

# **2025 10th International Conference on Communication and Electronics Systems (ICCES 2025)**

**Coimbatore, India  
28-30 October 2025**

**Pages 1–749**

IEEE Catalog Number: CFP25AWO-POD  
ISBN: 979-8-3315-9757-3



Copyright © 2025, IEEE

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:    | CFP25AWO-POD      |
| ISBN (Print-On-Demand): | 979-8-3315-9757-3 |
| ISBN (Online):          | 979-8-3315-9756-6 |

**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    |

# TABLE OF CONTENTS

|                                                                                                                                              |     |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Computational Analysis in Designing Free Electron Laser with Non-Linear Magnetic Field .....                                                 | 1   |
| <i>Ch. Murali Mohan, D.S Venkateswarlu</i>                                                                                                   |     |
| A Study on EEG Sensors for Secure Authentication Using Machine Learning .....                                                                | 7   |
| <i>I. Jenifer Josephine Mary, D. Ponmary Pushpa Latha</i>                                                                                    |     |
| Integrated Superpixel-GNN Framework for Real Time Lung Nodule Segmentation in 6G-Enabled<br>IoMT with Soft-Mask Supervision .....            | 16  |
| <i>K Kaaviyakanth, S Pradeep, J Jareena Begam, A Karthika, A Karthikeyan, S J Sadheesh Kumar</i>                                             |     |
| Blockchain-Secured Federated Learning Framework for Privacy-Preserving Cervical Cancer Risk<br>Prediction .....                              | 25  |
| <i>Sajiv G, N. Meenakshisundaram</i>                                                                                                         |     |
| Game-Theoretic Incentive Mechanisms for Cooperative Energy Consumption in Wireless Sensor<br>Network .....                                   | 31  |
| <i>G. Vijayasekaran, Aarthi. V.P.M.B., P. Poornima, L. Kavitha, A.Sakthi Preetha, Pavithra S</i>                                             |     |
| Enhanced Tiny-YOLO for Video Object Detection, Tracking and Recognition in IoT Surveillance .....                                            | 39  |
| <i>TNGK Ranganath, G Rosline Nesa Kumari</i>                                                                                                 |     |
| Maize Leaf Disease Classification Using YOLOv12 .....                                                                                        | 49  |
| <i>Malakit L. Ram, Rhoderick D. Malangsa, Cheryl M. Tarre, Jonelle H. Tablada, Khorina O. Aguilar<br/>Jannie Fleur V. Oraño</i>              |     |
| CDCM - Intelligent Cluster-Based Routing Approach for VANETs Using DVCAST and CAH0 MAC<br>Algorithm .....                                    | 58  |
| <i>C. Visvesvaran, Tharun N, N.K. Karthikeyan, Vasudhevan SM, Vignesh R, Gowtham P</i>                                                       |     |
| Design & Analysis of FSS Based IRS for 5G .....                                                                                              | 65  |
| <i>P Kalaivani, K Ramasamy, Sapna B A, Senthilkumar R, Janaram S, Hariharan N</i>                                                            |     |
| Scalable IoT Architectures and Energy-Efficient Protocols for Secure and Adaptive Device<br>Connectivity .....                               | 69  |
| <i>Shanker Chandre, Modugu Krishnaiah, Srikanth Chintakindi</i>                                                                              |     |
| Integration of Artificial Intelligence for Sustainable Cloud Computing Security Services: An<br>Interdisciplinary Approach .....             | 75  |
| <i>Jagadeesh Varrey</i>                                                                                                                      |     |
| AI Powered Server Log Management Software .....                                                                                              | 81  |
| <i>D S B N S Rekha, G.Rohan Sai, Kosaraju Swaroop, Vasamsetti Revanth Phani Kiran<br/>Kubbireddy Soma Chinna Shekhar, Chinni Suryan Hota</i> |     |
| A New Era of Fraud Detection Using Capsule-Based Hybrid Learning .....                                                                       | 91  |
| <i>Mekala S, Sharniga K, Udhaya Kumar E, Saundhariya R, Rakesh E</i>                                                                         |     |
| Optimized Vision Transformer Architectures for High-Accuracy Satellite Image Classification .....                                            | 97  |
| <i>Thiraviya C, Subha R, Ananthi S, Akila K, Priyanka K A, Rithika S</i>                                                                     |     |
| Hybrid ArcFace-Transformer Framework for Robust Offline Signature Verification .....                                                         | 104 |
| <i>Femila Irene G, Surendran R</i>                                                                                                           |     |

|                                                                                                                                       |     |
|---------------------------------------------------------------------------------------------------------------------------------------|-----|
| CipherStack: A Dual-Layered Encryption Architecture Using Historical Rotor Logic and Polymorphic Encoding .....                       | 110 |
| <i>Kashmira Patil, Vitthal S. Gutte, Kishanprasad Gunale</i>                                                                          |     |
| Post-Quantum Hybrid Encryption Gateway: A Forward-Compatible Approach for Securing Web Applications .....                             | 115 |
| <i>Vishal Saran N, Srinivasan L, V. Suresh, S.R. Ramya, R. Selvaraj</i>                                                               |     |
| Energy Management With Explainable Hybrid AI Predictive-Reinforcement in Smart Buildings .....                                        | 121 |
| <i>Joshuva Arockia Dhanraj, Sriramkumar R, Lakshmanan M, Mude Nagarjuna Naik, Pavithra A, Rakshita R</i>                              |     |
| Light Weight Hybrid (DRBF-GRU) Deep Learning for DoS Attack Detection in Real IoT World WSN .....                                     | 129 |
| <i>A. Puviarasu, V. K. Sudha, M Premkumar, C. Ganesh</i>                                                                              |     |
| A Novel Design of Beam Forming Antenna Array for 5G Applications .....                                                                | 135 |
| <i>Dipali Bansal, Sindhu Hak Gupta, Harleen Kaur</i>                                                                                  |     |
| Experimental Analysis of Clock Jitter Behaviour on an Automotive Microcontroller .....                                                | 143 |
| <i>Anmol Kaushik, Surya Musunuri</i>                                                                                                  |     |
| Care Link: Compact Health Monitoring System for Low-Resourced Hospitals .....                                                         | 149 |
| <i>Deepakkumar S, D. Denceli, Ashokkumar M, Hemanth Balaaji V</i>                                                                     |     |
| Timing Analysis of High Frequency CAM using BRAM IP .....                                                                             | 157 |
| <i>Veerubhotla Sri Pranav, M. Vinodhini, C. Paramasivam</i>                                                                           |     |
| Highway Emergency Vehicle Prioritization using an Extended-Range Dual-Receiver RF Alert System .....                                  | 162 |
| <i>Logeswaran A, Abinaya Bharathi N C, Aswathi T, Harish R, Hariharan B</i>                                                           |     |
| Insulator Fault Detection and Localization in Overhead Lines Using Uav and Light Weight Ai Models .....                               | 168 |
| <i>P. Suresh Kumar, S Meenakshi, L. Jaya Prakash</i>                                                                                  |     |
| Automatic Phase Selector with ADC-Based Threshold and Priority Logic for Real-Time Fault Detection .....                              | 173 |
| <i>Karthik, Ranjith H D</i>                                                                                                           |     |
| Multimodal Visually Impaired Assistance System: DETR Based Obstacle Recognition with Haptic Feedback .....                            | 179 |
| <i>Malar P, Nandha Deepa S, Subhaharini N, Priyadharshini D, Swathi S</i>                                                             |     |
| Smart Rover with Blood Vision: Real-Time Injury Detection in Post-Disaster Environments .....                                         | 185 |
| <i>Lankela Mani Deep Aditya, Devesh K Kumar, Karthik Raj Sivakumar, Tangudu Ramji</i>                                                 |     |
| Deep Learning-Based Light Weight CAD System for Early and Accurate Detection of Multiple Lung Diseases from Chest X-Rays .....        | 192 |
| <i>K. Kaaviyakanth, Pradeep S, Karthika A, S. Prema, Manna Moses C M, Midhuna S</i>                                                   |     |
| Enhanced Fault Detection in Industrial Machines Using IoT-Integrated Deep Learning with Optimized Feature Extraction Techniques ..... | 198 |
| <i>P Sundaram, M Jayaprakash</i>                                                                                                      |     |
| A Comparative Study of Lightweight Deep Learning Models for Real-Time Object Detection on Edge Devices .....                          | 206 |
| <i>Settypalli Mahendra Reddy, N Charvi Reddy, Harshavardhan Reddy Kommidi, Swaminadhan Rajula</i>                                     |     |

|                                                                                                                                         |     |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|
| AI-Powered Real-Time Waste Classification Using YOLOv7 for Smart City Networks .....                                                    | 209 |
| <i>Tamilarasi K, Ya. Puvanesh</i>                                                                                                       |     |
| Operational Limitations, Degradation Mechanisms, and Safety Challenges in Lithium-Ion Batteries for Electric Vehicle Applications ..... | 217 |
| <i>Ashwin Jacob, Saran Adithyaa S, Sibi Kumaran K, S Nirmal Kumar, Arvind V, Deepak Arumugam</i>                                        |     |
| Label Free Detection of Positively Charged Biomolecules using SiC Schottky Barrier FET .....                                            | 224 |
| <i>Sukasini S K, Papanasam E</i>                                                                                                        |     |
| A Compact Multi-Input DC-DC Converter for Smart Grid and Electric Mobility Applications .....                                           | 229 |
| <i>Thummala Ravikumar, K. Kathiravan, Velappagari Sekhar, S. Jayakumar, Arunraja A, M. Lokanadham</i>                                   |     |
| Energy-Efficient Optimization of Air Conditioner Parameters Using Differential Evolution Algorithm .....                                | 235 |
| <i>Soumya Bhakuni, Paramsai Joshi, Pratyush Bameta, Shilpa Jain</i>                                                                     |     |
| Sustainable Solar and Biogas Hybrid Power Plant with Real-Time Performance Tracking Via Mobile Application for Rural Use .....          | 242 |
| <i>Harishkumar P, Tivith C, M. Shyamalagowri</i>                                                                                        |     |
| Detection of Single Radio Isotopes Using Mask CNN Approach .....                                                                        | 248 |
| <i>Bharathi Paleti, Hanumat Sastry G, Padmasri Yarlagadda</i>                                                                           |     |
| Event-Triggered Sliding-Mode Control for UAVs Under Repulsive Obstacle Avoidance .....                                                  | 253 |
| <i>Saloni Gautam, Kuntal Dhara, Santanu Mandal</i>                                                                                      |     |
| Quantum Machine Learning for Space Applications .....                                                                                   | 260 |
| <i>Suriya Murugan, P R Hemalatha, M. Menagadevi</i>                                                                                     |     |
| Swarm Intelligence Optimized Deep Learning Hybrid for Anomaly Detection in Renewable-Powered Smart Grids .....                          | 267 |
| <i>K.Maruliya Begam</i>                                                                                                                 |     |
| RFID-Enabled Access Control with Integrated User Database Logging .....                                                                 | 273 |
| <i>Carol Masvisvi, Ravi Samikannu, R. Rohini, G. Kanimozhi, R. Kavitha, K.Mohana Sundaram</i>                                           |     |
| Design and Implementation of Solar Photovoltaic Powered Water Pumping System with Water Quality Monitoring .....                        | 279 |
| <i>Elizabeth Toka, Ravi Samikannu, R. Elavarasi, K. Maruliya Begam, K. Manoj Senthil, G. Kanimozhi</i>                                  |     |
| A Review on Autonomous Robot for Hazardous Sample Delivery with Obstacle Avoidance and Safety Monitoring .....                          | 285 |
| <i>A.R. Kalaiarasi, M. Prabakaran, Umesh V, Aravind P, Sethu Rakhavan N</i>                                                             |     |
| A Neuro-Signal Analysis Framework for Detecting Depression Using Brain Electrical Activity .....                                        | 291 |
| <i>Bhava Sree S N, T. Jemima Jebaseeli</i>                                                                                              |     |
| Power Efficient Adaptive Test Pattern Generator With Dynamic Mode Control for BIST Applications .....                                   | 298 |
| <i>Nanditha S, Geethu Remadevi, Ramesh Bhakthavatchalu</i>                                                                              |     |
| Design of Grooved Monofilar Helical Antenna for Resilient Communication Systems .....                                                   | 304 |
| <i>Yuvaraj Ujwal Madineni, Bhuvana Nair S, Aryadevi Remanidevi Devidas</i>                                                              |     |
| FPGA-Based Ring Oscillator Using Hybrid Carry Chains and LUT Delay Elements .....                                                       | 309 |
| <i>Godugupalli Mounika, C. Chandrasekhar</i>                                                                                            |     |

|                                                                                                                                  |     |
|----------------------------------------------------------------------------------------------------------------------------------|-----|
| Optical Splitting with Tapering Techniques in S Bend Waveguides using Nonlinear Materials .....                                  | 316 |
| <i>Sheela D, Bhavani N.P.G</i>                                                                                                   |     |
| A Smart Battery Management System (BMS) for Electric Vehicles Using Internet of Things<br>Technology .....                       | 322 |
| <i>G Ramkumar, Sathish Kannan, Vinayagam Mohanavel</i>                                                                           |     |
| Low Power Digital to Analog Converter with High Gain .....                                                                       | 329 |
| <i>A. Rahul Teja, M. Karthik, P. Jashwanth, Ezhil E Nithila</i>                                                                  |     |
| Electro Kinetic and Flow Analysis in Microfluidic Lab on a Chip for Brain Tumor Biomarkers .....                                 | 335 |
| <i>P. Balaji, D. Devasena, K. Prashanthini, S. Kasthuri, A. Vennila, S. Suganya</i>                                              |     |
| Performance of Multiport FinFET Based SRAM Cell Designed using Different Read Buffers Operated<br>in Near-Threshold Region ..... | 343 |
| <i>Kirti S. Pande, Kanugula Sneha, Daksh Dobhal</i>                                                                              |     |
| Metal Oxide Nanocomposite Deposition and Characterization of Supercapacitor Electrodes for Energy<br>Storage Applications .....  | 351 |
| <i>Sanjay M. Hundiware, Shripad P. Mohani, D. J. Shirale</i>                                                                     |     |
| Predicting Action Potential Disruption from Paranodal Injury Using a Spatially Resolved Anisotropic<br>Axon Model .....          | 359 |
| <i>Promince P M, P A Gowri Sankar, Diwakar P, Diwagar S, Eraianbu K</i>                                                          |     |
| Solar Panel Defect Detection Using Deep Learning to Enhance Photovoltaic System Reliability .....                                | 367 |
| <i>D. Suriyakala, J. Kavitha, S. Omkumar, R. Meenakshi, T. Nalini, Monisha R</i>                                                 |     |
| Time-Series Fault Diagnosis in Power Transformers Using LSTM Networks and IoT Data .....                                         | 373 |
| <i>Vamsi Krishna Eruvaram, V G Sivakumar, Buddaraju Rekha Madhavi, M. Vadivel, Akash P, Monisha R</i>                            |     |
| Dynamic Adjustment of Wind Turbine Blades using LSTM Networks for Optimal Performance .....                                      | 380 |
| <i>Narayana Moorthy G, Anuradha Balasubramaniam, S. Muthumarakshmi, Sandeep Varma Kuchampudi<br/>M. Revathi, M. Muthulekshmi</i> |     |
| Smart IoT-Enabled Cooling System for Real-Time EV Battery Temperature Management .....                                           | 386 |
| <i>Sridhar B, Allirani S, Hassan Siddiq A, Dinesh TC, Harikaran K, Nishikant N</i>                                               |     |
| PrivAuth-IIoT: A Dual-Mode Authentication Framework with Cancelable Biometrics and RF<br>Fingerprinting .....                    | 392 |
| <i>Sumesh Mohan, V Sheeja Kumari, C. Thirunavukkarasu, K. Kanagasabapathi, D. Vikram<br/>S. P. Santhoshkumar</i>                 |     |
| Smart EV Battery Management with Machine Learning Algorithm for Cell Balancing and Fault<br>Detection .....                      | 398 |
| <i>Sridhar B, Allirani S, Thirumurugan P, PraneshSharathi D, Nishikant N, Sivaprasath V</i>                                      |     |
| Nanosatellite and IoT-Enabled Climate-NDVI Data Fusion for Accurate Wheat Yield Prediction .....                                 | 404 |
| <i>Lakshmanan M, Vegi Fernando A, Godhandaraman T, Tamilamuthan R, Sriramkumar R<br/>Joshua Arockia Dhanraj</i>                  |     |
| AI-Driven IoT Energy Management System with Edge Forecasting and Fault Detection .....                                           | 411 |
| <i>Rithanya S, Sandhiya D, Kayalvizhi N, Sri Vidhya D, Gopalakrishnan R, Balamurugan R</i>                                       |     |

|                                                                                                                              |     |
|------------------------------------------------------------------------------------------------------------------------------|-----|
| Enhanced Multi-Input Vehicle-To-Grid and Grid-To-Vehicle System with Adaptive PI Controller for Smart Grid Integration ..... | 417 |
| <i>Rajesh Kumar Mohapatra, S. Gomathi</i>                                                                                    |     |
| IoT-Enabled Predictive Maintenance System for Smart Manufacturing Plants .....                                               | 423 |
| <i>Kevin Patel, Dharga Kolla, Gautam Yadav, Umesh Waghmode, Sai Kiran Mannava, Aravind Narayanan</i>                         |     |
| Machine Intelligence-Driven Hotspot Mitigation in Photovoltaic Systems using ANN-Based Thermal Fault Classification .....    | 429 |
| <i>P. Pradeep Kumar, M. Rama Prasad Reddy</i>                                                                                |     |
| A Compact 5.8 GHz Monopole Antenna with Stepped DGS for Wideband Applications .....                                          | 435 |
| <i>Evangelin P S, T. Mary Neebha</i>                                                                                         |     |
| Development of ML Based Models for Detecting Faults in Power Systems .....                                                   | 441 |
| <i>Siddharth Joshi, Govind Singh Jethi</i>                                                                                   |     |
| Multi-Stage Optimization of Power Losses in Distribution Systems Using GWO-MLP .....                                         | 447 |
| <i>K.Ramamohana Reddy, P.Ram Kishore Kumar Reddy, P. Sujatha</i>                                                             |     |
| Integrating Dynamo Technology for Self Charging Electric Vehicles .....                                                      | 454 |
| <i>M Nagarajapandian, M Reshika, K P Dharshini, J Dhivya Nethra</i>                                                          |     |
| Predictive Maintenance of Induction Motors through Vibration Analysis using Machine Learning .....                           | 460 |
| <i>Dhyaneswari Pannase, Kunal Sawalakhe, Ganesh Wakte, Akanksha. Sontakke, Ritesh Banpurkar</i>                              |     |
| <i>Mrunali Kite</i>                                                                                                          |     |
| Low-Power 8×8 Booth Multiplier with Clock-Gated Carry Look-Ahead Adders using Cadence SimVision .....                        | 466 |
| <i>Mohammed Adhil H, Dhanasekar J, Gayathri Devi B, Jeevitha R</i>                                                           |     |
| Optimization of Peltier Cooling in EV Batteries Using AI .....                                                               | 472 |
| <i>Naveenkumar R, Madhumitha P, Lingeshwar S D, Kiruthika V</i>                                                              |     |
| Stable Passive FSS Based IRS at Sub-6 Band .....                                                                             | 477 |
| <i>K Ramasamy, Sapna B A, P Kalaivani, Shalini V, Abishek Ram M, Arun Pravin D</i>                                           |     |
| Numerical Investigation of a Vertical TFET for High-Sensitivity Biosensing .....                                             | 481 |
| <i>I.Vivek Anand, T.S.Arun Samuel, P. Shivakami, M. Ethisha, T. Bhuvanameera</i>                                             |     |
| Simulation-Based Analysis of Lateral TFET Biosensor for Bio-Molecule Detection .....                                         | 487 |
| <i>I. Vivek Anand, S. Mathu Suthan, M. Manoj Kumar, N. Renganathan, T.S.Arun Samuel</i>                                      |     |
| Raspberry Pi Powered Crop Health Detection Using Deep Learning .....                                                         | 493 |
| <i>Charugundla Aasritha, Jalalu Guntur, Gudipudi Akanksha, Gudipudi Mahesh, Gorla Jai Krishna</i>                            |     |
| Green Power Integration: Solar Inverter Hardware for Residential EV Charging .....                                           | 500 |
| <i>Sangeetha C N, Gowri Manojkumar, Iqra Bashir</i>                                                                          |     |
| Support Vector Machine for Automated Seizure Detection in EEG Signals .....                                                  | 504 |
| <i>Divya Bisht, Smriti Singh, Divyanshi Pal, Shiva Biswas</i>                                                                |     |
| ECG Image Classification System for Early Detection of Cardiac Conditions .....                                              | 510 |
| <i>Rohan Samuel R, T. Jemima Jebaseeli</i>                                                                                   |     |

|                                                                                                                                         |     |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|
| Lightweight Intrusion Detection Systems for Resourceconstrained IoT Devices .....                                                       | 515 |
| <i>Rajinder Vir, Parvinder Singh, Makul Mahajan, Salil Batra, Richa</i>                                                                 |     |
| AI-Powered Inhaler Assistant with Real-Time Alerts for Asthma Management .....                                                          | 525 |
| <i>Loganayagi P, Ilakkiya Jothi V P, Sathiyarupa T</i>                                                                                  |     |
| Predictive Intelligence for Battery State-of-Health: A Machine Learning Approach to Energy Reliability .....                            | 533 |
| <i>S. Gomathi</i>                                                                                                                       |     |
| Model Predictive Phase-Shift Control with Primaryside Estimation for Enhanced Dynamic Wireless<br>Charging of Electric Vehicles .....   | 540 |
| <i>S Krithika, Sundara Rajulu Navaneethakrishnan, M Swetha, R Surendran</i>                                                             |     |
| Enhanced Deep Neural Network for Friction Stir Welding Quality Prediction .....                                                         | 549 |
| <i>Mallikarjun Bijapur, Santosh Balgar</i>                                                                                              |     |
| Prediction of EV Charging Behaviour Using Data-Driven Methodology -Machine Learning Algorithms .....                                    | 557 |
| <i>G. Bharathi, N. Naga Sandhya, Sk.Ayesha Begaum, V.Thanuja Lakshmi, T. Bhargavi</i>                                                   |     |
| Performance Analysis of Electric Vehicles Using a Drive Cycle .....                                                                     | 564 |
| <i>Jai Ram, Shravan Kumar Yadav, Kouleshwar Kumar, Dinesh Ram, Satyavan Kumar Mukhi</i>                                                 |     |
| Synthetic SEM-EDX Dataset and U-Net-Based Segmentation Framework for Microstructural Defect<br>Detection in Biomaterial Coatings .....  | 571 |
| <i>K Umapathi, P Leela, C Kaviya, V Dharshini, A Mahalakshmi</i>                                                                        |     |
| Performance Analysis of Deep Neural Networks in Prediction of SoC and SoH of a Battery Using<br>LSTM, GRU and RNN Networks .....        | 576 |
| <i>Avinash R, Manitha P V, Vivek Venugopal</i>                                                                                          |     |
| Analysis of Electromyography Wearable Sensors and Deep Learning Algorithms used in Parkinson's<br>Diagnosis .....                       | 583 |
| <i>Marupaka Nagaraju, K L. Madhuri, D. Snehalatha, Srikanth Sawant</i>                                                                  |     |
| Advancing AI Hardware with SDC Memristors: A Review of Multibit Storage, Thermal Resilience, and<br>Dynamic Simulation Strategies ..... | 589 |
| <i>Athina K A, Meenakshi S, Bharathi G K, Thaiyal Naayagi S</i>                                                                         |     |
| Dielectric-Based Frequency Optimization and Penetration Depth Analysis for Aqueous Glucose<br>Sensing .....                             | 595 |
| <i>Aiswarya S, Meenu L, K A Unnikrishna Menon</i>                                                                                       |     |
| Learned Electrochemical Sensor Devices (LeSD) for Glucose Predictions: A Mini Review and<br>Meta-Analytic Synthesis .....               | 599 |
| <i>K Umapathi, Veerabharathi V, Arun S, Akash C, A Mahalakshmi</i>                                                                      |     |
| EnergyMate : Real-Time Energy Disaggregation Using NILM and Deep Learning for Sustainable Smart<br>Grid Applications .....              | 604 |
| <i>V. Suresh, Akshaya Arun, Rishi S, SanjayKumar S S, Vasundraa S</i>                                                                   |     |
| Experimental Validation of a Compact Bridgeless Landsman PFC Converter for Drone BLDC Motor<br>Propulsion .....                         | 612 |
| <i>Arunkumar S, Sudharsini R P, Sakthi Satchidhanandan S, Srinivasan P</i>                                                              |     |

|                                                                                                                                                                        |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Decision Tree Based Fault Detection in Power Grid Systems .....                                                                                                        | 618 |
| <i>Soumya Bhakuni, Pratyush Bameta, Rajendra Singh Bisht</i>                                                                                                           |     |
| Improved Road Safety Through LiFi-Based Vehicle-to-Vehicle Communication and Alcohol Detection .....                                                                   | 626 |
| <i>S.Sweetline Shamini, Aravidhan E, Naveen Kumar S, Sriram Gandhi K</i>                                                                                               |     |
| Design of Low Power Dynamic Comparator using Regenerative Latch for Analog-to-Digital Converters .....                                                                 | 632 |
| <i>Dhanasekar S, Madhumitha D, Rishikesh G S, Nirmal R, Praveena G, Parnikabhavahaarini. V</i>                                                                         |     |
| Design of Efficient Synchronous Dual Port Memory .....                                                                                                                 | 638 |
| <i>Matta Yashwanth Reddy, G. Sujatha</i>                                                                                                                               |     |
| Harnessing AI and EI Sensor Fusion for Real-Time Detection of Emotional Distress and Personalized<br>Mental Health Intervention in Stress-Prone Individuals .....      | 646 |
| <i>Ajitha M, Harini P, Martin Leo Manickam J</i>                                                                                                                       |     |
| IoT-Oriented Design of a Dual Output Power Converter for Next-Generation Electric Vehicles .....                                                                       | 654 |
| <i>P. Karputha Pandi, P. Rohith, S. Punithakumar, V. Perarasan</i>                                                                                                     |     |
| Floor Planning for Very Large-Scale Integration: A Brief Survey .....                                                                                                  | 661 |
| <i>Bhavya A B, Vinay Kumar S B, Satheesh Murthy C, Pavan Karthik S, Deepika A B, Ravi U S</i>                                                                          |     |
| Early COPD Detection Using ResNet-50 and ECG Signal Analysis .....                                                                                                     | 666 |
| <i>Madesh Kumar G, Raaghul S, J. Sivakumar</i>                                                                                                                         |     |
| Health Monitoring and Yield Estimation for Apple Orchard using Embedded AI .....                                                                                       | 673 |
| <i>Wasim Akram S, Jayanthi S, Suriya Murthy S R, J Judeson Antony Kovilpillai, Sundar S</i>                                                                            |     |
| A Comparative Analysis of Accident Detection and Alert System .....                                                                                                    | 679 |
| <i>J. Dafni Rose, B. Aravind Krishna, R.E. Hariharan</i>                                                                                                               |     |
| Rectangular Tapered Slot-Loaded Patch Array Antenna with 2D Surface Function for Enhanced<br>Bandwidth and Efficiency in $25\text{--}75\text{ GHz}$ Applications ..... | 685 |
| <i>H. Shree Kumar, V. Nagaraja, E. Khaleel, B.Siva Kumar, K.Sowbhagya Lakshmi</i>                                                                                      |     |
| Secure and Agile of Biometric Identification Using ECG Signals .....                                                                                                   | 691 |
| <i>M. Mageshbabu, S. Yuvadharshini, K. Senthilkumar, Mahalakshmi M</i>                                                                                                 |     |
| A Hybrid Quantum-Classical Neural Network for EEG-based Classification of Harmful Brain Activity .....                                                                 | 697 |
| <i>Aashita Rai, Rujuta Walavalkar, Sandhya Arora</i>                                                                                                                   |     |
| High Performance Double Node Upset Radiation Hardened Latch in 7 nm FinFET .....                                                                                       | 703 |
| <i>Niraj Kumar, Neeta Pandey, Chaudhary Indra Kumar</i>                                                                                                                |     |
| Efficient Arbitration Techniques for Next-Generation Communication Buses .....                                                                                         | 709 |
| <i>Chetan Harsha Lekkala, Varnika K V, Tamada Sai Sri Teja, Sitadevi Bharatula, B. Naresh Kumar Reddy</i>                                                              |     |
| Compact MIMO Antenna with Dual-Band Operation for 5G and WiFi Devices .....                                                                                            | 714 |
| <i>Manikanta Reddy Nedhunuri, Kasimalla Siva Sreedhar, Sita Devi Bharatula, B. Naresh Kumar Reddy</i>                                                                  |     |
| Next-Gen Railway Gate System: AI-based Visual and Audio Intelligence for Accident Prevention .....                                                                     | 720 |
| <i>V. Govindaraj, G. Sugan, D. Nivitha, P. Gayathri, C. Ramesh, K. Yogeshwaran</i>                                                                                     |     |
| Portable Add-on for Walking Stick Users .....                                                                                                                          | 726 |
| <i>S. Allirani, B.S. Vaishnavi, S.M. Sawmiya, A.K. Sai Vasanth</i>                                                                                                     |     |

|                                                                                                                                                    |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Real-Time Smart Notice Board Using ESP8266 for IoT-Enabled Communication .....                                                                     | 731 |
| <i>Chetan Harsha Lekkala, Sita Devi Bharatula, B. Naresh Kumar Reddy</i>                                                                           |     |
| Design of a Performance Enhanced Dual Band Meander-Line Antenna for ISM Band Communication .....                                                   | 735 |
| <i>Ramesh D, Kavitha A</i>                                                                                                                         |     |
| Design of Dual Band U-Shaped MIMO Antenna .....                                                                                                    | 739 |
| <i>Pushpalatha Pondreti, Veera Venkata Jayasri Tummalapalli</i>                                                                                    |     |
| AI Enabled IoT based Intelligent Shopping Trolley with Dynamic Billing and Theft Prevention System .....                                           | 744 |
| <i>S. Hemasilviavinothini, C. Gokul Kumar, G.B. Mohankumar, Brindhaa. R.M, Karthikeyan. K, Sivakumar. M</i>                                        |     |
| Hybrid MPPT-Driven Synchronverter with AVSG Control for Grid-Connected Solar System .....                                                          | 750 |
| <i>J. Kumaresan, G.B. Mohankumar, D.V. Balamurugan, G. Subash, G. Sowndarrajan, R. Vishnurajan</i>                                                 |     |
| Aqua Freezer and Heater Featured Water Container .....                                                                                             | 757 |
| <i>Nakulan S, Bavanithan A, Sri Vidhya D, Gopalakrishnan R, Mythili Gnanamangai B, Jaividhya S</i>                                                 |     |
| Early Prediction of Postpartum Depression Using Machine Learning on Electronic Health Records .....                                                | 762 |
| <i>V Jeevitha, Priya. R</i>                                                                                                                        |     |
| Design and Simulation of a VLSI-Based Automatic Railway Gate Controller Using FSM .....                                                            | 769 |
| <i>Naveenkumar R, Logavi A B, Naveeya sri S, Neranjana G M</i>                                                                                     |     |
| Smart Health Monitoring System: Iot Based Vital Sign Tracking .....                                                                                | 774 |
| <i>P. Mithun, Kavya V R, Priyadharshini R.</i>                                                                                                     |     |
| Smart Saffron Cultivation: An IoT-Based Environmental Monitoring and Control System with GSM<br>Alert Integration .....                            | 779 |
| <i>VishnuVardhan Chittem, Sai Karthik Mukunda, Eshwar Sai Reddy Mudumala, Giriraja C. V</i>                                                        |     |
| AI Based Monitoring Parking System for IoT Cloud .....                                                                                             | 784 |
| <i>Akashwar G, Balaji M, R. Ruthiharsan, B.Shiv Kumar Easwar, T.V Narmadha</i>                                                                     |     |
| Automated Smart Pill Dispenser with Health Monitoring .....                                                                                        | 789 |
| <i>Rajendran A, Pavan Kumar S, Dineshkumar BA, Lalidhesh J, Gokul S, Arun V</i>                                                                    |     |
| Efficient Underground Cable Fault Management Using Arduino .....                                                                                   | 795 |
| <i>G. Rishab Niranjan, S K. Venkatramanan, G. Anitha</i>                                                                                           |     |
| Comparative Analysis of Al <sub>2</sub> O <sub>3</sub> and HfO <sub>2</sub> -Based BIOFETs for Biosensing Applications .....                       | 800 |
| <i>Rajesh Kumar Mohapatra, K. Buvaeswari, S. Maflin Shaby, P. Princy Magdaline, B. Anitha, S. Gomathi</i>                                          |     |
| Solar Power Forecasting System Using Combined CNN-LSTM and Ensemble Neural Networks .....                                                          | 806 |
| <i>Madhusudana Rao Ranga, Vemula Nagarjuna, Badugu John Vesli, Konduru Bhargav Kumar<br/>Marri Phaneendra</i>                                      |     |
| Optimized Hybrid GNN-CNN-LSTM Model for Reliable Epileptic Seizure Detection Using EEG<br>Signals .....                                            | 813 |
| <i>Shiv Ashish Dhondiyal, Devendra Singh, Sumit Saklani, Ritik Bisht</i>                                                                           |     |
| Antibacterial Efficiency Prediction of BiFeO <sub>3</sub> -based Photocatalytic Materials using Support Vector<br>Machines and Random Forest ..... | 818 |
| <i>Raj Kumar Gupta, Padmavathi Vustelamuri, R S Abina Shiny, Venkata Kiran Kumar Ravi, Pappu Kumar<br/>Sudhir Kumar</i>                            |     |

|                                                                                                                                             |     |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Early Detection of Electricity Consumption Anomalies using a Fuzzy Logic-Decision Tree Framework .....                                      | 824 |
| <i>Nagaraju Katta, Renukaprasad G, V. Sidharthan, N. Ragunath, Ravi Kant, A. Kathiravan</i>                                                 |     |
| Real-Time Distress Detection and Location Tracking using a Voice-Activated System .....                                                     | 830 |
| <i>S. Jansi, K Sanjeevaiah, S. Aruna, P. Venkateswarlu Reddy, D. Ganesh, Juttu Suresh</i>                                                   |     |
| Smart Urban Logistics: Vehicle Routing Problem Resolution with Hybrid Underground and Road-Based Delivery Systems .....                     | 836 |
| <i>Muralidharan Ravi, Narayanan R, M.R.Archana Jenis, Chandrasekar A</i>                                                                    |     |
| AI-Powered Sustainable Smart Agriculture Using UAV and IoT Metadata .....                                                                   | 843 |
| <i>Vijaya G, Saravanavel E, K. Ramesh, Tamilselvi S</i>                                                                                     |     |
| Energy-Efficient Decentralized AI-RFDE Drone Swarm Defense Using Transformer Perception, DRL Coordination, and Bayesian Risk Modeling ..... | 850 |
| <i>Eddula Kanaka Mounika, Siriki Atchuta Bhavani, N Mrinalini, Pedapudi Nagababu, H.R. Ravikumar Maloth Bhavsingh</i>                       |     |
| Advanced Power Regeneration in Hybrid Electric Vehicle Using SEPIC Converter Topology .....                                                 | 858 |
| <i>Divya N, Aswin Kumar A, Grace Kumar N, Harish R, Abishek T</i>                                                                           |     |
| Real Time Fire Prevention and Fault Detection System for Electric Vehicles .....                                                            | 866 |
| <i>P.S. Abarna, S.Padma Priya, S. Pavalarajan</i>                                                                                           |     |
| A Switched Capacitor-Based High-Gain 13L Transformerless Inverter Topology with Single DC Source .....                                      | 872 |
| <i>Kokilavani E, Subasri S S, Rohith V, Mohammed Irfan M, Gopinath N P, Cephas I</i>                                                        |     |
| Impact of Horizontal and Vertical Meander-Slot Loading on Lampshade Patch Antennas for Kaband Applications .....                            | 878 |
| <i>Josiah Samuel Raj J, Anitha G</i>                                                                                                        |     |
| Compact Triple-Stepped Slot Tapered Patch Antenna for 28 Ghz 5G and Ka-Band Applications .....                                              | 885 |
| <i>Josiah Samuel Raj J, Anitha G</i>                                                                                                        |     |
| Automatic Load Balancing between Transformer Using Embedded System .....                                                                    | 891 |
| <i>Hemasilviavinothini S, Charmila D, Barath M, Boobesh S, Ashok A</i>                                                                      |     |
| Hybrid Energy Storage System Predictive Current Control with Super Capacitor SOC .....                                                      | 896 |
| <i>Arokia Mary Caroline. P, M. Shanthi, Sree Hari K S, Mohamed Shuhaib C K, Midhun S, Ramya P</i>                                           |     |
| Cognitive IoT-Enabled Soft Telerobotics for Precision Smart Agriculture in Remote Villages .....                                            | 902 |
| <i>Muppu Prathyusha, P Vijay Kumar, Veerumneni Saavanth, K Shalini, A Mahesh, Mallareddy Adudhodla</i>                                      |     |
| An IoT Framework for Ambulance Priority and Urban Traffic Management .....                                                                  | 909 |
| <i>Prakash, Gokul Anand, Gokul Mahaboob, S Boopathy, S Tamilselvi, S Kumareshan</i>                                                         |     |
| Energy Efficient Counter Based Timing Circuit for Automated Lighting Systems .....                                                          | 914 |
| <i>Jeevitha R, Ramalingam S, Udhaya Prakash U, Varun Prasanna A, Tamizh Iniyam M, Yashwin R</i>                                             |     |
| Next-Gen AI and IoT-Based Traffic Management System Using Arduino .....                                                                     | 920 |
| <i>Kalathiripi Rambabu, Adicherla Vaishnavi, Are Bhavani, B Revanth Johnny Raj, Chippalthurthy Gayathri</i>                                 |     |
| Revolutionizing Public Systems with Advanced Gesture Recognition Technology .....                                                           | 927 |
| <i>J. Dafni Rose, Mohanaprakash T A, V. Vijayashanthi, C. Tamilselvi, S.Irin Sherly, Cinthuja K</i>                                         |     |

|                                                                                                                                                      |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Real-Time Occlusion-Aware Vehicle Detection and Behavior Analysis Framework for Intelligent Traffic Enforcement .....                                | 934  |
| <i>K. Saiveena, P. Praveen</i>                                                                                                                       |      |
| A Metaheuristically-Optimized Mamdani Fuzzy-Machine Learning Framework for Interpretable Power System Condition Assessment .....                     | 940  |
| <i>M. Harikumar, Nithiyananthan K, Vijayalakshmi P, Vaishnavi N</i>                                                                                  |      |
| Dual Axis Solar Tracking and Power Monitoring System Using ESP32 and IoT Analytics .....                                                             | 947  |
| <i>Priyanga M, Nandhakumari J, Nadhiya S, P. Prabharani, Deepikapriya. SVK, Anju Pavithran</i>                                                       |      |
| A Study of Performance Comparison of SRAM Cell Design Using Various Technologies .....                                                               | 954  |
| <i>Gandham Yuva Balaji, Esarla Lakshmi Sandeep, Guntamukkala Harika, Kollati Tarak Ram Silpa Kesav Velagaleti, Jami Venkata Suman</i>                |      |
| Implementation of Microwave Antenna Sensor for Breast Cancer Detection .....                                                                         | 961  |
| <i>Lakshmi Manasa Uppu, A. Jhansi Rani, Ch. Raghavendra, Madhuri Gundu, Soma Sekhar Krishna Polagani</i>                                             |      |
| Performance Enhancement of Bi-Directional DC–DC Converters for EV Charging via Cascaded Filtering and Sliding Mode Control .....                     | 967  |
| <i>V. Balasubramanian, S. Radhika, V. Senthil Nayagam</i>                                                                                            |      |
| Real-Time ECG Signal Analysis Using Convolutional Neural Networks for Cognitive Load Detection .....                                                 | 973  |
| <i>Sumit Kushwaha, Pratima M. Chavan, Dhivakar Poosapadi, S. Nooray Sashmi, Ananthi S, K. Baranidharan</i>                                           |      |
| Lyapunov-Based Soil Moisture Control With Input-To-State Stability for Iot Irrigation .....                                                          | 979  |
| <i>Satwik Panda, Nandkumar Janardan Koyande, Soham Ramesh Suryawanshi, Jay Dattatray Bamhane Omkar Rajesh Borhade, Chaitanya Vijaykumar Mahamuni</i> |      |
| Sustainable Footstep Energy Harvesting and Monitoring System .....                                                                                   | 989  |
| <i>Thavaprakash. S, ShriramKrishna N, Jayanthi. E</i>                                                                                                |      |
| IoT-Enabled Smart Robot for Fire Detection, Surveillance, and Suppression with Ultrasonic Navigation .....                                           | 995  |
| <i>D. Magdalin Mary, Mohamed Aarif A, Ramadevi K, Sibi Surya M</i>                                                                                   |      |
| Adaptive Energy Management in TEG-Powered IoT Devices Using Actor-Critic Reinforcement Learning .....                                                | 1002 |
| <i>Pappala Vamsi Krishna, N. Hemalatha, Venkatesh Kanna T, J L Sarwani Theeparthi, Aparajita Mukherjee Albin Kurian</i>                              |      |
| Obstacle Sense: Stair Case Lift Chair .....                                                                                                          | 1008 |
| <i>P. Nagalakshmi, Sushma Chowdary Polavarapu, Y.N.S. Durgesh, P. Jishitha</i>                                                                       |      |
| Priority-based Vehicle-to-Vehicle Communication System for Emergency Response and Road Monitoring .....                                              | 1014 |
| <i>N. Divya, S. Ragava, G. Swetha, P. R. Thaswin, T. Abishek</i>                                                                                     |      |
| Intelligent Phase Control and Fault Detection Using Microcontroller .....                                                                            | 1020 |
| <i>N Prakash, Fathaq Ahamed S, Sundar Raj A, Srinivasan V</i>                                                                                        |      |
| Adaptive User-Space Scheduling in Linux: A Performance Study of sched_ext for Real-Time Systems .....                                                | 1025 |
| <i>Sai Prabhath Koneru, Michkath Omanda Bouraima, Rashedur Rahman</i>                                                                                |      |

|                                                                                                                                                                        |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Design and Analysis of a Petal-Inspired Ultra-Wideband Microstrip Antenna for Sub-Terahertz 6G Applications with Enhanced Gain and Bandwidth Using CNN Algorithm ..... | 1030 |
| <i>Nagaraja. V, Syed Ameerunnisa Begum, Paiyidikalava Vishnu Vardhan, Seethi Sreerami Reddy Rallapalli Tharun</i>                                                      |      |
| Low-Power VLSI Accelerators for Edge AI in IoT Devices .....                                                                                                           | 1036 |
| <i>Adinath M, E. Venitha, Rajkumar K, Charanya. T.N, Vijayalakshmi. R, Deepika. N</i>                                                                                  |      |
| An Innovative Hybrid Algorithm for Heart Disease Prediction using Optimized Feature Selection and Deep Ensemble Learning .....                                         | 1042 |
| <i>Kalpana Chittor S, Pughazendi N</i>                                                                                                                                 |      |
| SilentCare: A Trust-Aware and Explainable AI Companion for Mental Health Support Through Adaptive Multichannel Dialogue Management .....                               | 1048 |
| <i>Md. Saad Fazal, Md. Kaifulla Kazim, Md. Fauzaan Zaki Meccai, P. Naresh, Sivananda L. Reddy Praveen Kulkarni</i>                                                     |      |
| Gesture Based Communication System for Cerebral Palsy Patients .....                                                                                                   | 1055 |
| <i>C. Chakri, Dheeraj Theertham, T. Tanuj Kumar, M. Vinodhini</i>                                                                                                      |      |
| RHFS-SEC: A Hybridized Feature Ranking and Soft-Ensemble Approach for Intelligent Intrusion Detection in SDN Environments .....                                        | 1062 |
| <i>Logeswari G, Bose S, Vijayaraj G, Gokulraj G, Maheswaran N, Illakiya Varshini C</i>                                                                                 |      |
| Hybrid Parking Violation Detection System Using CNN with Gradient Boosting .....                                                                                       | 1069 |
| <i>Saravanan C, Pavithra P, Sandhiya B, Suganthan A, Suseendran K, Gopalakrishnan K</i>                                                                                |      |
| Consensus-Based Ensemble Learning for Secure Fingerprint Authentication in E-Voting Systems .....                                                                      | 1075 |
| <i>Prakash P, Rajasekaran Thangaraj, Hasin N, Karthikadevi S, Kannan P, Dinesh Kumar S B</i>                                                                           |      |
| A Deep Learning-Driven System for Automated Detection of Plastic Debris in Underwater Marine Environments Using YOLOv11 .....                                          | 1081 |
| <i>Nithya T, Chadrasekaran V, Keerthana D G, Divya S S, Dharanikumar K, Hanis Hubert P C</i>                                                                           |      |
| Intelligent Wildlife Monitoring and Repulsion using YOLOv8-Based Bounding Box .....                                                                                    | 1087 |
| <i>Manavalasundaram V K, Mirthika B, Yaswanth Kumar L, Pavethra T, Virubhashayan S</i>                                                                                 |      |
| Reliable Cyber-Attack Detection in IoT Using Hybrid CNN-LSTM Models .....                                                                                              | 1093 |
| <i>Nidamanuri Srinu, Lakshmi Chandana Motumarri, G. Sujatha, M. Senthil</i>                                                                                            |      |
| Blockchain-Optimized Quantum GANs for Secure Localization in IoT-WSNs .....                                                                                            | 1099 |
| <i>Hamer Shield J M, Suresh K</i>                                                                                                                                      |      |
| AI-Driven Dress Fitting System Using Deep Learning and Immersive Technologies .....                                                                                    | 1107 |
| <i>Karthic Sundaram, Maheswaran N, Karthick S, Vinu S</i>                                                                                                              |      |
| Blockchain-Enabled Verifiable Federated Edge AI for Cross-Organizational Data Collaboration .....                                                                      | 1113 |
| <i>N. Meenakshisundaram, Sajiv. G</i>                                                                                                                                  |      |
| Virtual Immersion for Enhanced User Adoption in Ayurvedic Healthcare Using VR Technologies .....                                                                       | 1118 |
| <i>Priyan G S, Raghul Raj T, Rahul R, Siddarth R, R Dhanapal</i>                                                                                                       |      |
| Towards a Scalable Merkle-Assisted Blockchain Authentication Scheme for IoT Mesh Networks .....                                                                        | 1125 |
| <i>Ms.K. Kavitha, S. Venkateshkumar</i>                                                                                                                                |      |

|                                                                                                                                                              |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| IoT-Enabled Smart Parking Management with License Plate Recognition .....                                                                                    | 1131 |
| <i>Gauraang Divi, Akshay Kumar K S, Aswin M, Vivek A, Pramod C P</i>                                                                                         |      |
| Determination of Coverage Distance in Milli-Meter Wave Communication using Machine Learning<br>Algorithm .....                                               | 1138 |
| <i>Abhishek Madankar, Ashish Bhadade, Smruti Dhole, Mohit Sawai, Shailesh Sukalkar, Monali Gulhane</i>                                                       |      |
| Quantifying the Impact of Data Poisoning: A Case Study on CNN-based Intrusion Detection Systems .....                                                        | 1143 |
| <i>Settypalli Mahendra Reddy, S P Sumukh Vishwa Adithya, Bommu Sridhar Reddy, Swaminadhan Rajula</i>                                                         |      |
| Evaluation of Line-of-Sight MIMO Communications Based on the GNU and SDR .....                                                                               | 1148 |
| <i>Nhu Q. Tran, Kiet C. Pham, Thien N. D. Ho, Tung M. Dao, Chan D. T. Thai, Anh T. Le</i>                                                                    |      |
| A Scalable IoT Architecture for Smart Street Light Management in Smart Cities .....                                                                          | 1156 |
| <i>V. Priyadharshini, S. Jayanthi, T. Rajasekar, S. Vidya Priya Darcini</i>                                                                                  |      |
| Computer Vision System for Real-Time Nasal-Jaw Distance Measurement in Dental Applications .....                                                             | 1163 |
| <i>Jason Elroy Martis, Sannidhan M S, Vignesh N Salian, V K Ronith, Ishwar Pavan</i>                                                                         |      |
| IoT Enabled Gas Detection Subterranean Wastewater Systems .....                                                                                              | 1171 |
| <i>E. Maheswari, Roshni T, Sai Sudha V S, Varunika M</i>                                                                                                     |      |
| Next-Gen Vehicle Collision Prevention via Real-Time YOLO Object Recognition .....                                                                            | 1177 |
| <i>A. Syed Musthafa, Abishree M, Gopika P S, Kanishka S, Krishnadharshini K N</i>                                                                            |      |
| Detecting Zero-Day Attacks in Cloud Environments Using Adaptive Deep Q-Network: A<br>Reinforcement Learning Method for Dynamic Cyber Threat Mitigation ..... | 1184 |
| <i>R. Kanagalakshmi, P. Deepalakshmi</i>                                                                                                                     |      |
| Bidirectional LSTM-CapsNet Framework for Robust Myocardial Infarction Detection Using PPG<br>Signals .....                                                   | 1191 |
| <i>Sharon Gomez, P Manimegalai, P Subha Hency Jose</i>                                                                                                       |      |
| Cross-Layer Trust-Based Authentication Framework for Preventing Collaborative Blackhole Attacks in<br>VANETs .....                                           | 1199 |
| <i>C. Balakumar, N. Shanmugapriya</i>                                                                                                                        |      |
| Dynamic Energy-Based Clustering with Swarm Intelligence: Energy Efficiency Routing for WSN .....                                                             | 1205 |
| <i>M. Sajitha</i>                                                                                                                                            |      |
| IoT based Smart Sanitary Napkin Dispenser System for Rural Women .....                                                                                       | 1213 |
| <i>Kalimuthu M, Karthik B, Keerthana P G, Logeshwaran K</i>                                                                                                  |      |
| Cloud-Based Random Forest Models for Early Prediction of Septic Shock in ICUs .....                                                                          | 1219 |
| <i>Mohammed Ashik Saleem, Visumathi J, S P Vimal, M. Moorthy, G. Surya, S Murugan</i>                                                                        |      |
| Precision Agriculture: Harnessing Internet of Things and Interfused Machine Learning Models for<br>Accurate Crop Prediction from Soil Parameters .....       | 1225 |
| <i>Munugapati Bhavana, Koppula Srinivas Rao</i>                                                                                                              |      |
| Machine Learning-Driven Multi-Layered Nanoelectronic Architectures for Energy-Efficient Wireless<br>Sensor Networks .....                                    | 1231 |
| <i>A. Vasantharaj, P. Loganathan, A.T. Priyeshkumar, R. Dhilip Kumar, E.Sathish Kumar, S.V. Saveeithaa</i>                                                   |      |

|                                                                                                                                     |      |
|-------------------------------------------------------------------------------------------------------------------------------------|------|
| Integrating Digital Twins with Machine Learning for Intelligent Monitoring of Water Distribution Systems .....                      | 1237 |
| <i>Paniteja Madala</i>                                                                                                              |      |
| A Decentralized System for NFT Metadata Generation Using IPFS .....                                                                 | 1243 |
| <i>A Lakshana, R Hemalatha, M R Archana Jenis</i>                                                                                   |      |
| IoT-Based Real-Time Rice Storage and Preservation System .....                                                                      | 1251 |
| <i>Abirami A, Dharun Raja K, S. Srinivasan</i>                                                                                      |      |
| IoT-Enabled Transformer Health Monitoring and Oil Level Detection .....                                                             | 1256 |
| <i>Saranya S, Srivarthini K, P. Aravindan</i>                                                                                       |      |
| Microwave-based Detection of Hepatic Steatosis: A Diagnostic Approach .....                                                         | 1262 |
| <i>Rohith Nair, Ashish Sopanam, Aiswarya S, Meenu L, K A Unnikrishna Menon</i>                                                      |      |
| A Blockchain-Enhanced Federated Learning Framework for Secure and Scalable Smart Healthcare Systems with Intermittent Clients ..... | 1267 |
| <i>Vinu S, Maheswaran N, Karthic Sundaram, Karthick S</i>                                                                           |      |
| Performance Evaluation of 2-W-PPWM and 4-M-PAWM Modulation Techniques Based on PAPR and Data Rate Metrics .....                     | 1274 |
| <i>Mary Joy Kinol.A</i>                                                                                                             |      |
| Next-Generation Multimodal Biometric Authentication for Secure Financial Transactions .....                                         | 1278 |
| <i>Ramya S R, Bharath Kumar R, Saranya S, Hansini R, Janani A</i>                                                                   |      |
| Adaptive Flood Mapping with Cloud-Aware Satellite Data Selection Using AI-Based Model Adaptation .....                              | 1286 |
| <i>Savitha M, Merin Meleet</i>                                                                                                      |      |
| IoT-Based Smart Hostel Food Management with Integrated Carbon Footprint Trackers .....                                              | 1292 |
| <i>Kalidhasan V, Lawrance B, Mohamed Ashik Ahamed M.F, Punitha A</i>                                                                |      |
| Symbol Classification in Receiver of OFDM Carrier Signal with Gray Wolf Optimization Algorithm .....                                | 1298 |
| <i>Ali Hander, Bilgehan Erkal, Javad Rahebi</i>                                                                                     |      |
| Accident Detection and Alert System Using YOLO Model .....                                                                          | 1302 |
| <i>Muskan S, R Sethu Madhavi</i>                                                                                                    |      |
| IoT Based Direct Marketing App Development for Farmers .....                                                                        | 1308 |
| <i>Leo Raju</i>                                                                                                                     |      |
| Underwater Object Detection and Image Clarity Improvement via YOLOv8 and Physics-Guided GANs .....                                  | 1315 |
| <i>Vijayalakshmi B, Swarna Mallika PL, K. Mahendran</i>                                                                             |      |
| A Lightweight ECC-AEAD Security Framework for IoT-Enabled Wireless Sensor Networks .....                                            | 1321 |
| <i>Vishwas H.N., T.K. Ramesh</i>                                                                                                    |      |
| Cloud Continuum Based CNN Optimization Framework for Next Generation Health Care Data Performance on IoT Platform .....             | 1329 |
| <i>G. Aravindh, R. Vishnu Vardhan, L. Murali, M. Mahalingam, N. Vigneshwaran, S. Ramesh</i>                                         |      |
| An Intelligent System for Mining-Related Air Quality and Hazard Identification Based on Machine Learning Techniques .....           | 1335 |
| <i>Madhubashini V, Kaviya S, Deenu K, Sudhakshinadevi S, Sruthi S, Vanitha K</i>                                                    |      |

|                                                                                                                                           |      |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|
| Adaptive Secure Routing Protocol for Wireless Sensor Network Using Ant Colony Based Optimization and Cluster Based Routing Protocol ..... | 1342 |
| <i>G. Aravindh, R. Vishnu Vardhan, L. Murali, Niranjana S, Sanjay Kumar S, Vasanthakumaran R</i>                                          |      |
| Adaptive Secure Routing Protocol for Wireless Sensor Network Using Bee Colony Based Optimization and Lightning Search Algorithm .....     | 1348 |
| <i>R Vishnu Vardhan, G Aravindh, L Murali, S Logadeeshwaran, T Ragupathi, J Mohammed Shiba</i>                                            |      |
| Robust Fixed-Time Static Event-Triggered Control for Cluster Consensus in Directed Networks .....                                         | 1355 |
| <i>Sanjoy Mondal, Madhumita Pal, Santosh Sonar</i>                                                                                        |      |
| Rice Leaf Disease Detection Using YOLOv8 Algorithm .....                                                                                  | 1361 |
| <i>D Kumar, M Yuvaraja, R Vishnu Vardhan, E Sathiyapriya, K Sowmiya, P Sri Devi</i>                                                       |      |
| A Machine Learning Driven IoT Architecture for Secure Attendance and Employee Stress Monitoring .....                                     | 1368 |
| <i>Kalimuthu M, Sridharan V, Uttandaraman B, Uvalakshmi S</i>                                                                             |      |
| Non-Convolutional Dropped Visual Attention GNN for Low-Power Inference in WSNs .....                                                      | 1376 |
| <i>Premalatha G, S. Logeswari, N. Ramshankar, Geetha G, A. Sathya, S. Shanmuganathan</i>                                                  |      |
| Edge-Cloud Digital Twin for Urban Assets .....                                                                                            | 1383 |
| <i>Suganyadevi K, Ezhumathi S, Saran Adithya R S, Selva Pradeep E, Soujanya S</i>                                                         |      |
| Design of a Compact Wideband Hexagonal Shaped Grid Array Antenna for 5G mm Wave Applications .....                                        | 1388 |
| <i>A. Franklin Alex Joseph, R.Gowri Manohari, A. Muthu Manickam, R. Sornalatha, A. Sakthi Preetha S. P. Senthilkumar</i>                  |      |
| An IoT and AI-Enabled Smart Warehouse System for Environmental Control and Rodent Intrusion Detection in Vegetable Storage Units .....    | 1392 |
| <i>Jasmintha D, Lavanya V, J. Martin Leo Manickam</i>                                                                                     |      |
| IoT and AI-Enhanced Digital Twin for Smart City Disaster Resilience and Resource Optimization .....                                       | 1398 |
| <i>D. Sandhya Rani, Mummadi Ramachandra, R. Sukrutha, T. Veeranna, G. Bala Krishna M. Pavan Kumar Reddy</i>                               |      |
| Isolation Enhancement in Compact $2 \times 2$ MIMO Patch Antenna Using Metamaterial Array for X-Band Applications .....                   | 1405 |
| <i>R. Budhi Sagar, Meenu L, Aiswarya S</i>                                                                                                |      |
| Cloud-Based Intrusion Detection System using CNN .....                                                                                    | 1409 |
| <i>P. Deekshitha, Ch. Subba Reddy, P. Navya Padmasri</i>                                                                                  |      |
| Hybrid Namib Beetle-Walrus Algorithm for Fluid Flow Parameter Optimization .....                                                          | 1415 |
| <i>Kiran Lalaso Bhoite, Sachin M. Bhosle</i>                                                                                              |      |
| Automated Traffic Violation Detection and License Plate Detection for Two Wheelers with Privacy Preservation .....                        | 1423 |
| <i>J. Dafni Rose, S. Aakash, V. Aashish</i>                                                                                               |      |
| Hybrid Face Recognition and Environment-Aware IoT Home Automation .....                                                                   | 1430 |
| <i>G Shanmugavadeivel, Surya K, Vangaliyappan Ajay, Yathishadhithiya S</i>                                                                |      |
| An Efficient IoT Based Solid Waste Management System Using Computer Vision .....                                                          | 1436 |
| <i>Lekshmi V.S., V. Ebenezer, M. Roshni Thanka</i>                                                                                        |      |

|                                                                                                                                               |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------|------|
| A Federated Learning-Enabled Framework for Sustainable Computing and Communication in WSNs .....                                              | 1443 |
| <i>Satyanarayana Nimmala, R Sahith, Vikram Narayandas, K Madan Mohan, Pallati Narsimhulu</i><br><i>R Ravinder Reddy</i>                       |      |
| Pushing the Pareto Frontier: How Feature Selection Innovations Drove the Evolution of YOLO for<br>Real-Time Object Detection .....            | 1448 |
| <i>Rejin Varghese, Sherin Eliyas</i>                                                                                                          |      |
| Hybrid AI Systems for Early Warning of Invasive Species in Agricultural Ecosystems .....                                                      | 1456 |
| <i>Kavitha V, Madhava Rao Dhanda, T. Soujanya, Lava Kumar Polisetty, U. Pushpa Latha, M Krishna Kanth</i>                                     |      |
| Latency-Aware Fog Computing Architecture for Smart Factories in Industry 4.0 .....                                                            | 1463 |
| <i>Saurabh Vaidya, Gordhan Jethava</i>                                                                                                        |      |
| Predictive Maintenance AI for Irrigation Systems Integrating Sensor Networks and Historical<br>Performance Data .....                         | 1468 |
| <i>K. Vidhya, Usikela Naresh, D Deepa, Kalluri Praveen, T. Saranya, G. Akshitha</i>                                                           |      |
| Applications of Deep Learning and Signal Processing for Denoising ECG Signal .....                                                            | 1475 |
| <i>K. Mounika, C S S. Anupama, K. Naga Pallavi, R. Ravishankara Sairam, P. Praveen Kumar</i>                                                  |      |
| Decentralized Finance Using Blockchain (DApp) .....                                                                                           | 1482 |
| <i>Shilpa Shree G R, Anupama Y K, Amutha S</i>                                                                                                |      |
| Enhancing Student—Faculty Interaction Through Iot-based Presence Detection and Integrated Campus<br>Services .....                            | 1490 |
| <i>P Kalaiaresi, B. Vamsi Krishna, B. Narendra Reddy, N. Harshal Karthik, N. Harsha Vardhan Reddy</i>                                         |      |
| Design and Implementation of a Blockchain-Enabled Microgrid Monitoring System for Remote Energy<br>Management .....                           | 1498 |
| <i>S Anupkant, Sumalatha Kanaparathi, Sathyanarayana Cheruku, Mallareddy Adudhodla, Ch G V N Prasad</i><br><i>Pavan Kumar Reddy Manellore</i> |      |
| CNN-Based Multi-Layer DDOS Prevention and Multi-Class Attack Classification in Cloud<br>Architecture .....                                    | 1503 |
| <i>Tanuj Singh, Animesh Jha, Deepa Thilak K</i>                                                                                               |      |
| AI - Driven Threat Detection in Cloud Environment: Towards Autonomous Security Systems .....                                                  | 1509 |
| <i>Pavan Nutalapati, Arun Kumar Elengovan, Nishanth Prakash, Isan Sahoo, Venkat Nutalapati</i>                                                |      |
| Predicting Occurrence of Segmented Network Flood Attack Using Machine Learning Based Techniques .....                                         | 1515 |
| <i>C. Selvarathi, K. Muthumanickam, S. Nadhiya, Rajesh Kanna P, R. Arunraj, P. Pandiaraja</i>                                                 |      |
| Rain-Resilient Vision: Deep Learning Approaches for Robust Pothole Detection Using CNN, GAN, and<br>YOLO .....                                | 1520 |
| <i>Devendra Singh, Shiv Ashish Dhondiyal, Sumit Saklani, Ritik Bisht</i>                                                                      |      |
| Hybrid Fuzzy Logic-Genetic Algorithm Framework for Optimized Supply Chain Management in Smart<br>Manufacturing .....                          | 1525 |
| <i>R. V. S. Praveen, Raviteja Aida, Ananth Krishna Rambhatla, Kartik Trakroo, M. Maran, Sameer Sharma</i>                                     |      |
| Fecal Image-Based Chicken Disease Detection Using YOLO .....                                                                                  | 1531 |
| <i>Shella Mae A. Sagaldia, Rhoderick D. Malangsa, Narciso Angelo Teofilo, Alex C. Bacalla</i>                                                 |      |

|                                                                                                                                      |      |
|--------------------------------------------------------------------------------------------------------------------------------------|------|
| Blockchain-Enabled Incentive Mechanisms for Multi-Institutional Cervical Cancer Risk Prediction in 6G Networks .....                 | 1537 |
| <i>R. Manimegalai, G. Poornima, Karthick P, S Revathy, V Vedanarayanan, T. Dinesh Kumar</i>                                          |      |
| Adaptive Resource Management in Cloud-Native Databases: A Study of Autonomous Scaling and Query Optimization .....                   | 1544 |
| <i>Prasad Sundaramoorthy, Milan Parikh, Srikanth Reddy Keshireddy, Aparna Krishna Penumatcha Kathiresan Jayabalan</i>                |      |
| Vision-Based Assistive Communication and Mobility System for ALS Patients .....                                                      | 1551 |
| <i>T. Gowtham, S. Dharaneetharan, S. Chandran, M. Kottravan</i>                                                                      |      |
| An Intelligent Deep Learning Approach for Wild Animal Detection and Alert System Using YOLOv11 .....                                 | 1557 |
| <i>A. Vasantharaj, J. Immanuel Jebaraj, K. Kavinraj, S. Sebin</i>                                                                    |      |
| Wild Animal Intrusion Detection and Alert System using Machine Vision .....                                                          | 1565 |
| <i>Thejas Monikuttan, Pramod Mathew Jacob</i>                                                                                        |      |
| Robust Hybrid Autoencoder-LSTM Framework for Real-Time Anomaly Detection in Multi-Cloud Environments .....                           | 1571 |
| <i>Oviya S, Priyanka K A, Thiraviya C, Rithika S, Sumithra M, Ananthi</i>                                                            |      |
| Blockchain-Enabled Handover Authentication for 5G Vehicular Networks: Fog Computing Paradigm .....                                   | 1578 |
| <i>G. Premalatha, A. Devi, D. Palani, A. Amirthasaravanan, P. Dharanyadevi, S. Hariharan</i>                                         |      |
| Multi-Objective Workflow Scheduling in Blockchain-Aided Cloud Using Cavier Artemisinin Optimization-Based Hybrid Deep Learning ..... | 1584 |
| <i>Madhumala G, R Suma</i>                                                                                                           |      |
| Real-Time Emotional Recognition Based on Deep Learning with CNN and YOLO Frameworks .....                                            | 1590 |
| <i>B. Akbar, Gayatri Ketepalli, Rahul Peddipaga</i>                                                                                  |      |
| Enhancing the Performance of Energy-Harvesting Wireless Sensor Networks through Machine Learning-based Energy Prediction .....       | 1596 |
| <i>Jerril Gilda S., Minu Susan Jacob, V. Bhanu Rekha, Udit Ramalingegowda Manchattahalli, V. Seedha Devi Jose Anand A.</i>           |      |
| Implementation of an Intelligent Label Detection System with Jetson Nano and YOLOv8 .....                                            | 1602 |
| <i>Prasanna M. Hasabnis, Sharmila Zope, G. Ida, S. Nooray Sashmi, V. Bakyalakshmi, Manikandaprabu P</i>                              |      |
| Real-Time Forest Fire and Wildlife Poacher Detection and Alerting System Using YOLOV11 .....                                         | 1609 |
| <i>Rithanya G, Revathi R, Shanthini S</i>                                                                                            |      |
| Performance Analysis of BGSO_NxLFTNet based Traffic Forecasting .....                                                                | 1615 |
| <i>Mangali Sathyanarayana, Jayasree H</i>                                                                                            |      |
| K-Means-KNN Hybrid Model for Efficient Intrusion Detection in Cloud-based IoT Systems .....                                          | 1621 |
| <i>Radhakrishnan P, Kushvanth Chowdary Nagabhyru, Manonmani C, M. Srinu, Harmanpreet Kaur Nandhini N</i>                             |      |
| Cross Border Financial Transactions Through Blockchain .....                                                                         | 1627 |
| <i>Gurpreet Singh Panesar, Amardeep Singh, Monika Singh, Tejinder Pal Singh</i>                                                      |      |
| Gesture-Based AI Assistant for Natural Control System for Pandemic Safe Interactions .....                                           | 1632 |
| <i>Angeljulie. J, Sneha. S, Subha. V, Deepthy. K</i>                                                                                 |      |

|                                                                                                                            |      |
|----------------------------------------------------------------------------------------------------------------------------|------|
| Real-Time Crowd Anomaly Detection in Surveillance Utilizing ML .....                                                       | 1639 |
| <i>Angeljulie. J, Vishal. M, Sathish. J, Vignesh. V</i>                                                                    |      |
| Federated Learning and Blockchain-Based Hybrid Model for Stock Price Prediction and Financial<br>Market Forecasting .....  | 1644 |
| <i>M. Meenakshi, L. Vijayakumar, Meenu Baliyan, V. Venkata Ramana, B. Amarnath Reddy, Mini Srivastava</i>                  |      |
| Hybrid ANN-Genetic Algorithm Framework for Real-Time Monitoring and Prediction of Concrete<br>Compressive Strength .....   | 1650 |
| <i>Prashantha Kumar Kemmannu, Suganya A, Subhashini V., Deepak Sundrani, K. Lokesh, P. Joel Josephson</i>                  |      |
| Blockchain-AI Hybrid Framework for Secure Prediction of Academic and Psychological Challenges in<br>Higher Education ..... | 1656 |
| <i>RVS Praveen, Raviteja Aida, Kartik Trakroo, Ananth Krishna Rambhatla, Kajal Srivastava, Anvesh Perada</i>               |      |
| Hybrid Cloud-Based Image Processing and AI Model for Real-Time Kidney Stone Prediction in<br>Healthcare Systems .....      | 1662 |
| <i>Vijayalakshmi Chintamaneni, Revuri Swapna, Chadala Raja Sai Harsha, K. Madhavi, Neerav Nishant<br/>V. Krishnaraj</i>    |      |
| Deep Learning Models for Change Detection in Multispectral Satellite Imagery .....                                         | 1668 |
| <i>R. Rajesh Kanna, Ganesh Gulabrao Bhadane, B. Venkatesh, K. Muthuchamy, Sudeshna Baliarsingh<br/>Vikash Sawan</i>        |      |
| Real-Time IoT Intrusion Detection Using a Lightweight Graph Neural Network Approach .....                                  | 1674 |
| <i>Dhruv Dhankher, Kushal Srivastava, Rohan Nithin Rao, Mohana, Nischal A G</i>                                            |      |
| Efficient Rice-Grain Segmentation, Alignment, and Classification Using YOLOv8 and Hybrid<br>Attention Mechanisms .....     | 1680 |
| <i>Suma D, Narendra V G, Raviraja Holla M, Darshan Holla M</i>                                                             |      |
| Retinex-Based Adaptive Image Enhancement Using Weber-Fechner and Stevens' Laws .....                                       | 1687 |
| <i>C. Anitha</i>                                                                                                           |      |
| TGNO-CAD: A Novel Approach to Detect Fake Accounts in Social Networks .....                                                | 1690 |
| <i>Priyamvatha Krishnadas, Gangavarapu Maanognaa Reddy, Sreevarshini Ghattamaneni, Kurupati Bhavya<br/>Deepthi L R</i>     |      |
| YouTube Comment Classification Using Word Embeddings and Heuristic Optimization Framework .....                            | 1697 |
| <i>R. Bharathi, R. Rajarajan</i>                                                                                           |      |
| A Federated Pseudonymization Framework for Privacy-Preserving LLM's .....                                                  | 1704 |
| <i>Saravanan C, Keerti S R, Kalki S, Jeevan Prasanth V, Akileswaran J</i>                                                  |      |
| Login System Using AI-Driven Face Recognition .....                                                                        | 1711 |
| <i>Manavalasundaram V K, Deepak B, Hariprasanth S, Kanishka P G, Kaviyavikashini M</i>                                     |      |
| AI Driven Dual Modal Diagnostic Tool for Colon Cancer Detection .....                                                      | 1717 |
| <i>K. Kaaviyakanth, J. Jareena Begam, Bathmanathan. B, Arul Pandi. K, Deepak RS, Dharshitha AJ</i>                         |      |
| A Comprehensive Analysis: Smart Food Waste Management System .....                                                         | 1725 |
| <i>B Swathi, Ishanvi Reddy, Sai Ashwin Palukuru, Sharanya P Reddy, Venkat Lakshmi Shruthi A</i>                            |      |
| A Survey on Low-Light Underwater Image Enhancement with Deep Learning Techniques .....                                     | 1730 |
| <i>Annu Rose Jose, C. Anitha</i>                                                                                           |      |

|                                                                                                                                               |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------|------|
| Genomic Insights for Cancer Diagnostics: An Empirical Survey of Recent Advancements .....                                                     | 1737 |
| <i>Bini P B, C Anitha</i>                                                                                                                     |      |
| Behavior-Aware Graph Attention Network for Spam Detection in Social Networks .....                                                            | 1744 |
| <i>Ngotho Elizabeth Wanza, Deepthi L.R., Lekshmi Nandana M., G. Raghuveer</i>                                                                 |      |
| A Comprehensive Survey on Digital Tampering Detection in Social Media Images Using AI .....                                                   | 1752 |
| <i>Naima George, C. Anitha</i>                                                                                                                |      |
| A Hybrid Graph-Based Recommendation Framework for Social Networks and Web Search .....                                                        | 1760 |
| <i>Adwaith S, Kasinadhan S, Kavya P Nair, Pranav P, Deepthi L R</i>                                                                           |      |
| Learning to Read, Classify and Infer: A Survey of Deep Structures for Intelligent Text Labeling .....                                         | 1766 |
| <i>Ilamurugan G, Suresh K, Lakshmanan M</i>                                                                                                   |      |
| Optimized Robust Deformed CNN Framework for Breast Tumor Growth Prediction Using MRI .....                                                    | 1773 |
| <i>Jeba Malar M, N. Kanimozhi</i>                                                                                                             |      |
| Summarization of News Articles Using Deep Learning Techniques .....                                                                           | 1781 |
| <i>Prathyakshini, Prathwini, Ujwal Hegde, Prathviraj Bhat, Kshithij Shetty, Dishan</i>                                                        |      |
| Malware Detection through Machine Learning: Evaluating Random Forest, Logistic Regression, and Neural Networks .....                          | 1786 |
| <i>Suhail Ahamed Nisar Shaha, Tanzila Nargis, Shahabaz S M</i>                                                                                |      |
| Multimodal Image Fusion Using Guided Attention for Disaster Response Mapping .....                                                            | 1792 |
| <i>S Selvakumar, Sivakumar S, K. R. Ananthapadmanaban</i>                                                                                     |      |
| Bank Customer Churn Prediction Using Machine Learning: A Comparative Study with SMOTE-Based Class Balancing .....                             | 1799 |
| <i>Atharv Gulati, Nikita, Harish Sharma, Vivek Bhardwaj</i>                                                                                   |      |
| Advanced Machine Learning Approaches for Temporal Pattern Mining and Anomaly Detection in Mental Health Care Access .....                     | 1804 |
| <i>Carmel Mary Belinda M J, P. Princy Magdaline, S.Irin Sherly, S. Anuradha, V. Janakiraman, M. Amanullah</i>                                 |      |
| Energy and Security Trade-Offs in Cloud Data Center Scheduling: A Comprehensive Review .....                                                  | 1810 |
| <i>Sowbarnika V, R Dhanapal</i>                                                                                                               |      |
| Fuzzy Neural Network-Based Simulation of Cu(II) Adsorption on Modified Corn Cob: A Synergy of Experimental and Computational Approaches ..... | 1817 |
| <i>P. Yasodai, Leena Rose R, S. Muthupandiyar, T. Aparna, C. Merlyne Sandra Christina, Ragini Y P</i>                                         |      |
| Smart Stock: Automating Inventory Management for Small Warehouses with Real-Time Intelligence .....                                           | 1824 |
| <i>Kathyani Avuduri, Muthu Lakshmi V, Sowmiya L</i>                                                                                           |      |
| Optimized Brain Tumor Classification Using Artificial BEE Colony-Enhanced Convolutional Neural Networks .....                                 | 1830 |
| <i>V Kumar, Vijayakumari G, M Prakash, T Velmurugan, C. Alakesan, Manoj Praveen V</i>                                                         |      |
| Task Scheduling in Fog Computing using PSO with Dynamic Priorities .....                                                                      | 1837 |
| <i>Deepthi C, Thangam S</i>                                                                                                                   |      |
| Wiener Filtering Using Least Mean Squares and Steepest Descent: A Comparative Study .....                                                     | 1843 |
| <i>Jaber Younus, Praveen B. Choppala, Srinivasa R. Gantenapalli, Hussam Younes</i>                                                            |      |

|                                                                                                                                                       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Systematic Comparison of Decision Tree and K-Nearest Neighbor Approaches for Reliable Cardiovascular Disease Prediction Based on Health Metrics ..... | 1848 |
| <i>S.Roselin Mary, Bino J, L. Sarojini, A. Saranya, Aarti Sangwan, Ragini Y P</i>                                                                     |      |
| Smartsave AI: An Intelligent Goal Based Finance Tracker .....                                                                                         | 1854 |
| <i>A. Muhammad Yahyaa, S. Raagul, G. Anitha</i>                                                                                                       |      |
| Security in Healthcare: Enhancing the Safety of Data with Cyber Security .....                                                                        | 1858 |
| <i>Ranjithkumar L, Subathran J, Subash D, Inbakumari K</i>                                                                                            |      |
| Optimized FaceNet CNN Based Face Recognition System for Identifying Missing Person .....                                                              | 1864 |
| <i>J. Jeya A Celin, R. Kavyasri, K. Sri Siva Harini, K. Vasumalai</i>                                                                                 |      |
| Intelligent Food Ordering Using MERN Stack with Real-Time AI Personalization and Automation .....                                                     | 1870 |
| <i>J. Benita, B. Durga Sai Ganesh, B. Kalyan Akash, K. Sri Raghu Vardhan, D. Siva Naga Satya Sai</i>                                                  |      |
| Predicting Heart Disease With High Accuracy Using Health Indicators and Machine Learning Algorithms .....                                             | 1876 |
| <i>A Clement Raj, D. Rajasekaran, D. Lakshmi, S. Kanageswari, J. Siva Priya, Ragini Y P</i>                                                           |      |
| PoseSculpt: Real-Time AI-Driven Posture Aligner and Corrector .....                                                                                   | 1882 |
| <i>Sai Karthik Mukunda, VishnuVardhan Chittem, Sathwick Giliaka, Neelima N, Kirti S. Pande</i>                                                        |      |
| Cloud-Integrated XGBoost Model for Accurate Prediction of Pulmonary Fibrosis Progression .....                                                        | 1888 |
| <i>Vivekanandan V, D. Suriyakala, R. Jagadeesh Kannan, V G Sivakumar, Bhagyaxlaxmi K, Nivetha Arumugam</i>                                            |      |
| Support Vector Machine Approach for Identifying Urban CO <sub>2</sub> Emission Hotspots .....                                                         | 1894 |
| <i>S.P. Audline Beena, S. Priya, Monikapreethi S K, R. Jagadeesh Kannan, Visumathi J, Padma Malini G</i>                                              |      |
| Cloud-Enabled AI Systems for Sustainable Industrial Energy and Emission Reduction .....                                                               | 1901 |
| <i>N. Gurumurthy, B. Shadaksharappa, R. Meenakshi, Sree Southry S, S Sujatha, Sathishkumar V E</i>                                                    |      |
| Development of an Optimal Approach for Heart Sound Classification and Segmentation Using Improved Convolutional Neural Network .....                  | 1907 |
| <i>Govindaraj Ramkumar, Ahmad Abdelhafiz Ali Samhan, Swathi B, Ravi Gangadharolla</i>                                                                 |      |
| Enhancing the Object Recognition and Data Management System for the Visually Impaired .....                                                           | 1912 |
| <i>Ajay Kumar Chekuru, Vamsi Krishna Nuka, Sateesh Allu, Dileep Kumar Monditoka Yadavalli Naga Siva Parvathi</i>                                      |      |
| Raising Awareness of Senegalese Rice Farmers on Bacterial Leaf Streak through Interactive Television with an Innovative HbbTV-based Approach .....    | 1918 |
| <i>Mamadou Moustapha Diagne, Mamadou BA, Uriel Desire Ondo Ndoutoumou, Nick Alix Aigoueke Bekale Samuel Ouya</i>                                      |      |
| Energy-Efficient Resource Scaling in DevOps Continuous Testing Environments .....                                                                     | 1924 |
| <i>Swarup Panda, Anita Padhy</i>                                                                                                                      |      |
| NeuroFusion: Ensemble Framework for Transparent OCD Prediction .....                                                                                  | 1930 |
| <i>S. Nithyaselvakumari</i>                                                                                                                           |      |
| Feature-Enriched Framework for Cervical Cancer Detection Model Integrating Deep Learning and Metaheuristic Optimization .....                         | 1936 |
| <i>Karthick K, K. Saranya, S. Teitsana Devi, B. Hemalatha, C. Sureshkumar</i>                                                                         |      |

|                                                                                                                                                                         |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| QR-Code Based ATM for Old Clothes Transaction .....                                                                                                                     | 1941 |
| <i>K. Rajalakshmi, C Lilli, N Mukundapriya</i>                                                                                                                          |      |
| HbbTV-based Interactive Telemedicine System for Epidemic Awareness Campaigns .....                                                                                      | 1947 |
| <i>Jeanne Roux Ngo Bilong, Mamadou BA, Nick Alix Aigoueke Bekale, Uriel Desire Ondo Ndoutoumou Samuel Ouya</i>                                                          |      |
| Zero-Day Attack Detection in IoT Networks Using Graph Neural Networks and Online Learning .....                                                                         | 1952 |
| <i>Dhanush T, Shadharan Y, Abishek N, Saranya R</i>                                                                                                                     |      |
| AI Integration Achieving Efficient & Secure Cloud Data Warehousing through Verifiable Boolean Keyword Searchable Encryption .....                                       | 1958 |
| <i>Harish Chamarthi</i>                                                                                                                                                 |      |
| The Litter Coach: Smart Waste Management System .....                                                                                                                   | 1964 |
| <i>R. Vishnu Vardhan, G. Aravindh, C. S. Karthik, P. Gowtham Vignesh, M. Gunasekaran</i>                                                                                |      |
| Bonenet-ViT-Based Deep Learning-Driven Osteoporosis Diagnosis: A Vision-Transforming Method .....                                                                       | 1970 |
| <i>C. Gomathi, S. Malathi</i>                                                                                                                                           |      |
| Explainable AI for Brain Tumor Classification with Stacked Transfer Learning .....                                                                                      | 1976 |
| <i>Suthendran Kannan, Rakul K S, Sundara Pandian P, Syed Mohamed Aashif S, Dharshan Kumar A</i>                                                                         |      |
| Zero-Touch SOS: A Multimodal AI Emergency Response System using Voice, Facial Gestures, and Hand Signals .....                                                          | 1983 |
| <i>Lavina Roshni Manoj, Prabha M, S. Afrin, Saraswathi P</i>                                                                                                            |      |
| Agri-TCHAD, an Interactive Platform Based on Digital Terrestrial Television (DTT) for the Dissemination of Agricultural Knowledge in Rural Areas .....                  | 1989 |
| <i>Diop FATIMATOU, Mamadou BA, Uriel Desire ONDO NDOUTOUMOU, Nick Alix AIGOUKE BEKALE Samuel OUYA</i>                                                                   |      |
| Least Significant Bits Encoding Based Steganography for Exploring Multimedia Data Using Chaotic Mapping Algorithms .....                                                | 1994 |
| <i>A. Sivasangari, Sundara Rajulu Navaneethakrishnan, K. Pradeep, Surendran R</i>                                                                                       |      |
| Hybrid Deep Learning and Gradient Boosting Model for Heart Disease Detection .....                                                                                      | 2001 |
| <i>V Madhubashini, K Poornimadevi, A Andrine Dinola, G Arthi, M Bavadharani, S K Janani</i>                                                                             |      |
| Adaptive Ensemble Learning with Dynamic Weighting for Regional Temperature Extremes Detection Using Climate Teleconnections in Australia .....                          | 2008 |
| <i>Md. Jisan Mashrafi, Hasan Ahamed Alif, Arnab Biswas, Niloy Majumder, Fahim Ahamed Romit Ishraq Ul Alam</i>                                                           |      |
| Enhanced Reinforcement via Quantum Optimizing Personalized Chronic Illness Treatment Pathways: Employing Patient Data-Driven Learning for Medical Decision-Making ..... | 2015 |
| <i>Gaddam Saranya, K. Sivaraman</i>                                                                                                                                     |      |
| Rule Based Expert System for Turmeric Leaf Disease Identification Using ResNet50 .....                                                                                  | 2021 |
| <i>Velmurugan T, Poontamilselvan P, Sethu Manokar S, Shoban Kumar K C</i>                                                                                               |      |
| Integrating Irrigation Indices and Unsupervised Machine Learning for Groundwater Quality Evaluation in Industrial Regions .....                                         | 2027 |
| <i>Vidhya Lakshmi Sivakumar, Sundarayamini K</i>                                                                                                                        |      |

|                                                                                                                          |      |
|--------------------------------------------------------------------------------------------------------------------------|------|
| GraphPest: A Graph Neural Network Framework for Pest Detection in Agricultural Environment .....                         | 2034 |
| <i>Rajasekaran Arunachalam, J Mohana</i>                                                                                 |      |
| Smart Reasoning Assistant: An AI-Driven System for Solving Aptitude and Logical Reasoning Problems .....                 | 2041 |
| <i>Guntur Naga Gayatri Srivatsala, Y Kalyan Chakravarti, Lakkamraju Prasad Raju</i>                                      |      |
| Post Quantum Zero Knowledge Consensus for Cooperative Malware Verdicts .....                                             | 2048 |
| <i>D. Sandhya Rani, Cheepu Balakrishna, SK. Yakoob, E. Padmalatha, G Bala Krishna, T. Veeranna</i>                       |      |
| Automated Map Matching for Road- Type Classification .....                                                               | 2056 |
| <i>G. Elizabeth Rani, S. Kausthub, S. Dheenath, M. Viveka</i>                                                            |      |
| A Resource-Efficient Deep Learning Approach for Lung Cancer Classification Using MobileNetV2 .....                       | 2062 |
| <i>Saravanan Alagarsamy, Shahina A, Mohanakrishnaa R</i>                                                                 |      |
| Intelligent Image Recognition and Voice Assistance for Visually Impaired Individuals .....                               | 2069 |
| <i>Lakshmi Priya P, Mounika M, Susana Thebaral RE, Krishna Sree K</i>                                                    |      |
| Modified Higher Order Network (HON) with Transfer Learning for Anomaly Detection .....                                   | 2076 |
| <i>Kamala Challa, Alladi Suresh Babu</i>                                                                                 |      |
| Cropcart-Emphasizes Freshness and Farm Produce .....                                                                     | 2084 |
| <i>V. Suresh, R. Selvaraj, Karthick D, Karthikeyan D, Kaviya R</i>                                                       |      |
| Customer Churn Prediction in e-commerce using LSTM and Transformer based Deep Learning Models .....                      | 2089 |
| <i>Geetha R, Gayathiry D D, Sheeba U, Deepa V, Jayalakshmi B, Anuradha A</i>                                             |      |
| Crop Yield Prediction in Hilly Microclimates using ConvLSTM .....                                                        | 2095 |
| <i>Kodeeswari K, A Sherin, Deepa Thangavelu, V. Loganayaki, Prathap G, S. Leena Sylviya</i>                              |      |
| Ensemble CNN Approach for Accurate Classification of Pulmonary Tumors in Medical Imaging .....                           | 2101 |
| <i>J.Jeya Acelin, S.L. Arunraj, K. Gunaseelan, M. Barath, M. Parvin</i>                                                  |      |
| Implementation, Performance, and Energy Efficiency Analysis for Text Classification of Deep Learning Architectures ..... | 2108 |
| <i>Shikha Khullar, A. Hyils Sharon Magdalene, P. Sandhya, B. Ravindra Naik, Hemantha Kumar B N Madri Vijaya Raju</i>     |      |
| Adaptive Prompt Generation for Remote Sensing Data Using CLIP and CoCoOp Framework .....                                 | 2113 |
| <i>R. Umesh, Balaragavi R, Kanimozhi M</i>                                                                               |      |
| A Comparative Analysis of Air Quality Index Forecasting Using LSTM, GRU and Multi-Variate NBEATS .....                   | 2120 |
| <i>Snehal Athghara, Sandhya Arora</i>                                                                                    |      |
| Digital Voting Machine .....                                                                                             | 2127 |
| <i>Dipak Mane, Harsh Mane, Umesh Mangalekar, Prem Mankar, Vijay Gaikwad, Mayuresh Bakshi</i>                             |      |
| Vayazh - Leveraging AI and NLP to Empower Farmers with Real-Time Agricultural Insights .....                             | 2134 |
| <i>Shriya M, Veera Anusuya V, Archana S, Bhuvaneswari S</i>                                                              |      |
| Laplace Kernel Quadratic Segmented Regressive Federated Learning for ASD Prediction .....                                | 2141 |
| <i>Sreevidya. S, Lipsa Nayak</i>                                                                                         |      |

|                                                                                                                                                                 |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Hybrid Transformer-Autoencoder Framework for Adaptive Multimodal Anomaly Detection in Dynamic Environments .....                                                | 2149 |
| <i>Deepak Kumar Chohan, Sumit Saklani, Devendra Singh, Kalyan Thapa, Niharika Varshney, Raman Sharma</i>                                                        |      |
| Enhancing the Accuracy of Earthquake Early Warning Systems using a Hybrid Support Vector Machine and Random Forest Framework .....                              | 2155 |
| <i>V. S. Priya Sumitha, Premendra J. Bansod, V Sidharthan, Kookutla Ramesh, Vidhya P, S. Antony Dhas</i>                                                        |      |
| Fluid Facial Mapping for Interactive 3D Avatars Powered by Hyper-Realistic AI .....                                                                             | 2161 |
| <i>S. Jagan, Charles Prabu V, P. Pandiaraja, Moripalli Sourav, Ayush Verma, Aman Khan</i>                                                                       |      |
| A Review of Remote Sensing Image-Based Techniques: Current Trends in Land Usage and Land Coverage Classification .....                                          | 2167 |
| <i>Kinjal A Patel, Kaushika Patel</i>                                                                                                                           |      |
| Post-Quantum Secure Network Design using Reinforcement Learning Approaches .....                                                                                | 2173 |
| <i>M. Tamilarasi, R. K. Soundarayaa, P. Velayutha Perumal, J. Janorious Hermia, C. Balasubramanian R. Saravanakumar</i>                                         |      |
| Sign Language Recognition System Using IR Sensors - A Voice Call Assist .....                                                                                   | 2179 |
| <i>Vasuki P, Kaviyapriya K, Jovitha Sahayaraj</i>                                                                                                               |      |
| Real-Time User Frustration Detection Through Sub-Second Behavioural Pattern Analysis: A Machine Learning Approach to Digital User Experience Optimization ..... | 2184 |
| <i>Roshaan Js, Srisanajana K, Sharmila Parveen M, Shivanandham R. S, R. Subha, S. Ananthi</i>                                                                   |      |
| Securing the Internet of Things: Hybrid ANN+LR Approach for Malicious Bot and DDoS Detection .....                                                              | 2191 |
| <i>Saranyanandhini D, Nivethitha T, N. Kavitha, S Sheeba Rani, Suganthi Evangeline C, Vanitha R</i>                                                             |      |
| Digital Twin based Smart Safety for Occupational Stress Management .....                                                                                        | 2199 |
| <i>Poornimadevi. K, Madhubashini. V, Santhiya. A R, Poorvika. M, Mathumathi R</i>                                                                               |      |
| Comparative Study of Machine Learning and Deep Learning Models for Cyberattack Detection .....                                                                  | 2207 |
| <i>B. V. V. Siva Prasad, Shivaratri Narasimha Rao, P Praveen, Manasa Konda</i>                                                                                  |      |
| IDKLL-Based Logic Locking: Modified and Proposed Approaches Against SAT Attacks .....                                                                           | 2214 |
| <i>Neha Bysani, Mohammed Aadil Siddiqui, Mallela Varshith, Sonali Agrawal</i>                                                                                   |      |
| Multi-Layered Privacy Preserving Machine Learning Hybrid Model for Cybersecurity Applications .....                                                             | 2221 |
| <i>Amardeep Singh, Monika Singh, Tejinder Pal Singh, Gurpreet Singh Panesar</i>                                                                                 |      |
| AI-Augmented System Health Monitoring and Automation Ticket Management Framework Using LLM and Flask .....                                                      | 2227 |
| <i>B Shyamala Gowri, Shivaramakrishnan R, Vishal D, Udayakumar E</i>                                                                                            |      |
| Towards Energy-Efficient AI: Performance Insights from CNN vs SNN on Neuromorphic Systems .....                                                                 | 2234 |
| <i>Jaspreet Singh, Anshu Mehta</i>                                                                                                                              |      |
| Enhancing Education with Holographic Interaction .....                                                                                                          | 2240 |
| <i>Ravikumar B, Gopinathan S, Ajitha Angelian J, Shivamalar M, Pavithra A</i>                                                                                   |      |