

2023 5th International Conference on Advancements in Computing (ICAC 2023)

**Colombo, Sri Lanka
7-8 December 2023**

Pages 1-435



**IEEE Catalog Number: CFP23V93-POD
ISBN: 979-8-3503-5814-8**

**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:	CFP23V93-POD
ISBN (Print-On-Demand):	979-8-3503-5814-8
ISBN (Online):	979-8-3503-5813-1
ISSN:	2837-5416

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

Message From General Chair	iv
Keynote Speech 1	v
Keynote Speech 2	vii
Workshop 1	ix
Workshop 2	x
Program Schedule	xi
Technical Program Committee	xviii
Organizing Committee	xx
Reviewing Committee	xxiii
Sinhala Sign Language Translation Through Immersive 3D Avatars and Adaptive Learning..... <i>B. G. J. Gamage, R. P. S. D. Paranagama, R. M. S. H. Ranaweera, A. V. R. Dilshan, Ishara Weerathunga, Dharshana Kasthurirathna</i>	1
Optimizing Gas Fees for Cost-Effective E-Voting Smart Contracts on the Ethereum Blockchain <i>B. Deelaka Perera, N. S. Wellappuli Arachchige, Mahawaththe Kodithuwakkuge N. T., M. P. S. Randunu, Lakmal Rupasinghe, Chethana Liyanapathirana</i>	7
Study of Factors Influencing on Mental Health and Their Relationships, of IT Sector Employees in Colombo District, Sri Lanka..... <i>S. P. L. Dias, S. Lokuliyana</i>	12
Machine Learning Based Web Application Plugin for Threat Detection and IP Analysis..... <i>K. D. I. G. Katulanda, H. A. I. S. Henaka Arachchi, R. D. Edippuliarachchi, W. A. N. P. Jayawardena, Lakmal Rupasinghe, Chethana Liyanapathirana</i>	17
Dr. Fish: A Deep Learning-Based Mobile Application for Ornamental Fish Industry in Sri Lanka..... <i>Zarook A. M., Nisanthika G. Y. M., Sathsara A. K. S., Rathnayake E. G. S. R., Kasthuriarachchi S., Jayalath T.</i>	23
KidSwatch: Children Development Observation System..... <i>P. A. L. N. Oshadhini, K. A. D. H. O. Siriwardana, H. K. Peshala Ranmini, S. R. Sandeepa, Lokesha Weerasinghe, Thamali Kelegama</i>	29
User Behavior Analysis in Determining the Vulnerable Category of Vishing and Smishing <i>Prasadi Kumarasinghe, Dushan Dissanayake, Prarthana Gamage, Gamage Upeksha Ganegoda</i>	35
Deep Learning-Based Approach for Real-Time Traffic Signal Optimization and Vehicle Surveillance	41
<i>W. L. D. C. K. De Alwis Gunathilake, S. H. Kalansooriya, W. A. P. Shavinda, S. H. K. Madushan, Harinda Fernando, Dharshana Kasthurirathna</i>	
Development of a Prediction System for Criminality and Suicidal in Sri Lanka <i>D. P. D. Ranasinghe, R. D. T. S. Fernando, D. G. Girambe, D. M. H. K. D. Arambegama, Bhagyanie Chathurika, Dulani Jayasinghe</i>	47

Sankalpa - Interactive Digital Learning Platform to Enrich Students with Special Needs	53
<i>A. I. Basnayaka, E. K. G. D. Epitakaduwa, C. P. U. Jayawardena, Ashan Zoysa, Uditha Dharmakeerthi, Sanath Jayawardena</i>	
Facilitating Physical Activities for Elderly with Dementia in Sri Lanka: An HCI-Driven Approach	59
<i>Hasani Kariyawasam, Thisara Ruwanpathirana, Kaveen Kodithuwakku, Devin Munasinghe, Devanshi Ganegoda, T. Thilakarathna</i>	
Human Skin Diseases Identification and Treatment Suggestion by Sri Lankan Ayurveda Medicine using Machine Learning	65
<i>M. P. O. M. Gomes, Y. N. Jayasekara, K. M. K. R. Kariyapperuma, H. P. M. N. Gunawardhna, N. H. P. Ravi Supunya Suwarnakantha, Geethanjali Wimalarathne</i>	
FedSec: Advanced Threat Detection System for Federated Learning Frameworks	71
<i>K. P. S. Avishka, G. K. A. Gunasekara, K. K. Maduwantha, J. P. L. C. Srilal, Kanishka Yapa, Laneesha Ruggahakotuwa</i>	
“Hand Model” – A Static Sinhala Sign Language Translation using Media-Pipe and SVM Compared with Hybrid Model of KNN, SVM and Random Forest Algorithms	77
<i>G. H. M. S. C. Gedaragoda, W. R. S. Wijesinghe, Abeywickrama T. R., Shashika Lokuliyana, Hansika Mahaadikara</i>	
Machine Learning Approach to Identify Spread of Kidney Diseases in Sri Lanka	83
<i>Weththasinghe A. S., Banuka Ishara W., Hansika Kithmin L. Hewa, Deshan N. A. S, N. P. Ravi Supunya Swarnakantha, Suriyaa Kumari</i>	
Accurate Stress Detection for Developers: Leveraging Low-Cost IoT Devices (ESP32 and MAX30102) to Analyze Heart Rate Variability via an External Mouse.....	89
<i>Amantha Jayathilake, Janudi Ranasinghe, Dulshan Perera, Shehan Bartholomeusz, Samadhi Rathnayake, Devanshi Ganegoda</i>	
Virtual Medical Assistances for Enhanced Healthcare Services in Sri Lanka	95
<i>Kasuni Kavindya Munasinghe, M. S. Arshad Ahamad, Maleesha Chathuranga Kurukulasuriya, Nayani Dineshika Nandasiri, Pradeepa Bandara, Supipi Karunathilaka</i>	
Empowering Secondary Education Through AI-Supported E-Learning	101
<i>Aathif Anwar, Ananthan Yoganathan, Arivaran Thillainathan, Sayanthan Kathirkamanathan, Wishalya Tissera, Karthiga Rajendran</i>	
Sustainable Growth Through Automation: Machine Learning and Computer Vision Advancements in Sri Lankan Floriculture	107
<i>S. R. Liyanage, N. S. N. Basnayake, M. G. U. D. Gamage, P. A. N. Prabhashi, Sanvitha Kasthuriarachchi, Lakmini Abeywardhana</i>	
A Machine Learning Approach to Analyze the Drug Addiction.....	113
<i>U. G. H. T. Kumara, S. S. A. Siriwardana, Lokesh Weerasinghe, R. A. K. I. Shavindi, H. P. R. C. Chiranjewa, Samanthi Siriwardana</i>	
Machine Learning Based Approach to Reduce Food Wastage	119
<i>N. M. Ifham, M. I. M. Abdulla, M. R. M. Rifadh, M. N. M. Hussain Ajward, N. H. P. Ravi Supunya Swarnakantha, Karthiga Rajendran</i>	
Enhancing Early Childhood Learning using Image Processing for Sinhala Medium Education	125
<i>R. G. V. Saranga, A. H. N. Jayasinghe, U. A. S. Divyantha, S. W. L. P De Silva, N. H. P. Ravi Supunya Swarnakantha, P. K. Suriya Kumari</i>	

Deep Learning-Based Predictive and Management System for Dog Care Centers.....	131
<i>S. Mary Lucia, P. M. M. Pathirana, D. M. R. B. Daswaththa, N. M. M. C. Navaratne, K. B. A. Bhagyanie Chathurika, Amali Upekha Gunasinghe</i>	
Predicting the Air Pollution Level and Creating an Awareness Platform	137
<i>M. N. Nuha, G. K. N. P. Wishvajith, Amitha Caldera, N. T. Weerasinghe, G. S. Weeratunga, Shashika Lokuliyana</i>	
Image Classification of Disease Detection in Paddy Crops using Transfer Learning Approach	143
<i>Nithjapoopathy S., Pratheesh B., Sansayan N., Abishaalini S., Lakmal Rupasinghe, Chethana Liyanapathirana</i>	
Enhancing Diabetic Shoe Insole Customization with AI-Driven Approaches.....	149
<i>Nesali Ariyasinghe, Ushani Dahanayake, Kumeshi Samarasinghe, Duneesha Samarakoon, Jenny Krishara, Ishara Weerathunga</i>	
Katha App: Sinhala Phonological Disorder Detection and Treatment in Early Childhood	155
<i>W. M. R. K. Wijesooriya, T. D. M. A. Doloswala, O. B. K. Arachchi, K. A. M. T. Kumarasinghe, Koliya Pulasinghe, Vishan Jayasinghearachchi, Avishka Peiris</i>	
Interview Bot using Natural Language Processing and Machine Learning.....	161
<i>Amitha Caldera, Sathira Hettiarachchi, H. M. R. M. Bandara, Y. S. Abeywickrama, B. D. R. Fernando, I. M. Wijesuriya</i>	
Mobile App Based Enhanced Features for Promote SL Tourism	167
<i>Madhavee Liyanagei, Binusha Jayamal, Vasula Yasas, Tashmi Amaya, N. H. P. Ravi Supunya Swarnakantha, Suriyaa Kumari</i>	
CinnaSense: Enhancing Cinnamon Quality and Health with Image Processing	173
<i>Chamuditha Jayasena, Gayesha Subasinghe, Uditha Ekanayake, Sanuji Nanayakkara, Sanjeevi Chandrasiri, Madhuka Nadeeshani</i>	
“Phrasefluent” – An Automated Solution for Children's Speech Disorders Identification and Therapy Treatment	179
<i>Pasan Karunasekara, Sheshan Deshitha, Dinuja De Alwis, Desan Karunarathna, Shashika Lokuliyana, Narmada Gamage</i>	
Empowering Bell Pepper Farmers with Smart Polytunnel Technology for Powdery Mildew Disease Detection and Management.....	185
<i>Seshmi Senadheera, Nishadi Anuththara, Poornima Lakmal, Supun Sooryasena, Samantha Rajapaksha, Dharshana Kasthurirathna</i>	
AntiXcavator: Automated Host-Based Detection and Prevention Tool for Crypto-Mining Malware using Static and Dynamic Analysis	191
<i>Aathika Salam, M. S. Hassim, Praneeth Nandana Jayawickrama, Anuruddha Bandara Muhandiram</i>	
CapsiScan: Autonomous Robotic System for Monitoring and Managing Greenhouse-Based Capsicum Farms	197
<i>E. R. T. Jayakody, W. T. T. Rabel, R. D. V. Estrop, K. G. L. P. Herath, S. M. B. Harshanath, Pradeep K. W. Abeygunawardhana</i>	
Predictive Modeling for Early Identification of Disease Severity in Acute Respiratory Infections: A Case Study with COVID-19	203
<i>Vindhya Kalapuge, Dharshana Kasthurirathna</i>	

Deep Learning-Based Image Analysis for Detecting Nutrient Deficiencies of Tomato Plants	209
<i>K. C. Nirasha Jayasiri, Sanjeevi Chandrasiri, Shalini Rupasinghe, K. O. Rivindu Karunanayake, Abineshh Uthayachandran, M. I. Fathima Zihara</i>	
An Efficient Real-Time Air Drumming Approach using MediaPipe Hand Gesture Model	215
<i>Pabasara Surasinghe, Pasan Herath, Kokul Thanikasalam</i>	
Design and Musculoskeletal Modelling of a Back Support Exoskeleton (BSE) for Child Care Workers	221
<i>Andrew Jones, Lasitha Piyathilaka, Jay Sul, D. M. G. Preethichandra, Aruna Jayasuriya, Ben Taylor</i>	
Simulation-Based Traffic Management Model to Minimize the Vehicle Congestion in Traffic Signals	227
<i>Suthaharan Satkunarajah, Rukshani Puvanendran</i>	
Smart Aquarium Caring System using Image Processing and IoT	233
<i>Maheshi Jayasinghe, Awasha Wettewa, Bhagya Senanayake, Sashintha Dasanayake, Sanjeevi Chandrasiri, Suriyaa Kumari</i>	
Augmented Reality-Enabled Virtual Platform for Wedding Experience	239
<i>Perera T. A. S. S., Maheshika W. M. S., Rajapaksha R. M. H., Bandara M. A. Y. P. W., D. I. De Silva, Dinuka R. Wijendra</i>	
Development of Image Processing Incorporated Real-Time Smart Water Quality Monitoring System to Detect Algae and Debris for a Sustainable Environment	245
<i>Madusha Harischandra, Sanoj Madhushan, Sachintha Dilruksha, Nipun Shantha Kahatapitiya, Udaya Wijenayake, Bhagya Nathali Silva, Ruchire Eranga Wijesinghe</i>	
Enhancing Recruitment Processes Through Integration of Personality Traits and Professional Skills Analysis	251
<i>Maleesha De Silva, Sandani Zoysa, Manushika Maldeniya, Shanali De Silva, Anuradha Karunasena, Lakmini Abeywardhan</i>	
Sea Cense - A Commercially Valued Sea Cucumber Analyzer	257
<i>Thavishi Hettiarachchi, Gagani Herath, Kasuni Jayasekara, Malmi Thushamini, Buddhima Attanayaka, Narmada Gamage, G. Nishanthan, D. C. T. Dissanayake</i>	
Ganitha Piyasa: Effective Lesson Delivery Method for Graphical Dyscalculia Students	263
<i>Upathissa A. N., Jayakody J. A. D. I. S., Fernando R. R. M., Thilakarathne G. W. D. N. R., Samantha Rajapaksha, Thusithanjana Thilakarathna</i>	
MindRelax: Smart System for Emotion and Mental Stress Monitoring, Detection and Management	268
<i>Shivaani Dushya Rajkumar, Ihill Ushan Dewpura, Piyoshila Fernandez, Chanuth Maduka, Harinda Fernando, Samantha Rajapakshe</i>	
Improve Productivity and Create a Professional Sri Lankan Film Industry	274
<i>O. K. Wijewardena, M. D. T. Saparamadu, Y. A. Saparamadu, Devmini Poornima, Dasuni Nawinna, Wishalya Tissera</i>	
Trek — A Mobile App Solution for Safe Exploration and Healthy Lifestyles	280
<i>A. R. V. S. Fernando, W. M. P. D. Weesinghe, K. J. S. Wijewardhana, R. R. W. G. B. P. P. M. Hulangamuwa, Suriyaa Kumari, Dulani Jayasinghe</i>	
Detection of Diseases and Nutrition in Bell Pepper	286
<i>Aroshini Dissanayake, Imaya Rajapaksha, Randima Gunarathna, Sajani Jayasinghe, Hansi De Silva, Sathira Hettiarachchi</i>	

Predictive Analytics for Blood Supply Chain Management and Data Security in Healthcare System.....	292
<i>Ashini Pushmika, Tharushi Naragala, Pradeep K. W. Abeygunawardhana, Yuthishka Wijesekara, Vinusha Muthukudaarachchi, Rangi Liyanage</i>	
Impact of Industry 4.0 on Organizational Performance in Sri Lankan Apparel Industry	298
<i>Kalana Wijethunga, Shiny Dickson, Nipuni Weerathunga, Susini Senevirathne, Thakshila Samarakkody, Samantha Thelijagoda</i>	
EduPlanner –Best Teaching Method for Students with Down Syndrome	304
<i>H. M. C. H. Herath, N. A. S. B. N. Nissanka, I. M. Illankoon, R. P. Madusanka, Jenny Krishara, Wishalya Tissera</i>	
An Inverse Study of Centrality Measures for Node Groups: Application to Brain Networks	310
<i>Jenusiya Jeyaseelan, Subaramya Srivishagan, Nagulan Ratnarajah</i>	
An Integrated Approach to Enhance Legal Information Retrieval of Sri Lankan Supreme Court Verdicts.....	316
<i>Asel Jayasooriya, Akeel Ahamed, Yomal Bandara, Chamod Gavindya, Dharshana Kasthurirathna, Lakmini Abeywardhana</i>	
SMART UTIL: Utility Bill Management and Usage Analysis for Sustainable Lifestyle	322
<i>Sandaruwan Rajapaksha, Lihini Perera, Nethmi Amanda, Mihiranga Liyanage, Uthpala Samarakoon, Nelum Amarasena</i>	
Poisonous Mushroom Detection using Graph Neural Networks	328
<i>D. P. C. H. Pathirana, R. M. T. U. Rajapaksha, H. M. Samadhi Chathuranga Rathnayake, Kosala Sirisena, Udara Samarathunga</i>	
The Realtime Yoga Assistance System.....	334
<i>Kanagasunderam Nishanthan, Mathyvathana Sivalingam, Priyanthi Rajamanoharan, Thusara Arulneasan, Jeewaka Perera, Sanvitha Kasthuriarachchi</i>	
Digital Assistant for Visually Impaired People.....	340
<i>Thuvaraka Thayaparan, Sanjay Jayakumar, B. A. I. Fernando, Gobisan Ananthanadarajan, Lakmini Abeywardana, Dharshana Kasthurirathna</i>	
A Proactive Approach for Behavior Based Ransomware Detection	346
<i>B. P. W. Madanayaka, N. S. A. Dias, A. K. D. D. V. Samaranyake, K. V. D. A. U. Karawita, Kavanga Yapa Abewardhana, Deemantha Siriwardana</i>	
IHear- Mobile Application for Hearing- Impaired Children to Facilitate Their Hearing and Speech Abilities	352
<i>H. C. Koralage, G. N. J. Liyanage, S. V. M. Senanayake, M. H. M. I. D. Mapa, Buddhima Attanayaka, Hansika Mahaadikara</i>	
Analyzing the Impact of the Sports Event with Machine Learning.....	358
<i>Napitiporn Manoli, Masakazu Takahashi, Yoshiyuki Matsuura</i>	
Identifying False Content and Hate Speech in Sinhala YouTube Videos by Analyzing the Audio.....	364
<i>W. A. K. M. Wickramaarachchi, Sameeri Sathsara Subasinghe, K. K. Rashani Tharushika Wijerathna, A. Sahashra Udani Athukorala, Lakmini Abeywardhana, A. Karunasena</i>	
Integrating Mobile Sensing and Machine Learning for Early Detection and Personalized Management of Chronic Diseases	370
<i>G. D. T. Piyumika, K. V. N. Basnayaka, H. A. Hewage, R. A. R. M. S. M. S. B. Rajakaruna, Thusithanjana Thilakarathna, Jeewaka Perera</i>	

A Comparison of Topic Modeling Techniques for Sinhala.....	376
<i>Dinithi Pallawala, Prasanna S. Haddela</i>	
Integrated AI-Based System for Comprehensive Poultry Management	382
<i>Tharindi Hewawasam, Jasmi Gunasekara, Nipuni Jayarathna, Yohan Indrawansha, Samadhi Rathnayake, Poorna Panduwawala</i>	
Empowering Deaf Children with Sinhala Sign Language, Emotion Detection, and Sound Recognition	388
<i>W. H. K. Fernando, P. L. D. N. Perera, M. I. N. Fernando, P. T. E. W. Gunasekara, Harinda Fernando, Rivoni De Zoysa</i>	
Nail Abnormalities Detection and Prediction System	394
<i>H. H. M. Karunarathne, G. L. C. C. S. Senarath, K. P. T. P. Pathirana, H. M. Samarawickrama, N. Walgampaya</i>	
Garment Defect Detection using Convolutional Neural Network	400
<i>Egodawattaarachchige Asini Bovindya, Samadhi Rathnayake, Anuradha Karunasena, Sahan Pothupitiya</i>	
Comparative Analysis of Pre-Trained Models and Custom CNN for Weed Seedlings Classification	406
<i>H. G. Suriyage, N. M. A. H. Gunathilake, H. M. A. R. Herath, H. M. S. C. Rathnayake, Supipi Karunathilaka, T. M. Senevirathne</i>	
Integrating Machine Learning Models for Chili Disease Prediction and Economic Impact Analysis.....	412
<i>N. H. D. Madhusankha, S. K. Gamage, K. M. N. D. Koonara, Bhagyanie Chathurika</i>	
Parkinson's Disease Early Stage Vocal Disorder Classification with Audio Feature Enhancement	418
<i>Naveen Warnakulasuriya, Sanath Jayawardena, Anuradha Karunasena</i>	
Artificial Intelligence Agent to Identify the Correct Human Resources.....	424
<i>Charithma Jayasekara, Inukshi Senarathne, Anjana Wickramasinghe, Nethmini Jayathilaka, Samantha Thelijjagoda, Hansi De Silva, Nishantha Giguruwa, Nilanga Abeysinghe</i>	
Enhancing Tomato Cultivation for Quality Yield and Demand Fulfillment	430
<i>W. W. H. Kavinda, R. C. Imalsha, A. H. M. C. P. Athapaththu, S. A. Edirisinghe, Sanvitha Kasthuriarachchi, Chamali Pabasara</i>	
Emotional State Monitoring with Personalized Activity Recommendations.....	436
<i>H. D. P. M. Hettiarachchi, M. N. Ekanayake, G. C. Kaveendhya, O. V. Koralage, Piyumika Samarasekara, Dharshna Kasthurirathna</i>	
E- Learning Assistive System for Autism Spectrum Disorder (ASD) for Kids	442
<i>M. A. N. C. Matharaarachchi, G. U. N. Samarawickrama, T. G. S. Hemantha, H. M. L. M. Jayasinghe, Devanshi Ganegoda, M. P. Gunathilake</i>	
Effectiveness of Deep Learning Technologies to Assist Educational Inclusion for Children with Down Syndrome.....	448
<i>Shehan Silva, Anjula Jayasinghe, Rishitha Dilshan, Chandur Dissanayake, Samitha Vidhanaarachchi, Dilshan De Silva</i>	
The Future of Crime Prevention: Police Case Analysis using Machine Learning.....	454
<i>Dharsan R., Krishanthini M., Traveena C., Anubama L., Mahaadikara M. D. J. T. Hansika, Sanjeevi Shahikala Chandrasiri</i>	

Electronic Voting System using Blockchain Technology	460
<i>Tharindu Sadaruwan Perera, Anodya Nimthara Garusinghe, Tharaka Shameera De Silva, Tharindu Kavinda Senevirathne, Kavinga Yapa Abeywardena, Harinda Fernando</i>	
Automated Machine Learning for Prediction of Type 2 Diabetes and Its Major Complications: A Comparative Study	466
<i>Dasun Mallikarachchi, Dulakshi Rathnayake, Dulmi Abegunawardana, Shannon Van-Hoff, Dharshana Kasthurirathna, A Gamage</i>	
Detection and Visualization of Neglected Tropical Skin Diseases using EfficientNet and Grad-CAM.....	472
<i>Pabasara Surasinghe, Papiththira Sabapathippillai, Kokul Thanikasalam</i>	
A-STEM: Advanced Storage Toolkit for Encryption and Migrations	478
<i>Ravindu Prasad Pathirana, Heshan Keshawa Basnayaka, Avishka Kanchana Bandara, Ravindu Manupriya Rajasinghe, Amila Nuwan Senarathne, Pradeep Abeygunawardhana, Pasan Chamiekara</i>	
An Approach for Real Time Computer User Action Monitoring.....	484
<i>Dulshan Alahakoon, Tharindu Samarakoon, Indika Wickramanayake, Kushani Sakalasooriya, Dharshana Kasthurirathna, Anuradha Karunasena</i>	
Optimizing Power Plant Operations Through Machine Learning Based Electricity Demand Forecasting	490
<i>Chamoda De Silva, Vihan Jayawardana, Pasindu Gunasekara, Tharani Medawatta, Anuradha Jayakody, Shashika Lokuliyana</i>	
Personalized Advertisement Recommendation System for a Social Media Platform in Tamil	496
<i>Abiramy Rajivmohan, Nirojan Yogarajah, Jenny Krishara, Lavaniyah Logeswaran, Perera G. P. A. H. R., Karthiga Rajendran</i>	
Knowledge Graph for Multi Hazard Risk Assessment and Management in Rainfall Prone Regions	502
<i>R. S. A. M. N. T. Senarathne, W. D. U. I. Withanage, M. G. S. U. Dilshani, R. M. N. Sandarangi, P. Samarasekara, P. K. W. Abeygunawardhana</i>	
AI-Integrated Single Platform to Enhance Personal Wellbeing.....	508
<i>P. G. D. R. V. Karunarathne, H. K. H. N. Somarathna, N. D. H. Liyanage, M. R. Vithanage, Pradeepa Senani Bandara, Pipuni Wijesiri</i>	
Leaf Guard: Detecting the Diseases in Banana Leaf	514
<i>K. Yathurshan, S. Barathy, G. Karini, P. Sajitha, Pradeep Abeygunawardhna, Kaushalya Rajapakse</i>	
E-Goyama - A Modern Solution for Profitable Paddy Cultivation.....	519
<i>R. M. R. S. B. Ranasinghe, L. Kareshaan, K. M. S. M. Karunanayake, R. A. S. U. K. Ranasinghe, W. Tissera, S. Rupasinghe</i>	
StutterAI: Virtual Assistant for Stutter Detection and Analysis Through Machine Learning and Natural Language Processing Approaches	525
<i>B. A. T. P. Benthota Arachchi, J. M. I. P. Sanjeewa, H. M. A. H. Wijesooriya, M. C. Chandrasena, Jenny Kishara, Thamali Kelegama, V. M. Rajapakse</i>	
Multimodal Fusion for Enhanced Parkinson's Disease Screening: Integrating Brain MRI, Hand Drawing, Facial Expressions, and Voice Analysis.....	531
<i>Naveen Warnakulasuriya, Shalinika De Silva, Janani Madushika, Sadali Gamage, Sanath Jayawardena, Anuradha Karunasena</i>	

RubberMate - Integrated Platform for Rubber Crop Harvest and Production	537
<i>K. A. Y. Perera, M. K. C. N. Mandawela, H. L. G. Nilumika, A. H. P. Rasanjana, M. M. D. J. T. Mahaadikara, Sathira Hettiarachchi</i>	
Enhancing Gripper Force Regulation for Fragile Object Handling: Current-Sensed Motor Controllers.....	543
<i>Rashmi Wijesundara, Buddhika Annasiwaththa</i>	
SentiNet: A Robust and Multilingual Sentiment Analysis System with Transfer Learning and Adversarial Training Techniques.....	549
<i>Bandara H. R. A. M. K., Ahamed M. M. Z., Anjalee Gamage, De Silva S. H. D. Y., Asiri M. A. R., Amithalal Caldera</i>	
Multi Model Approach to Evaluate and Enhance Student - Teacher Interactions	555
<i>Nisal Daksith, Sathsara Wanaguru, Uresha Kolonne, Amaya Dolawatta, Lakmini Abeywardhana, Dharshana Kasthurirathna</i>	
AI-Based Psychology Experts Centralized Support Platform for Post Traumatic Stress Disorder	561
<i>Amantha Jayasuriya, Yehan Gunarathne, Shehan Karawita, Thisara Abeywickrama, Ishara Weerathunga</i>	
Quality Level Identification of Stored Chicken using Machine Learning Algorithms	567
<i>Jasmi Gunasekara, Samadhi Rathnayake, Poorna Panduwawala</i>	
Blockchain-Based Decentralized Breast Cancer Patient Monitoring System for Remote Healthcare Security.....	573
<i>K. N. Dilshan, H. A. C. K. Rathnayake, L. P. T. L. Pathirana, D. H. S. V. Dhanapala, Harinda Fernando, Pradeep K. W. Abeygunawardhana</i>	
A Comprehensive System for Accurate Identification of Gemstones from Corundum, Topaz, and Chrysoberyl Families using Machine Learning Techniques.....	579
<i>E. A. E. Kanjana Epitawatta, Samadhi Rathnayake, Pipuni Wijesiri</i>	
Deep Learning-Based Land Cover Classification for Satellite Images of Sri Lanka using ConvNets	585
<i>Sathira Hettiarachchi, Thushara R. Bandara</i>	
Accurate Poultry Disease Identification and Risk Assessment Through Object Detection.....	591
<i>Tharindi Hewawasam, Samadhi Rathnayake, Poorna Panduwawala</i>	
Smart Gradational Vehicle Disassembling and Troubleshooting Support Assistant.....	597
<i>Suvin Tennakoon, Pamuditha Wickramasinha, Hasini Ranathunga, Chathuranga Upathakumbura, Dharshana Kasthurirathna, Udara Srimath S. Samaratunge Arachchillage</i>	
Early Detection and Effective Treatment for ADHD using Machine Learning for Sri Lankan Children.....	603
<i>R. M. I. S. Kumarasingha, D. M. C. L. B. Dissanayake, P. S. R. Pathirathne, K. M. M. Y. S. Ranathunga, Samantha Rajapakshe, Vindhya Kalapuge</i>	
Personalized and Interactive Demented Care and Learning Mate with a Virtual System using Emotion Recognition.....	609
<i>Nipuna Kaushan, Devshan Fernando, Chamod Gayashan, Sachitha Udayakantha, Hansi De Silva, Sanduni Perera</i>	
Addressing Key Challenges Faced by SME Exporters in Sri Lanka: A Comprehensive Approach using Data Driven Technologies.....	615
<i>Pathirathna G. B. I. D., Arangalla M. S., Herathge. K. N., Ranasinghe D. S. N. S., Didula Thanaweera Arachchi, Vindhya Kalapuge</i>	

Mobile Application for Chili Disease Detection, Correction, Prevention and Price Prediction	621
<i>A. A. H. Nilam, J. S. Perera, I. S. G. Warnakulasuriya, N. W. Edirisooriya, J. K. Joseph, D. M. G. T. Dassanayake</i>	
An Expert System for the Early Identification and Development of Musical Talent in Children	627
<i>T. S. Jayasinghe, W. A. P. K. V. Wickramasinghe, W. S. L. C. Dabarera, S. H. R. M. Nayanakelum, A. I. Gamage, V. Kalapuge</i>	
Automatic Identification of Sri Lankan Butterfly Families using Ensemble Deep Learning	633
<i>Tharaha Nadarashalingham, Logiraj Kumaralingam, Keerthanaram Thanabalasingam, Jeyamugan Thirunavukkarasu, Nagulan Ratnarajah</i>	
HistoMind: AI-Based Historical Place Navigator	639
<i>Chathra Navoda Ranasinghe, Kavindu Ushan Ranasinghe, Niketh Munasinghe, Manul Priyaratne, Buddika Harshanath, Samantha Rajapakse</i>	
Detection of Network Attacks on Application Servers using Deep Learning in IoT Environments.....	645
<i>Nirajan W. Meegammana, Harinda Fernando</i>	
Novel Approach for Enhancing Mental Well-Being Through Machine Learning Techniques	651
<i>O. V. D. E. Roshani, H. M. K. J. J. Ayurwardhana, P. H. M. S. Rodrigo, R. U. Hewageegana, Harinda Fernando, Dilshan I. De Silva</i>	
BRIGHT MINDS Online E-Learning App for Kids - Web Application.....	657
<i>P. Jeryluxshigan, J. Kunekanth, V. Shothripragash, Y. Sanojan</i>	
Chat-Bot Assisted Recommendation Platform for Computers and Repair Services	662
<i>Shanila Thirimanne, Wishwa Rathnaweera, Amanullah Unais, Minindu Senadeera, Lakmini Abeywardhana</i>	
Bridging the Gap: Secure Northbound Interface in SDN with gRPC.....	668
<i>R. M. K. G. Rathnayake, K. A. V. Kalana, Uditha Dharmakeerthi, Amila Senarathne</i>	
Lankan Legacy: An Intelligent System to Recreate Sri Lankan History	674
<i>Yasith T. K. Ravindu, Saranga H. A. Piumika, J. W. P. Vishwa, Savidya A. S. Devsrini, S. Vidhanaarachchi, D. I. De Silva</i>	
Stress Relieving and Emotion Alleviating Activities Recommendation System Based on Deep Reinforcement Learning - A Novel Method Providing Slate Recommendations Which Utilizes SlateQ with Multi-Objective Optimization	680
<i>S. V. Bartholomeusz, H. M. Samadhi Chathuranga, Devanshi Ganegoda</i>	
Improved Feature Extraction for Time Series Data using Sliding Window: A Case Study of Carnatic Tala	686
<i>Rukshani Puvanendran, Oshani Erunika Dayarathna, Thangathurai Kartheeswaran</i>	
AI Powered Virtual Stress Management Assistant for IT Professionals.....	692
<i>Shan Joel Dharmagunaratna, Dulanjaya Premaratne, Dulaksha Harishchandra, Chamod Ranasgala, Thusithanjana Thilakarathne, Buddika Harshanath</i>	
A Cross-Domain Hybrid Model for Paddy Disease Classification.....	697
<i>Tharsaa Niroj, Rukshani Puvanendran</i>	
Blockchain-Based Chain of Custody Evidence Management System for Digital Forensic Investigations.....	703
<i>Pasindu Bathiya Bandara, Oshada Dilshan Jayarathna, Dinetra Tharindu Hewage, Nuwan Pradeep Bandara, Dinithi Pandithage, Deemantha Siriwardana</i>	

QoS Evaluation of SDN Controllers: POX and RYU.....	709
<i>Shashika Lokuliyana, Pipuni Wijesiri, Anuradha Jayakody, Pradeep Abeyagunawardhena</i>	
Plant Health Assessment Based on Precision IoT Leaf Phytometry Techniques.....	715
<i>Ravindu Dolawatta, Janinda Kirindigoda, Kavindu Rathnayake, Shenita Alexander, Anuradha Jayakody, Narmada Gamage</i>	
Gender Influence on Emotional Recognition using Facial Expressions and Voice	721
<i>H. D. P. M. Hettiarachchi, M. N. Ekanayake, G. C. Kaveendhya, O. V. Koralage, Piyumika Samarasekara, Dharshna Kasthurirathna</i>	
Advanced Student Monitoring System for Physical Classes using Pattern Recognition and Behavioral Analysis.....	727
<i>R. K. A. R. Rathnayaka, Mallawaraarachchi S. M. A., H. G. N. D. Wijesiriwardana, S. S. A. Perera, Jeewaka Perera</i>	
Brain Tumor Detection using Image Processing	733
<i>Udara Wijerathna, Nimavi Dissanayake, Dinithi Nimasha, Udara Senarathne, Lokeesha Weerasinghe, Chathurangika Kahandawaarachchi</i>	
HANDTALK: Adaptive and Interactive Self-Learning System for Deaf and Dumb School Students in Sri Lanka	739
<i>Kobigan Krishnananthan, Aroosha Rasheed, Ratheeskan Thadchaneswaramorthy, Kumaran Sathiyavarathan, Samantha Thelijagoda, Karthiga Rajendran</i>	
Smart Mango - Smart System for Mango Plantation.....	745
<i>S. P. Withanaarachchi, B. D. N. Jayamanne, A. Niroshani, M. Z. M. Aksham, Mahaadikara M. M. D. J. T. Hansika, Shashika Lokuliyana</i>	
Intelligent System to Maximize Customer Experience in Restaurants.....	750
<i>R. U. A. Jayalal, Y. E. Nimeshika, G. N. N. Samarasekara, G. R. C. I. Wijerathna, Narmada Gamage, Poojani Gunathilake</i>	
Enhancing Hotel Customer Satisfaction Assessment with Semantic Search-Based Scoring	756
<i>K. M. Tharindu Anupa Hemachandra, Prasanna Sumathipala, A. A. A. Gaweshini Athurugiriya</i>	
Mobile Health Intervention System in Optimizing Healthcare Delivery for Cardiac Patients	762
<i>R. P. K. Prabashana, G. A. J. W. Nanayakkara, W. K. D. C. Wanniyachchi, S. B. A. M. B. S. Arampath, Samantha Rajapaksha, S. M. B. Harshanath</i>	
Enhancing Security in SDN Environments Through Multi-Layer Authentication and Machine Learning-Based Threat Mitigation	768
<i>D. N. Ilangarathna, D. R. G. K. B. Dilshan, Uditha Dharmakeerthi, Amila Senarathne</i>	
Personalized ASD Interventions Recommendation for Sri Lankan Patients	774
<i>P. D. R. Deshan, Shantha Jayalal</i>	
“AgarRiskPro” – Device-Based Approach to Detect Diseases and Solution-Providing System.....	780
<i>R. M. T. D. Rathnayake, A. G. S. C. Arachchi, J. S. M. R. N. W. I. U. Ekanayake, Amithalal Caldera, Sanvitha Kasthuriarachchi</i>	
Identification of Diabetic Related Eye Diseases using Deep Learning	786
<i>Wijesinghe. K. H., Dilshan U. K. T., Dilshan K. B. G. L., Tharupathi M. A. U., Sanvitha Kasthuriarachchi, Samantha Rajapaksha</i>	

Ensuring Electronic Health Record (EHR) Privacy using Zero Knowledge Proofs (ZKP) and Secure Encryption Schemes on Blockchain	792
<i>Ranaweera T. A. V. Y., Hewage H. N. H., Hapuhinna H. K. D. W. M. C. B., Preethilal K. L. K. T., Amila Senarathne, Laneesha Ruggahakotuwa</i>	
Automated Physical Fitness Recommendation System for Driving License.....	798
<i>W. V. S. K. Wasalthilaka, Chathura Samarajeewa, T. Kartheeswaran</i>	
Development of an Enhanced Quality Score Calculation Method for Accurate Assessment of Hotel Quality	804
<i>A. A. A. Gaweshini Athurugiriya, Prasanna Sumathipala, K. M. Tharindu Anupa Hemachandra</i>	
Water Quality Assessment of Reservoirs in Sri Lanka	810
<i>Kavindi Mudunkotuwa, Chamath Senadeera, Beuni Gunawardana, Onara Pathiraja, Dinuka Wijendra, Harinda Fernando</i>	
Development of a Self-Balancing Robot Platform and Information Recording System for Hazardous Environment	816
<i>I. U. Kalatuwage, H. M. K. K. M. B. Herath, B. G. D. A. Madhusanka, S. L. P. Yasakethu</i>	
Forecasting Employee Personality Changes in the Post Covid-19 Era: Ensemble Learning Approach	822
<i>D. N. A. Dissanayake, K. S. Ranasinghe, R. A. H. M. Rupasingha</i>	
Personalized and Interactive Learning Platform for Students with Autism Spectrum Disorder.....	828
<i>K. G. Ranaweera, J. Praneetha, W. P. S De Silva, K. R. B. N. Kempitiya, Ishara Gamage, Thusithanjana Thilakarthna</i>	
“DiagnoMe” Mobile Application for Identifying and Predicting the Chronic Diseases.....	834
<i>Jeewaka Perera, U. U. Samantha Rajapaksha, Gishan Premadasa, Charith Weerasinghe, Hasara Methmini, Shanika Nethusara</i>	
A Mobile-Based Application for Enhance the Knowledge of Kindergarten Children	840
<i>Tharuka Sathintha, Omal Basnayake, Piyumi Wickramasinghe, Rusiru Dharmakeerthi, Uditha Dharmakeerthi, Anuradha Jayakody</i>	
Visual Kids: Interactive Learning Application for Hearing-Impaired Primary School Kids in Sri Lanka.....	846
<i>Dodandeniya J. M. D. G. K. M., Dayananda G. A. I. P., Hewagama S. N. N., Dela W. W. M. R. T. I. W., Dinuka R. Wijendra, Sanvitha Kasthuriarachchi</i>	
Development of Convolutional Neural Network-Based AI-Dermatoscope for Non-Invasive Skin Assessments.....	852
<i>Nipun Shantha Kahatapitiya, Akila Wijethunge, Sajith Edirisinghe, Bhagya Nathali Silva, Mansik Jeon, Jeehyun Kim, Udaya Wijenayake, Ruchire Eranga Wijesinghe</i>	
Smart Dustbin and Garbage Monitoring System using Internet of Things.....	857
<i>Priyanka Thirumugam, Daminda Herath, Shehan Amarasooriya</i>	
Mental Illness Aiding Through Machine Learning and Soft-Computing	862
<i>Senevirathne K. L. A. A. S., Wijendra R. H., Imthiaz M. I., Wijayarathna P. P., Karunasena A., Weerasinghe. K. M. L. P.</i>	

Author Index