 – 10.45*Artificial Intelligence, Signal and Image Processing (Online Session)*

Session Chairs: Dr. Chamira U. S. Edussooriya (University of Moratuwa) Dr. M.A.C. Akmal Jahan (South Eastern University of Sri Lanka)

SoundMind: Doctor Assistive System	412
Ketipearachchi C. D., Katugampala K.D.M.N, Kumari P. A. T. H., Sewwandi S. D. I., Sanjeevi Chandrasiri and Loksha Weerasinghe	
Smart Farmer Education System for Disease Identification, Severity Assessment and Infestation Management (Brinjal)	418
Keshara Bandara, Samitha Vidhanaarachchi, A.A.E. Nanayakkara, Kavindu Kulasinghe, Sanka Rajapakshe, Asela Wickramasinghe and Kanishka Yapa	
Invited Paper: IoT Localization and Optimized Topology Extraction Using Eigenvector	424
Indrakshi Dey and Nicola Marchetti	

- AnthroSmart: A Smart Controlling System for Flamingo Flower Plantation** 430
Sithum Ravishka Rajapaksha, Fathima Rahuma, Kavindu Shamalka Suraweera,
Marasinghe Arachchilage Charith Dhananjaya M A C, Pradeepa Bandara and Samantha
Rajapaksha
- Demonstration Test of Automated Vehicle and Analysis of Drive Recorder Video at
the Lodging Facility Site** 436
Masahiro Taima

Session 05 - Track B (Room A)

Saturday 26th August, 09.45 – 10.45

Control, Robotics and Automation (Physical session)

Session Chairs: Dr. Nalin Harischandra (University of Peradeniya), Dr. Ruwan Ranaweera
(University of Peradeniya)

- Design and Implementation of the Remote Laboratory System to Enhance
Engineering Education in Sri Lanka** 442
H.G.C.R.Laksiri, D.A.A.C.Ratnaweera and D.H.S. Maithripala
- A Pattern Recognition Neural Network Approach for an SSVEP-Based Brain-
Computer Interface** 447
Sachintha K. Jayarathne, Oshadhi P. Rajapakshe, Shashini M. Siriwardhana, Kwangtaek
Kim, Tharaka L.Dassanayake, Nalin Harischandra, Janaka Wijayakulasooriya and Ruwan
Ranaweera
- Digital IC Functionality Duplication Using Neural Networks** 453
Anjana Bandara, Sahan Nayanajith, Ayesh Rajakaruna, Supun Chirantha and
Subramaniam Thayaparan
- Evolution of Bluetooth Classic Audio Towards Bluetooth LE Audio: Challenges and
Road Ahead** 459
Lalit Kumar Baghel, Radhika Raina and Suman Kumar

Session 05 - Track C (Room B)

Saturday 26th August, 09.45 – 10.45

Power, Energy and High Voltage Engineering (Physical Session)

Session chairs: Dr.Sudeera Navarathna (University of Peradeniya), Dr. Prabath J. Binduhewa
(University of Peradeniya)

- Adaptive Load Shedding Technique for Energy Management in Networked
Microgrids** 465
W. E. P. Sampath Ediriweera and N. W. A. Lidula
- Cost-Effective Fish Storage Device for Artisanal Fishing in Indonesia - Utilization of
Solar Cool Box** 471
Rizal Justian Setiawan, Yu-Tzu Chen and Indra Dwi Suryanto
- AI Approach for FRA Based Condition Assessment of Power Transformers** 477
Dilshan Muthukuda, Pamudu Ranasinghe, Primash Morapitiya, Manjula Fernando,
Janaka Wijayakulasooriya and Kapila Bandara

Range Extender for an Electric Three-Wheeler
Prabath J Binduhewa

483

Session 06

Session 06 - Track A (Room A)

Saturday 26th August, 12.00 – 13.00

Artificial Intelligence, Signal and Image Processing (Physical session)

Session Chairs: Dr. Upul Jayasinghe (University of Peradeniya), Dr. Velmanickam Logeeshan (University of Moratuwa)

Deep Learning Based Low Light Enhancements for Advanced Driver- Assistance Systems at Night 489
Pamudu Ranasinghe, Dilshan Muthukuda, Primash Morapitiya, Maheshi B Dissanayake and H.K.I.S. Lakmal

Siamese Networks for RF-Based Vehicle Trajectory Prediction 495
Anjana Wijesinghe, Thanuja D. Ambegoda, Amal Shehan Perera and Thillaiampalam Sivakumar

Long-Run Real-Time Human Tracking at Low Light Condition 501
Sivakumar Sivasankar, Keththura Lawrance, Balaratnam Pirunthavan and Maheshi B.Dissanayake

Vision-Based Real-Time Object Detection and Voice Alert for Blind Assistance System 507
S.A. Nayana Thilanka, G.C.H. Vihanga Dimantha Jinadasa, Prasad M. Bandara and W.M.M. Tharindu Weerakoon

Session 06 - Track B (Room B)

Saturday 26th August, 12.00 – 13.00

Control, Robotics and Automation (Physical session)

Session Chairs: Prof. Lilantha Samaranyake (University of Peradeniya), Dr. Nalin Harischandra (University of Peradeniya)

Voice Response Based Emotion Intensity Classification for Assistive Robots 513
Hoshalarajh Rajendran, H. M. Ravindu T. Bandara, D. P. Chandima and A. G. B. P. Jayasekara

A Path Planning Technique to Reduce the Travel Time of a Micromouse 519
Oshada Rathnayake, Gihantha Wijesekara, Lilantha Samaranyake

Endmember Abundance Prediction in Hyperspectral Unmixing: The Impact of Endmember Extraction Algorithms and Self-Attention in Autoencoders 524
H. M. K. D. Wickramathilaka, R. M. K. L. Ratnayake, D. M. U. P. Sumanasekara, G. M. R. I. Godaliyadda, M. P. B. Ekanayake, H. M. V. R. Herath

Session 06 - Track C (Room C)

Saturday 26th August, 12.00 – 13.00

Electronics, Instrumentation and Bio-Medical Engineering (Physical session)

Session chair: Dr. Waranatha Abeygunasekara (University of Peradeniya), Dr. Tharindu Weerakoon (University of Peradeniya)

- | | |
|--|------------|
| A Wearable LSTM Autoencoder-Based ECG Detection System to Predict Myocardial Infarction | 530 |
| Fernando I.A.S.I., Induwara M.S., Isuranga T.H.N., Chithrani P.A.D., Wickramathilaka D.A.D., Rajapaksha R.M.D.H.A., Wijewardhana U.L. and Balagalla U.B. | |
| Endo-MASS: Multi-Signal Acquisition System and Software for Non-Invasive Assessment of Endothelial Function | 535 |
| R. Pulasthi Ekanayake, Akila M.B. Uyanwatta, Imalsha G.Y.S. Gunasekara, Dinithi R. Hemakumara and Anjula C. De Silva | |
| Significance of Subject-Dependency for Imagined Speech Classification Using EEG | 541 |
| Sandali Nisansa Liyanagoonawardena, Ashan Thamara Palihakkara, Dineth Navodya Mudalige, Chathura Jayasankha Uluwitike Gamage, Anjula C De Silva and Thashi Chang | |