

2026 Sixth International Conference on Advances in Electrical, Computing, Communications and Sustainable Technologies (ICAECT 2026)

**Bhilai, India
8-9 January 2026**

Pages 1-635



**IEEE Catalog Number: CFP26T24-POD
ISBN: 979-8-3315-7323-2**

**Copyright © 2026 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:	CFP26T24-POD
ISBN (Print-On-Demand):	979-8-3315-7323-2
ISBN (Online):	979-8-3315-7322-5

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

Enhanced Anaemia Detection Using Deep Learning Models Integrated into a Web-Based Fingernail Imaging Application with Email Authentication	1
<i>T.M. Sheeba, J. Anita Smiles, M. Anand, S.Albert Antony Raj, A.S.Anshy Princella, R. Rishi</i>	
IoT-Driven Deep Learning Logic to Identify Cardiovascular Diseases using Electrocardiogram Images	8
<i>J. Gokulapriya, P. Logeswari, Thiyagarajan Jayaraman, R. Rajesh, Senthil Kumar Sengottaiyan, Yuvaraja Thangavel</i>	
Time-Temperature Profile Modelling for Developing Artificial Intelligent Cooking Systems	14
<i>Umesh Chavan, Rushikesh Dhavane, Dnyeshawari Patil, Shruti Sonar, Renuka Shinde, Samrat Gade</i>	
Enhancing Financial Inclusion Through AI: A Machine Learning Methodology for Credit Rating and Loan Accessibility	22
<i>Kavitha U, Sreejith S, Manoj P, Harshad Ali Khan</i>	
Brain Tumor Detection: Comparative Performance Analysis of MobileNetV2 Classification Metrics in Healthcare	28
<i>Geetha R</i>	
Edge-AI Enabled PCOS Diagnosis: Optimizing MobileNetV2 for Medical Ultrasound Analysis	33
<i>Geetha R, D Jenila Rani</i>	
A Machine Intelligence Stacking Classifier for Multi-Class Intrusion Detection for Host System.....	38
<i>Manoj Kumar Singh, Jyotiprakash Patra, Siddharth Choubey</i>	
A Self-Optimized PSO-XGBoost Regression for Robust Feature Selection and Diabetes Prediction	44
<i>Deepshikha Gupta, Malaya Dutta Borah</i>	
Design and Experimental Validation of AntBot: An Accessible Hexapod Platform for Surveillance	52
<i>Rishitha C, Divya Rithanya, Karthikeya Y, Kaushal S, Akhil V. M</i>	
Hyperfused Multi-Modal Deep Learning for Automated Acute Lymphoblastic Leukemia Detection and Subtype Classification	59
<i>Elakkiya A, G. Manimala</i>	
Lightweight and Explainable ResNet-50 Model for Real-Time Pneumonia Diagnosis on Edge Platforms	67
<i>Lisha Kurain, P Amudha</i>	
FedMindPurpose: A Federated AI Framework for Purpose Discovery and Mental Health Support in Youth	72
<i>Thilakavathy P, Rajakumar B, Sundara Rajulu Navaneethakrishnan, Deepa R, Surendran R</i>	
Automated Deep Learning Framework for Multi-Label Skin Cancer Classification Using Balanced Dermatoscopic Data	80
<i>Bukke Deekshith Naik, Konduru Mahesh Raju, Jawalkar Balaji Rao, Mude Nagarjuna Naik, Sriramkumar R, Lakshmanan M</i>	
Deep Learning-Based Detection of Multiple Sclerosis from Multi-View MRI Slices	86
<i>Himanshu Pant, Garima Joshi, Bhupesh Rawat, Manoj Chandra Lohani</i>	

Personalized Content Recommendation on Instagram: Leveraging AI to Enhance User Reach	92
<i>Ruchi Sharma, T. Dhivya Bharathi, Ajmeera Kiran, Saravanan R, Sajiv G, N. Dharani</i>	
A Multi-Agent Deep Reinforcement Learning Framework for Dynamic Path Planning in Autonomous Vehicles	97
<i>Javed. N, R. Yogesh Rajkumar</i>	
A Deep Explainable Learning Framework for Transparent Decision-Making in Critical Domains	103
<i>Anitha Govindaram, G. Charlyn Pushpa Latha, K. Logu, C. Anuradha, Nelson Kennedy Babu C, Narenthirakumar Appavu</i>	
A CNN-Transformer Dual-Stream Architecture for Enhanced Hyperspectral Image Categorisation	109
<i>Anitha Govindaram, G. Charlyn Pushpa Latha, K. Logu, Nelson Kennedy Babu C, C. Anuradha, Narenthirakumar Appavu</i>	
Real-Time English Speech Assessment Using Edge AI and Acoustic Feature	115
<i>Punayya Yentrapati, Sailaja Gaddam, Shagufta Parween, Kasarapu Esther Rani, S.T. Gopukumar, Sreela B</i>	
Mathematical Modelling and Implementation of Traffic Flow Simulation Using Cellular Automata	120
<i>M.Siva Mala, B Uppalaiah, Syed Omar Ballari, S. Vijay Peter, Naveen Malik, R Saravanakumar</i>	
Detection of AI-Generated Image Using DINOv2 and CLIP	125
<i>Satheesh K, R. Sujatha, Vasanth dhayanithimaran A, D. Thamizhisai</i>	
Real-Time Synthetic Identity Fraud Detection Using Recurrent Neural Networks for Sequential Data Analysis	132
<i>Vamsi Krishna Chidipothu, Cheemaladinne Vengaiah, Kathari Santosh, Bobonazarov Abdurasul, Sajiv G, S. Manochitra</i>	
Exploring the Role of Artificial Intelligence in Enhancing English Language Learning Assessment Practices	137
<i>K. Poornima Varalakshmi, P. Lakshmilavanya, P. Rajisha Menon, K S Punithaasree, Punit Pathak, Prabhu M</i>	
Deep Learning-Based System for Automatic Speech Recognition (ASR) in Noisy Environments	143
<i>K. Ananthajothi, Aadhithya R K, Aaditya S</i>	
Comparative Analysis of Clustering Algorithms in High-Dimensional Biomedical Applications	149
<i>Mustafa Shareef Khanjar, Yasir Adnan Hussein, Anmar Yahya Taher, Saad Mutashar, Omar Sameer Khalis, Adnan Hussein Ali</i>	
Blockchain-Enhanced Face Image Authentication Using Lightweight CNN and DWT-SVD Watermarking	156
<i>Samir Abdul-Sattar Lafta, Adnan Hussein Ali, Anmar Yahya Taher, Saad Mutashar, Omar Sameer Khalis, Yasir Adnan Hussein</i>	
Enhancing the Detection of Minority Attack Classes in Network Intrusion Detection Systems Using Ensemble Deep Learning Approaches	164
<i>Ch. Kodanda Ramu, T. Srinivasa Rao</i>	
Supervised Model-Based Feature Selection on Diverse Dataset	169
<i>Srimannarayana Mopidevi, Durga Prasad Pitti, Kavyasri Thatavarthi, Vishnavi Eddu</i>	

Neuro-Symbolic AI Framework for Automated Concept Reinforcement in Skill-Oriented STEM Education Environments	175
<i>P. Suria Thilagam, Muhammedali Chalikandy Puthiyapurayil, Sweta Ravindran, N. Sheik Hameed, S. Vijayakumar, R S Sabeenian</i>	
Design of a Resilient and Sustainable Microgrid for a Brazilian Air Force Base.....	180
<i>Luis Felipe Moreira Teixeira, Amiron Wolff dos Santos Serra, Luiz Antonio de Souza Ribeiro, Jose Gomes de Matos, Osvaldo Ronald Saavedra Mendez</i>	
RetinoScope: Advancing Eye Disease Diagnosis Through AI-Powered Multi-Fusion Classification	185
<i>R.L.Mani Malar, R. Valarmathi</i>	
TransUnet-Based Vision Transformer Frame Work for Accurate Lung CT Image Segemenatation	192
<i>Manikumari Illa, J.Peter Praveen, S.Ramalingeswara Rao, T.Babu Rao, Y. Harnath, B. Mahaboob</i>	
3D CNN Based Decision Framework for Autonomous Maneuvering	197
<i>Paramita De</i>	
Hierarchical Vision-Language-Aware Product Detection in Dense Retail Shelves Using Enhanced YOLOv12.....	202
<i>Kiran Muralreedharan, Nirmal Varghese Babu</i>	
Detection and Identification of Monkeypox Viral Disease Using Deep Learning.....	208
<i>Chaithra I V, Aashitha S, Chaithra S N, Suchithra S, Shravya S Gowda, Kavya T M</i>	
NeuroRhythm: EEG-Based Adaptive Music Therapy for Calming Autism Hyperactivity	213
<i>Jaeyalakshmi M, Nithish Rao P, Nishal I P</i>	
Adaptive Temporal-Spatial Attention Framework for Early Epileptic Seizure Prediction Using Multichannel EEG Signals	219
<i>Jeffrey Chris, Nirmal Varghese Babu, J. S Rajkumar</i>	
GPS-Enabled Attendance Tracking System: A Location-Based Approach for Enhanced Accuracy and Security	225
<i>Sanjay S R, Viren J, Surendar Kumar H P, Yashas S, Keerthishree B T</i>	
DeepRetina: Transformer-Enhanced EfficientNet for Retinal Disease Classification.....	230
<i>Maria James, B. Ramamurthy, Saravanan K N</i>	
Vision Transformer-Based Early and Real-Time Detection of Cowpea Mosaic Virus for Precision Farming	239
<i>Parthasarathy Seethapathy, Kannan M, E Madesh, Arjun S, K S Harisankar, Santhosh S</i>	
Accelerating Multi-Cancer Diagnostics: A Deep Learning and Mobile Application Based Histopathological Image Analysis System	245
<i>Kannan M, Thahseen Thahir, Renswick Sebastian, Sharanyanivasini J S, R Saravanakumar, M. Nirmalprithvraj</i>	
A Hybrid Framework for Sentiment Analysis on Textual Data Using BERT Embeddings and Random Forest Classifier	252
<i>Uddipan Ghosh, Suvabrata Sarkar, Susovan Jana, Indrashish Bhattacharya, Kishan Singh, Priyanka Kumari</i>	

Intelligent and Secure Image Data Hiding Using AI-Driven Embedding (TA-DPCNN) and Cryptographic Protection.....	257
<i>Thatigutla Rohith Kumar Reddy, Galisetty Jayaprakash Venkat Narayan, Sahir Shaik Ahamed, Parasa Rishil Sree</i>	
Optimizing Seat Utilization in Bus Transport Through AI-Powered Segment Management	263
<i>Joe Freddie Cheeran, Nirmal Varghese Babu</i>	
A Hierarchical Sensing IoT Framework for Fire Detection Integrating Low-Power Sensors with On-Demand AI-Driven Visual Verification	269
<i>K B Charan Teja, Turaga Krishna Kartheek, V Dhatrish, Vijaya Raghavan N, Saranya S N, Madhumala R B</i>	
Event-Driven Fixed-Time Control for Underactuated Nonlinear Systems: Application to Quadrotor UAVs	276
<i>Madhumita Pal, Sanjoy Mondal, Amal Barman, Ashish Raj Verma, Satyajeet Prakash, Sagnik Chakraborty, Avishek Soe Mondal</i>	
Adaptive Self-Healing Video Encryption Framework for Robust Multimedia Security	283
<i>P Padmaprasad Shenoy, Hemalatha S, Prashanth Barla</i>	
Identifying the Most Influential Person in Social Media Using Directed Graph and Machine Learning Models.....	289
<i>Ponnathota Sai Likhitha, Balne Kavya Sree, Sunkavalli Krishna Mani Sanjana, Busi Mokshitha, Puvvada Dharani, Koduru Hajarathaiah</i>	
Pre-Transaction Fraud Risk Prediction in DeFi Using Explainable AI	295
<i>Rino Thomas, Savitha K.K</i>	
Modeling Emotional Trajectories in Storytelling LLMs: Toward Emotionally Coherent AI Narratives for Learning Contexts	301
<i>Rohit Bharti, Manmohan Sharma</i>	
Hierarchical Attention Network with GNN Embeddings for Credit Risk Prediction	308
<i>Krishna Chaitanya Yarlagadda</i>	
Attention-Driven Spatio-Temporal Graph Neural Networks for Fraud Monitoring.....	314
<i>Krishna Chaitanya Yarlagadda</i>	
Extended BIGS Algorithm to Find All Possible Metric Bases and Fault Tolerant Metric Bases in Certain Johnson Graphs for Error-Correcting Code Design.....	319
<i>Abigail M V, Simon Raj F</i>	
Enhancing Security Centric Node Identification in Complex Networks Using Genetic Algorithm.....	325
<i>Dinesh Rengaswamy</i>	
Hydrodynamic Study of Oscillating Water Column Device with Circular Front Wall in Oblique Wave Conditions	331
<i>Santanu Kumar Dash, Kailash Chand Swami, Santanu Koley</i>	
Compact Multithreaded Web Server for Static Request Handling	337
<i>Bhargav M. Savaliya, Pal A. Patel, Yash Pratap Singh, J. Shajeena, S. Rahmath Nisha, Jubilant J Kizhakkethottam</i>	
IGNISYL: Ai-Powered Insider Threat Detection System with Adaptive Firewall Control Using Multi-Domain Security Intelligence	343
<i>Ayswaria Lekshmi, Divya Mohan, R Anand, Sruthi G S, Vrinda V</i>	

AgriBot: An LLM-Guided IoT System for Real-Time Soil Monitoring and Irrigation Advice.....	347
<i>Saranya S. N., Madhumala R. B., S. Dishan Samuel, Shashank G. Yaplar, Shashwath V., Vincent Samuel Paul</i>	
Joblinker: Automated Recruitment Through Verified Intelligence.....	353
<i>Uddipan Ghosh, Apalok Roy, Indrashish Bhattacharya, Suvabrata Sarkar, Soumabha Ghosh, Shatakshi Shandilya</i>	
A Hybrid IoT and Machine Learning Approach for Real-Time Air Pollution Detection and Prediction	359
<i>G. Sreedev, Divya Mohan, Rithunandha. K P, Akash Krishna, Amisha. P</i>	
Machine Learning Integrated Zero Trust Automation with DevOps Principles for Continuous Security Enforcement.....	364
<i>Ankur Mahida</i>	
Function Profiling and Runtime Environments for Energy Aware Deployments.....	371
<i>Aania George, Rupa Laalasa Oruganti, Adnaan Dawood, Prafullata Kiran Auradkar</i>	
Smartphone-Based Deep Learning Approach for Bacterial Classification Using Microscopy Images.....	376
<i>Vaishnavi J Naick, Alfya Basheer, Sanjay Pal, Rahul Krishnan Pathinarupothi</i>	
Algorithmic Chain Encryption (ACE): Enhancing Cryptographic Security through Dynamic Sequential Multi-Algorithm Application.....	381
<i>Kartik Aslia, Navjeet Kaur, Rajesh Kumar</i>	
An Application of Precision Agriculture Based on Machine Learning for Prediction of Crop Yield and Fertilizer Recommendation.....	390
<i>Utkarsha Bonde, Aryan Koshal, Sharvil Kolhe, Priya Dasarwar, Praveen Kumar Dhankar, Shreyas Holey</i>	
Enhancing Credit Card Fraud Detection Through Principal Component Analysis and Machine Learning Models.....	396
<i>Jyoti Singh</i>	
Non-Contact Heart Rate Monitoring for Real World Health Surveillance	402
<i>Kajri K. K, Rahul Krishnan Pathinarupothi</i>	
DeepNavX: A Deep Vision Framework for Robust Navigation in Weather-Degraded Driving Scenarios	408
<i>Shambhavi Singh, Gaurav Sharan</i>	
Modular Multiplicative Divisor Labeling in Vertex Switched Jellyfish Graph	413
<i>K. Vijayalakshmi, M. Babu</i>	
Multi-Source Sentiment Analysis for Cryptocurrency Prediction Using Machine and Deep Learning Models.....	419
<i>Rithu S, Namrata Chirmade, Dhruv Khatri, Amrit Kochar, Mangal Singh</i>	
Explainable Mobilenetv2 Framework with Knowledge Graphs for Classifying Hand-Foot-Mouth and Chickenpox Diseases	426
<i>N. Susmitha, T. Anuradha</i>	
Machine Learning Based Soil Nutrient Analysis in Rural Bengaluru: A Naive Bayes Approach	432
<i>Shobha N, Jagadishwari V, Chandrakala B M, Suma V, Harsha. S</i>	

Ensemble Machine Learning Approaches for Reliable Palm Oil Adulteration Detection	436
<i>Himanshu Pant, Garima Joshi, Bhupesh Rawat, Janmejay Pant, Devendra Singh</i>	
Early Detection of Parkinson's Disease Using a Multimodal Machine Learning Model.....	443
<i>Aayush Sundaresan, Karthika Veeramani</i>	
Real-Time Sign Language Detection and Translation Using Mediapipe Hand Tracking and TensorFlow Neural Networks.....	449
<i>Dileep Reddy Bolla, Naveen K, Anirudh S Menon</i>	
Chronic Obstructive Pulmonary Disease Detection Using a Smart Stethoscope Prototype	453
<i>Letitia Nimshi, P. Manimegalai</i>	
Intrusion Detection System for Networks Using Hybrid ML Algorithms	461
<i>Vasanth Nayak, Rashya Shetty, Nisarga Shetty, Jashmi M R</i>	
Assessing the Performance of Traditional and Deep Learning Models for Text Generation and Classification: An Empirical Study	467
<i>Shouryadhar Karamsetty, Danda Sanjana Reddy, Annadi Abhinaya Reddy, Annam Varsha</i>	
Examining Blue Collar Adoption of Supply Chain Platforms Using Technology Acceptance Model (TAM).....	473
<i>Hendy Tannady, Harits Hijrah Wicaksana, Agung Edi Rustanto, Eva Yuniarti Utami, Degdo Suprayitno</i>	
Computational Framework for Human–AI Symbiosis: A Multidimensional Approach to Augmented Intelligence and Mutual Learning.....	477
<i>Shravanchandra G, T. Ram Kumar, Vinayagan S, Vishnu Kumar Mishra, Megha Mishra, K. Parijatha</i>	
Brain Tumour Detection System Using Deep CNN and GenAI.....	482
<i>Poovizhi P, Rajasekaran P, Vijaya Kumar T, Sadhana S A, Sanjana N, Aakash S</i>	
Detecting Phishing Websites Using Hybrid Feature Extraction and Classification.....	489
<i>D. Shunmuga Kumari, S. Sathya, K. Prakash, Sheela K, M. Sakthivanitha, V. Poornima</i>	
Intelligent Sleep Disorder Predictor and Personalized Wellness Guide Using Enhanced Machine Learning	496
<i>G. Prabhakar, Arshia Mehtaab Katika, Attili Manisha, Devarla Keerthana</i>	
AI for Feminist Media Studies: Exploring Menstruation Stigma on Indian Youtube Using NVivo Analysis	501
<i>Samiksha Jain, Priya Sachdeva, Vinay Vikram Singh, Prachi Malhotra</i>	
Real-Time Vehicle Detection Using Deep Neural Networks.....	507
<i>Megha Mishra, Rapaka. Usha, Mohaideen. A, Vishnu Kumar Mishra</i>	
A Ganomaly Based Machine Learning Approach for Unmasking Deepfake Voices.....	513
<i>MD. Naseera, Parkala Akshara, Mohammad Maahirah, Patlolla Shalini</i>	
Self-Evolving Multi-Agent Reinforcement Learning Systems for Decentralized Decision-Making in Open-Ended Environments	519
<i>Harsh Wasnik, Yash Wasnik, Rishab Khatokar, Dhawal Gajwe</i>	
Predictive Analytics for Machine Failures Using IoT Sensor Data and Machine Learning	525
<i>Geetha R, Diana Grace Thomas</i>	

Machine Learning with Wrapper Methods Approach for Feature Selection	530
<i>Yadavendra Kumar Cheruvu, Hemanta Kumar Bhuyan</i>	
Artificial Intelligence in Marketing Using Predictive Personalization Framework.....	536
<i>Aruna Devi C, J.J. Savithri, S. Thirupparkadal Nambi, S. Ananthi, G. Sudhanthira, Malliga. P</i>	
Cognitive and Stylistic Impact of Conventionalized Expressions on Narrative Perspective and Character Formation in Modern English Fiction.....	542
<i>Syed Wahaj Mohsin, Priyadharshini CPC, Purnachandra Rao Alapati, Ritu Sharma, Sambana Madhuri, Sreela B</i>	
Unsupervised Learning Techniques for Intrusion Detection in Computer Networks A Comparative Study Using the CICIDS2017 Dataset	548
<i>M.Beulah Viji Christiana, Shashiraj Teotia, Safeena C, S. Dhivya, K. Santhi</i>	
Predictive Analysis of Internet Use and Risk Among Children and Adolescents via Machine Learning	554
<i>Mansi Jaiswal, Udit Ramalingegowda Manchattahalli, V. Seedha Devi, Maheswari S., Minu Susan Jacob, Jose Anand A.</i>	
Defect Detection in Lead-Acid Battery Plates Using Computer Vision and Deep Learning.....	560
<i>Suraj Kumar Bandhekar, P. Ramani, Harsimran Singh, R Arravind, Pritam Kailas More, Vinod Kumar V. Meti</i>	
Adaptive AI-Driven Learning Pathways for Real-Time Knowledge Personalization in Multilingual Digital Education Ecosystems.....	566
<i>Namita Breja, Rippandeeep Kaur, Ranjeeta Saini, Harpreet Singh, Priya Sharma, Prema S</i>	
An Explainable AI-Based Context-Aware Forecasting Framework for Accurate and Understandable Demand Predictions.....	571
<i>S. Subha, M. Jasmine, M. Gomathi, R.S.V Keerthana</i>	
A Hybrid Deep Learning Approach for Sign Language Recognition Using MobileNetV2 and Attention Mechanism	575
<i>Gudupalli Sravya, Surajit Das, Kammari Anjali, G Vindu Priya, Sathvika Gajula</i>	
PPG-Based Respiration Monitoring Using CycleGAN.....	581
<i>D Loganathan, Nihal B, Rachana S Kamalpur, Gowtham R</i>	
Federated Deep Learning Framework for Privacy-Preserving Student Performance Prediction in Multi-Institutional Educational Systems	586
<i>Gagandip Kaur, Ranjeeta Saini, Rippandeeep Kaur, Yogesh Punia, Priya Sharma, Vimochana. M</i>	
Obesity Risk Prediction Using Explainable Stacked Machine Learning with Lime Insights.....	592
<i>Boyineni Srinivasulu, Mittapelly Snehalatha Reddy, Mekala Shirisha, Maddukuri Nitya Santhoshi, Peddigani Akhila</i>	
Application of Elastic Net Regression to Predict Air Quality in India	598
<i>Rosario Gilmary, D. Nivedha, N. Manvizhi, B. Pradeepa</i>	
Earthquake Alert Prediction Using Machine Learning Models for Resilient Infrastructure.....	603
<i>Diana Grace Thomas</i>	
Advanced Fuzzy Neural Network Modeling of Ni(II) Ion Adsorption on Modified Biochar: Synergizing Experimental and Computational Analysis	608
<i>Anbalagan S</i>	

Deepfake Detection System Using Hybrid Deep Learning for Images and Videos	614
<i>Sunil Kumar KN, G. Venkat Jaya Prakasha Reddy, Guru Prakash B, K Naveen</i>	
Fast and Accurate Human Fall Detection with Hybrid Deep Learning and OpenCV-Based Human Detection	619
<i>Rosario Gilmary, N Manvizhi, V Thendral Balaji, P Nirmal</i>	
Fine-Tuned BERT-Based Framework for Accurate Grammar Error Detection in English Academic Writing.....	625
<i>G Immanuel, B Sridevi, Mary Surya Kala, Shagufta Parween, M.G. Abinaya, R Saravanakumar</i>	
Ethical Implications and Emerging Opportunities of Machine Learning Models in Automated English Language Testing	630
<i>Bhanu Rekha, Banti Dutta, Shveta Tripathi, Joy Christina Sara Jayakodi, Viju M. J., Sreela B</i>	
Attention Driven Swin UNet Framework for Accurate Brain Tumor Segmentation Across Multi Parametric MRI Modalities	636
<i>Rakeshnag Dasari, Malik Bader Alazzam, Al-Hussein Maysir Majid, Abdul Hameed Al- Shammari, Manivannan Govindasamy, Alamelu alias Rajasree. S</i>	
Artificial Neural Network-Based Optimization and Kinetic Modeling of Magnetic Nanoparticle- Impregnated Jackfruit Seed Biomass for Pollutant Removal	642
<i>Anbalagan S</i>	
X-Ray-Based Tuberculosis Detection Using Portable Edge AI Device in Rural Regions.....	648
<i>Anika Kanigeri, Amrutha K Illam, Yadu Harish, Sanjeevi G, Rahul Krishnan Pathinarupothi</i>	
Explainable Hybrid Architectures for Hematologic Malignancy Detection in Bone Marrow Smears	652
<i>C. Nithiya, R. Pari</i>	
Self-Learning Evolutionary Control Networks for Adaptive Energy Optimization in Smart IoT Cyber-Physical Systems	656
<i>Asfar H Siddiqui, P. Kavitha, B. Swathi, Nurilla Mahamatov, Y Rama Lakshman, B.Anitha Vijayalakshmi</i>	
Optimizing Context-Aware Testing for Mobile Applications - Advanced Techniques for Effective Test Coverage	662
<i>S. Shanmuga Priya, R. Suganya</i>	
Machine Learning Based Pigment Epithelial Detachment Detection in OCT Images	668
<i>M. Anand, T. M. Sheeba, S.Albert Antony Raj, J. Anita Smiles, A. S. Anshy Princella</i>	
Cognitive Metaphors and Conceptual Mappings in Figurative and Conventionalized English Expressions a Linguistic and Psycholinguistic Study.....	673
<i>Shagufta Parween, Neha Jain, Neelima Srivastava, M.G. Abinaya, Hari Nair, K. Selvakumarasamy</i>	
AI-Enabled Stroke Detector: A Hybrid Deep Learning and Machine Learning Approach.....	679
<i>Vijay Pawar H G, J B Simha, Kiran Kumar K V</i>	
Cryptographic Framework Using Dual Labeling and Web Graphs for Enhanced Data Protection	684
<i>K. Maragathavalli, R. Mary Jeya Jothi, Thamizisai. D</i>	
A Scalable Graph-Theoretic Cryptographic Scheme Using Cartesian Product and Matrix Transformations.....	691
<i>K. Maragathavalli, R. Mary Jeya Jothi, Thamizisai. D</i>	

Multi-Framework Evaluation for Breast Cancer Classification: From CNNs to Swin Transformer.....	697
<i>R. Athilakshmi, G. Maragatham, M. Tamilselvan, S. Madhan, V.Arun Karthikeyan, HanishKaa Ravi</i>	
Challenges and Approaches in Machine Learning for Climate Change Prediction: A Comprehensive Review.....	704
<i>Saima Khan, Rakesh Singh Rajput</i>	
A Performance Evaluation of User-Isolated State Management in Secure P2P Systems	710
<i>D. Dinesh Reddy, Ch. Dhruvanth Babu, K. Raghunandan, S. Satheesh Kumar</i>	
AI-Driven Real-Time Stock Forecasting Framework with Kafka and Cassandra	715
<i>Sridhar Udayakumar, E. Anbalagan</i>	
RFID and QR Code-Based Smart Shopping Cart System.....	721
<i>Mamatha S, Sulakshana K Badiger, Sapthami K, Sharon Jessy T S, Vennela V</i>	
Supervised Model for Brain Stroke Using Feature Selection Approaches	726
<i>Chithirala Bala Subramanyam, Hemanta Kumar Bhuyan</i>	
Machine Learning Based Plant Illness Identification System Bolstering Agricultural Productivity Using Texture Analysis.....	732
<i>Bipin Bihari Jayasingh, Y. Rama Devi, K. Mary Sudha Rani</i>	
Integrating Air Quality Data and Health Surveillance: A Machine Learning Approach to Predicting Respiratory Disease in India.....	738
<i>Siddique Ibrahim S P, Anshul Jha, Akshar Jha</i>	
A Deep Residual Learning Framework with Grad-CAM Explainability for Multi-Class Dermatological Image Classification	743
<i>Reshma R, Shwetha M K, Raja Thejaswini N</i>	
An AR-Integrated Learning Management Platform for Immersive Medical Training Using Multimodal Learning Techniques.....	749
<i>Reshma R, Saravana Sairam C, Kishan GS, Monish M</i>	
Digital Twin Modeling and Graph Neural Networks for Predictive Analytics in Remote Healthcare Monitoring Platforms	755
<i>Ammar Younas, Bobonazarov Abdurasul, Saptarni Roy Chowdhury, V S Krushnasamy, R Saravanakumar</i>	
Comparative Analysis of Explainable AI Techniques for MRI-Based Neurodegenerative Disease Detection Using LIME, SHAP, and Grad CAM.....	761
<i>M. Raja Nandini, Peddi Meenakshi, Muda Keerthi, Kurva Akhila</i>	
A Robust EfficientNet-B3 Framework for Smart Waste Classification with Focal Loss and Cosine Annealing	767
<i>Potturi Reshma, Viswaprasad Kasetti, M S Radha Mangamani, Hemanand Chittapragada, Solleti Phani Kumar, Uday Kumar Dosanapudi</i>	
Comparative Study of Machine Learning Algorithms for Heart Attack Prediction.....	773
<i>Sivamani Selvaraju, Suganya S, Devarajan Veerasamy, Kattupalli Sudhakar</i>	
Customer Impatience in M/M/1 Queuing System with Working Vacations	779
<i>M. Seenivasan, N. Siva Sankari, V. Anita, R. Ramesh</i>	

Comparative Machine Learning Approaches for Imbalanced Multiclass Classification in Early-Stage Prediction of Hepatitis C Virus	787
<i>Sivamani Selvaraju, K. Kanagasabapathi, Vishnuprasath A., C. Thirunavukkarasu, Sivamani Selvaraju, M. Ananthalakshmi</i>	
Designing a New Potato and Banana Disease Detection Using Trans-Unet++ and Classification Through Gather-Excite Network	792
<i>Divyakanti Rongali, Sasibhushana Rao Gottapu, Aruna Singam</i>	
A Comparative Study of Explainable Hibiscus Leaf Disease Classification Using EfficientNet-B0 and Grad-CAM.....	802
<i>Daya Rameshbhai Thummar</i>	
Restricted Threshold Based Compressive Sensing Using Group Sparse Representation Rt-Gsr	808
<i>Tejaswini Chetty, Anshuj Jain, Paresh Rawat, Laxmi Singh, Sanjeev Gupta</i>	
Secure Key Derivation Using a Custom PRNG: Design and Application in AES	814
<i>Ayshwarya K, Mary Shamala L</i>	
Segmentation and Feature Extraction Based Breast Cancer Detection Analysis.....	819
<i>Radhika Meegada, Hemanta Kumar Bhuyan</i>	
Intelligent Accident Detection and Response System Using YOLOv8m and SlowFast Networks	825
<i>V. Sivakumar, Akash Kumar Verma, Piyush Kumar, Nitesh Saw, V. Hari Krishnan</i>	
Deep Learning-Driven Neuro-Pedagogical Interface for Real-Time Brainwave-Adaptive Teaching in Immersive Learning Environments	831
<i>Abhishek Kumar Mishra, Sai Kumar Reddy Nossam, Mylavarapu Kalyan Ram, Preeti Y Shadangi, S.Suresh Kumar, B.Anitha Vijayalakshmi</i>	
Enhancing American Sign Language Detection Through Histogram of Gradient Features Using Machine Learning Techniques.....	836
<i>Nithiya Baskaran, P Aurchana, K. Manasa, B. Jogeswara Rao</i>	
Personalized Drug Toxicity Risk Assessment Model Using Machine Learning.....	842
<i>Pooja Dhawane, Narendra Saryam, Yash Ankush, Pratik Madan, C. Puri, Piyush Patmase, Bhargav Bhujade</i>	
Scientometric Analysis of Data Privacy and Cloud Security: Research Trends in Access Control and Encryption Techniques.....	846
<i>R. Archana Reddy, Syed Nawaz Pasha, D Sushma Kumari</i>	
A Theoretical and Empirical Perspective on Customer Satisfaction and Loyalty in Mobile Payment Platforms	851
<i>M. Karthik Ram, S. Selvabaskar, K. Nigama, R. Guhan</i>	
Analytical and Computational Study of MRDN in Caterpillar Graphs using Python with Networking Applications.....	859
<i>R. Vinodhini, T. N. M. Malini Mai</i>	
Comparative Study of Transformer-Based Multimodal Models for Emotion and Intent Recognition.....	865
<i>Aashna Tandon, Muskan Bhatnagar, Poorvi Verma, Seema Sharma</i>	
Optimization of IoT Communication Using Low-Power Wide-Area Networks	871
<i>S. Venkatasubramaian, S.K.B. PradeepKumar CH, M. AurnaDevi</i>	

Veritime: Enhancing Service Industry Accountability with Smart Contracts and IoT Integration	878
<i>Meenal R Kale, Yogesh Mehta, Kathari Santosh, A. Annie Lotus, Archana Borde, K. Selvakumarasamy</i>	
GenX: AI-Powered Genomic Hybridization Analysis and Prediction.....	883
<i>Mayukh Neogi, Saphalya Das, Anasuya Sengupta</i>	
Enhancing Internet Attack Detection Through Advanced Feature Engineering, Deep Learning and Data Augmentation Techniques	889
<i>N. Raja Rajeswari, B. Sarvesan, K. Ramesh Babu, M.P. Kumar, N. Babu, M. Giri</i>	
Momentum Oscillators in Action: A Unified Framework for Share Market Price Prediction	895
<i>Sridhar Udayakumar, E. Anbalagan</i>	
Exploring the Dynamics of Modular Multiplicative Divisor Labeling in Interconnected Cycle Graph Gangs.....	901
<i>P. Kalarani, R. Revathi, R. Vijaykrishnaraj, V G Smilin Shali, B. Kalaiselvi, B. Roopa</i>	
A Swarm Intelligence Optimized Support Vector Machine Framework for Accurate Dengue Outbreak Prediction.....	909
<i>Betteena Sheryl Fernando. D, Sheela Sobana Rani. K, Parameswari. P</i>	
Multimodal Emotion Recognition in English Conversations Using Fusion of NLP and Computer Vision Techniques.....	916
<i>A. Venu Gopal Reddy, Rashmi P B, Difuza Gulyamova, G. S. Bansode, Pavan Kumar Nowbattula, Anuradha. S</i>	
Wearable Sensor Technology for Real-Time Biomechanical Analysis in Competitive Sports	921
<i>Tushar Dhar Shukla, Aakash Dhiman, Neelam Sharma, V S Krushnasamy, Sajiv G, V. Kavitha</i>	
Comparative Efficacy of Focal and Binary Cross-Entropy Loss in Handling Class Imbalance for Stroke CT Classification.....	926
<i>Selorm Adablanu, Utpal Barman, Dulumani Das</i>	
Harnessing Ensemble Learning for Dementia Detection from Speech Patterns.....	932
<i>Priyanka G, Amshakala K</i>	
Data Centric Framework Measuring Social Climate in Study-Abroad Destinations Using Targeted Sentiment Analysis	940
<i>Ahmed Adam, Mohd. Zaid Merchant, Veer Shah, Prashasti Kanikar</i>	
Accurate Classification of Dry Bean Varieties Using Machine Learning Techniques for Enhanced Agricultural Analysis.....	946
<i>Rajakumar M P, M. Balasubramani, R. Suganthi, K. Abinaya, Ishwarya Kothandaraman, M.Robinson Joel</i>	
Reliable Data Routing in Parallel Systems Through Identification of All Possible 1-Fault Tolerant Beacon Sets in Honeycomb Torus Networks.....	952
<i>Libin Bright J M, Simon Raj F</i>	
Integrating Generalized Neutrosophic Sets with Computational Models for Smart Decision Applications.....	958
<i>B. Kalaiselvi, K. Sivakumar, V G Smilin Shali, P. Kalarani</i>	
PM 2.5 Prediction and Remark Classification.....	963
<i>Gomti Kumari, Saurav Kumar Saini, Ritu Rani, Poonam Bansal</i>	

All Possible Locations of Beacons in Perfect Honeycomb+e Topology for Efficient Robot Navigation in Wireless Sensor Networks	969
<i>Abigail M V, Simon Raj F</i>	
Intelligent Heart Disease Risk Assessment through Optimized Machine Learning Frameworks	974
<i>Deeksha Baweja, Satish Kumar Singh, Arun Kumar Singh</i>	
Markovian Queueing System in Retrial Queue with Optional Services and Feedback Behaviour	979
<i>M. Seenivasan, A. Arshidha, S. Pandisaranya, R. Ramesh</i>	
Performance Study of a Single-Server Queue with Backup Server, Catastrophe, and Reneging Customer	986
<i>M. Seenivasan, R. Vijayalakshmi, R. Ramesh, F. Patricia</i>	
Enhancing Workability Prediction of Concrete Using Ensemble Machine Learning Models	994
<i>Rupesh Kumar Tipu, Owais Ahmad Shah</i>	
An Enhanced Coverage Algorithm Using Meta-Heuristic Method for 3D Topology in UASN (Underwater Acoustic Sensor Network).....	998
<i>Archana Senapati, Abhishek Kumar Dewangan, Mahesh Singh</i>	
Image Cryptography Using Caesar Cipher on FPGA Board	1006
<i>Jincy Anto K, Sreenidhi Prabha Rajeev</i>	
Slot Opening Optimization for Enhanced Electromagnetic Performance of PMSM in Electric Mobility Applications Using FEA.....	1011
<i>Wan Aliff Rahaimi Wan Abdul Halim, Mohd Saufi Ahmad, Ahmad Kamal Othman, Dahaman Ishak, Siti Salwa Mat Isa, Tow Leong Tiang</i>	
Near-Field Channel Modeling and Beamforming in 6G Wireless Networks	1016
<i>T. Haritha, Swathi Dasi, N. Bhovaneswari, P. Srinivasa Reddy, L. Tirumala Sai, Shaik Sultan Basha</i>	
Machine Learning Approach to Predict Tunnel FET Characteristics Using Random Forest Regression	1021
<i>Ajaykumar Dharmireddy, T. Sony Kanaka Deepti, V. Monika, Y. Jaahnavi, P. Bhavani Bharagavi, Y. Avinash</i>	
Hyper-Parameter Sensitivity Analysis for Deep Learning-Based Multi-Hop Channel Estimation in Vehicular Networks	1027
<i>M.Sushanth Babu, G.A.E.Satish Kumar, D. Nagadevi, K. Vasanth, S.Siva Priyanka</i>	
RTOS-Based VLSI Sensor Node for Energy-Efficient Wireless Sensor Networks.....	1035
<i>Akash U, Jaimy James Poovely, Remya Ramesh</i>	
TinyML-Based Embedded Analytics Model Compression and Hardware Co-Design.....	1041
<i>Pavithra S, Narthika S, Praveen M</i>	
Quantum Steganography with QKD for Secure Communication.....	1047
<i>Karthiaeni T, Kiruthika S, Lavanya V, Mariammal K, Vinotheni M S</i>	
Sound-from-Video via Multiscale Spatial-Gradient Filtering of Intra-Frame Motion	1056
<i>Vathiyedath Sulaiman Suniya, Anil Anisia, Susmitha Rajan, Vaninirappuputhenpurayil Gopalan Reju</i>	

Multimodal Transformer-Based Lung Disease Detection and Preventive Health Advisor Using Chest X-Rays and Patient Metadata	1061
<i>Thummalapalli Eswar Sai Venkata Prathap, Bhumika Karsh, Ram Kumar Karsh, Madhumita Banerjee</i>	
DPC-YOLO: Underwater Plastic Pollution Detection Using YOLOv11 with Dark Prior Channel Contrast Enhancement.....	1067
<i>Rajat Amat, Anurag Sahoo, Mourina Ghosh, Amitava Nag, Robin Pathak</i>	
ConvStem-ViT: A Vision Transformer Framework for Season-Aware Tea Leaf Disease Prediction	1073
<i>Rajat Amat, Mourina Ghosh</i>	
Comparative Analysis of Filtering Algorithms for Brain Tumor Image Enhancement	1079
<i>J. Jenkin Winston</i>	
Artificial Intelligence Based Hardware Design for Efficient Detection of Cardiac Abnormalities	1085
<i>P. Lubaib, J. Dhoulath Beegum, Prakeerth Jisha Madhu Prakash, Muhammed Ameen PM, Rinshad PPK</i>	
Analysis of Low-Cost PET-Based Conformal and Polarization-Independent Ultrathin FSS	1093
<i>Kanwar Preet Kaur, Trushit Upadhyaya, Upesh Patel, Poonam Thanki, Killol Pandya, Dhara Patel</i>	
Design and Analysis of a PET-Based Conformal Ultra-Broadband Monopole Antenna.....	1099
<i>Kanwar Preet Kaur, Simardeep Kaur, Shimpy Ralhan</i>	
Explainable Machine Learning Models for Bronchiectasis Risk Prediction and Patient Phenotyping	1105
<i>Deepali Shukla, Shimpy Ralhan, Shrikant Tiwari, Siddhant Shourya Goyal</i>	
FPGA-Based Comparative Analysis of RoBA with Conventional Multipliers	1112
<i>Manisha Meghani, Dileep Gangavath, Nikhil Guguloth, Anuraj V, Preeti Verma, Dhandapani Vaithiyanathan</i>	
Study and Performance Analysis of Single-Precision Floating-Point Multiplier for Multimedia Applications.....	1118
<i>Vardan Kumar, Dhandapani Vaithiyanathan, Nitin Singh Singha, Baljit Kaur, Preeti Verma, Manish Verma</i>	
Comprehensive Review of Low-Power Flip-Flop Architectures in 18nm CMOS Technology.....	1124
<i>Tasneem Kausar, Komal Gupta, Dhandapani Vaithiyanathan, Preeti Verma, Rikmantra Basu, Manish Verma, Baljit Kaur</i>	
Optimized Energy Control in DC Microgrids Featuring Fast Charging Infrastructure for Solar Based Electric Vehicle	1130
<i>R.Praveen Kumar, M. Malarvizhi, C. Sivaranjani, J. Kumaresan, S. Dhivagar, Senthil Kumar Sengottaiyan</i>	
Influence of Fin Aspect Ratio on Linearity Performance of JL-FinFET Device for Low Power Analog Operation	1136
<i>Sanu Gayen, Suchismita Tewari, Avik Chattopadhyay</i>	
Performance Evaluation of Grid-Connected Solar Power Plant for Utility Load Utilising Reactive Power Compensation.....	1142
<i>Virendra Sharma, Vikas Kumar Sharma, Harsh Shrivastava, Garima Mathur, Gaurav Jain</i>	
Techniques for Discrete Mitigation and Control in Four Area System With DFIG System	1148
<i>Gaurav Jain, Ritu Tak, Bhuvnesh Rathore, Mayengbam Sashilal Singh, Aashiq Hussain</i>	

A Pso Tuned Pid Vector Control Technique for the Improvement in Speed of Induction Motor	1154
<i>Arpit Yadav, Ranjay Das, Ganesh Roy</i>	
Non-Intrusive Detection and Localization of Radial Deformation in Transformer Windings Using Correlation-Based Eigenvalue Analysis	1163
<i>Manoj Samal, Mithun Mondal</i>	
Enhancing EV User Experience with Intelligent Charging Management Using White Shark- Wombat Optimization.....	1169
<i>Evangelin Jeba J, R. Hariharan</i>	
Comparative Analysis of Modulation Methods for Optimizing the Performance of Single-Phase Full-Bridge Inverters	1175
<i>K. Shalini, A. Lakshmi Devi</i>	
Self-Tuning Multi-Objective SOC Estimation for EV Battery Management Systems.....	1183
<i>G. Pandu Ranga Reddy, Thangirala Karthikeya, Donthireddy Tejaswi Reddy, Chakali Mukesh Kumar, R Venkata Rami Reddy</i>	
A Deep Learning Centric Framework for Real Time Voltage Stability Assessment.....	1191
<i>P. Manikandan, M.A Lekshmidevi, S. Anu Priya, A.V. Suganya, Gurumoorthy. G, S. Balaji</i>	
A High-Speed, Multimodal Architecture for Real-Time Contextual Voice Assistance	1195
<i>S Pranava Saye, Abishek Poovazhagan, Gangiesh Subburaj, Vinotheni M S</i>	
A Correlation-based Study on Ingredients of Popular Food of Indigenous People of North East and Establishment of Linkage with Ayurveda	1199
<i>Manthan Ghosh, Sushanta Das, Smita Majumder, Swanirbhar Majumder</i>	
Lightweight Forecasting Meets Tunable Demand Response in Buildings	1204
<i>G. Pandu Ranga Reddy, Elluru Bharadwaj, Ramadurgam Keshavananda, Ediga Sudharshan Goud</i>	
Comparative Analysis of Disturbance Observer, Active Disturbance Rejection Controller, and Fuzzy Logic Controllers for Load Frequency Control	1211
<i>Sami Jan Lolu, Zubair Ahmad Mir, Aaqib Hafeez Malik, M A Bazaz</i>	
A Comparative Study of Robust Strategies for Single-Area Power Systems	1218
<i>S J Lolu, M A Bazaz</i>	
A Unified Deep Learning Approach for Accurate Estimation of Power System Stabilizer Parameters in SMIB Networks.....	1226
<i>Shashank Kumar, Mangal Singh</i>	
MLP-Based Intelligent Control Signal Estimation for Buck–Boost DC–DC Converters Using SHAP Analysis	1234
<i>Vishnu Kumar Sahu, Mahesh Singh, Shruti Tiwari</i>	
Distributed Secondary Control for Voltage Regulation in Microgrids Using an Event-Triggered Communication Mechanism.....	1241
<i>B. Chiranjeev Rao, Shimpy Ralhan, Mahesh Singh, Vishnu Kumar Sahu</i>	
Deep Learning Driven Hybrid LSTM-Transformer Approach for Reliable Stability Prediction in Modern Microgrids.....	1248
<i>Veenita Swarnkar, Shimpy Ralhan, Mahesh Singh</i>	

Analysis of Convolutional Network Depth for Multi-Output Relay Setting Prediction in Renewable-Rich Power Systems	1255
<i>Simardeep Kaur, Shimpy Ralhan, Mahesh Singh</i>	
Long-Term Degradation Modeling of Lithium-Ion Batteries Using Advanced Temporal Deep Learning Methods.....	1263
<i>Niharika Madhariya, Shimpy Ralhan, Mahesh Singh, Mukesh K. Chandrakar, Mousam Sharma</i>	
Mitigating Power Fluctuations in Energy Storage Systems Using ANN Controller & Optimization Techniques.....	1270
<i>Rashmi Mishra, Md. Khaja Mohiddin</i>	

Author Index