

# **2024 International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (IITCEE 2024)**

**Bangalore, India  
24-25 January 2024**

**Pages 1-551**



**IEEE Catalog Number: CFP24DA7-POD  
ISBN: 979-8-3503-0642-2**

**Copyright © 200X by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

**\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.**

IEEE Catalog Number:	CFPxxxx-POD
ISBN (Print-On-Demand):	979-8-xxxx-xxxx-x
ISBN (Online):	979-8-xxxx-xxxx-x
Library of Congress No.:	xxxxxxxxxxxx
ISSN:	xxxx-xxxx

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

Digital Twin Based PID Control Modeling, Design, and Development for FPGA Implementation .....	1
<i>Palak Jain, Sanketh Bhat, Venkataraao Ryali</i>	
Artificial Intelligence and Vedic Scripture in Digital Agriculture for Global Economy.....	8
<i>Sachin Sharma, Muskan Tomar, Ranu Tyagi</i>	
Detection and Prevention of Poisoning Targets with ARP Cache Using Scapy .....	14
<i>D. Ruban Thomas, Prabhu. V, W. Nancy, G. Sowmiya, Adhithya T P, Vijayakumar Peroumal</i>	
Varicose Veins Disease Detection and Automated Treatment Using Body Area Network .....	20
<i>Vishnu Vardhan Rao G, Prabhu. V, Ks Revanth Sai Rathnam, V Lokanadham, C Vignesh, Vijayakumar Peroumal</i>	
Bowling Action Recognition Using Computer Vision.....	26
<i>Tejas S Koundinya, Subhash B S, Dhruv Shindhe S, S N Omkar</i>	
Speech Recognition Based Vending Machine Using Hidden Markov Model .....	31
<i>V. Prabhu, Jayasri S</i>	
Inter-Vehicular Communication Using Split Ring Resonator.....	36
<i>Ashok S, Palanivel S, Prasanth P, Priyanka R R, Prabhu. V, Vijayakumar Peroumal</i>	
Design of Robotic Arm with Three Degree of Freedom (DOF) Operated by Bluetooth Enabled Smartphones .....	41
<i>Sharmila P, Sushmitha Singh D, Afroze Aafrin M, Ponsheeba M, Vijayakumar Peroumal</i>	
Internet Enabled, State of the Art E-Voting Eco System .....	47
<i>Leo Pauline S, Prabhu. V, Sathish Kumar J, Jayavel R, Vijayakumar Perumal</i>	
Smart Waste Segregation System .....	54
<i>Bhuvana Suganthi D, Priyanka. S, Varsha A, Karnika S</i>	
A Study to Identify Significant Predictors of Employee Satisfaction of Private Security Personnel of Enterprises Through Hierarchical Multiple Regression Analysis.....	58
<i>Arunava Mookherjee, Krishna Roy</i>	
Animated Algorithm Visualizer for Graph Based Algorithms and Recursive Programs Using Machine Learning.....	64
<i>S. Geetha, Shreyas K, Manohar V, Ankita Santosh Joshi, Ashwini C S</i>	
Sentiment Analysis for Products Review Based on NLP Using Lexicon-Based Approach and Roberta .....	69
<i>Bobby Kumar, Sheetal, Veena S Badiger, Anitha Dsouza Jacintha</i>	
Email Protection in the Digital Age: Evaluating Symmetric Cryptographic Algorithms .....	75
<i>Sangeetha V, Komal S Rokhade, Vijayalakshmi N B</i>	
Prediction of Global Horizontal Irradiance Based on eXplainable Artificial Intelligence.....	81
<i>Chaitanya Ganvir, D. Dinesh, Rahul Gupta, Sk Jha, Praveen Kumar Raghuvanshi</i>	
Clinical Text Classification Using Sequential Forward Selection .....	85
<i>Rajkumar Rajasekaran, Veer Sanghavi, Rashi Solanki, Jolly Masih</i>	

Navigation of a Novel Wheelchair Designed for Multi-Level Surfaces.....	90
<i>Aadhithya K, Navneeth Krishna A, Bhamidipati S D K S S Srinivas, Badri Narayanan R, Hari Krishnan R</i>	
System for Sign Language to Speech Conversion.....	96
<i>Sparsha U, Priyanka M, Mukthashree S, Kiran K N</i>	
Development of PIN Diode Based Commandable Ku-Band Attenuator Network for TT&C Downlinks of Geo Imaging Satellites.....	100
<i>Kosuru Sai Malleswar, Supratik Bose, Suman R. Valke, Khan Afzaal, Sirshendu Das, Himani B. S., Rahul Sharma, Karam Ilahi Khan, Senthil Kumar V, Ramalakshmi N.</i>	
IoT Based Inverter for Autonomous Electric Vehicle Drive Using CIPOS IPM .....	105
<i>Chandan A S, Ashwini S Savanth, P. A. Vijaya</i>	
RFID-Attendance System with Notification Using IFTTT Platform .....	111
<i>PM Venkat Krishnan, Nischith A N, Sudarshan Sudarshan</i>	
Modelling of Ultra-Lift Luo Converter Using PI Controller for Stand Alone Application .....	115
<i>A. Vishnu Kumar, V. Jayalakshmi</i>	
Solar Powered Quazi-Z-Source Network Fed DC–DC Converter for Stand Alone Applications .....	119
<i>A. Vishnu Kumar, V. Jayalakshmi</i>	
AI and ML in Retail: IoT Sensors and Augmented Reality for Competitive Strategies Using IoT and Linear Regression.....	124
<i>Mitul Datta, Ramakrishnan Raman</i>	
Fostering Inclusive Communication: A Tool Integrating Machine Translation, NLP, and Audio-To- Sign-Language Conversion for the Deaf .....	129
<i>Madhura Sen, R Rajkumar</i>	
Image Colorization System: An Implementation Using the Caffe Deep Learning Framework.....	135
<i>Ashay H N, Ambili P S, Anooja Ali, Anjali Surendran</i>	
Voice Controlled Smart Home for Disabled.....	140
<i>Supriya N, Surya S, Kiran K N</i>	
Design and Optimization of a Low-Power Comparator for a 10-Bit Successive Approximation Register (SAR) Analog-To-Digital Converter (ADC) for General-Purpose Applications.....	144
<i>Tejas M P, Venkateshappa</i>	
Serial Vs Parallel Execution of Principal Component Analysis Using Singular Value Decomposition.....	148
<i>Mallegowda M, Tanupriya R, Vishnupriya C, Anita Kanavalli</i>	
Data-Driven Insights: A Genetic Algorithm Feature Optimization Approach to Heart Disease Prediction .....	153
<i>Deepali Yewale, S. P. Vijayaragavan</i>	
Comparative Study on Serial and Parallel Implementation of Face Detection.....	159
<i>Mallegowda M, Theertha K, Varsha S D, Anita Kanavalli</i>	
Relation Between the Amount of Sarcasm and the Ratings of English TV Shows .....	165
<i>Chinmay Dani, Aryan Gholap, Apoorav Sharma, Anil Jadhav</i>	

Corporate Feed Antenna Array for mmWave Application.....	170
<i>Amith B R, Aniket S Kadam, Priyadarshini K Desai</i>	
Dual Active Bridge Converters – a Comparative Analysis Using MATLAB Simulink for Photovoltaic Applications.....	175
<i>Kruthi Jayaram, Vidyasagar A</i>	
Predicting Genetic Disorders: A Link Mining Approach.....	181
<i>Madhura Sen, Rajkumar Rajasekaran, A Jayaram Reddy, Govinda K</i>	
Implementation of a 32-Bit MAC Unit in AISC Flow Using Vedic Multiplier and CSA .....	186
<i>Abhi A Bharadwaj, Manu K, Dhanush Upadhyay R, Prabhavathi P, Lakshmi Bhaskar, Daksh Pankaj Patel</i>	
Identification of Age, Plumage, and Sex of Bird Species Using Pre-Trained Deep Convolutional Neural Network .....	190
<i>Sourik Banerjee, Richa Gupta, J. Arun Pandian, S. Saranya, L. Thanga Mariappan</i>	
Customer Review Analysis of Indian Multiplex Chain Services.....	200
<i>Akshita Trivedi, Sourima Mondal, Sulakshana Sarah Mathew, Anil Jadhav</i>	
Using Machine Learning Models for Predicting Loan Status and Computation of Interest Rate.....	206
<i>Rahil Kouser, Hiba Suman T. P, Sruthi A, Anil Jadhav</i>	
Comparative Study of Stock Prices: The Co-Movements of Sectoral Models of Index Market in India.....	211
<i>Manas Ranjan Patnaik, Shuddhasatta Chowdhury, Niladri Mukherjee, Anil Jadhav</i>	
Sentiment Analysis and Authenticity Assessment of Hotel Reviews .....	216
<i>Anil Jadhav, Manthan Walvatkar, Jyoti Bagde, Pavan Kalyan</i>	
Enhancing Image Fidelity Through Denoising and Style GAN Techniques with Serial and Parallel Computation .....	223
<i>Mallegowdama, Purva Rajodiya, Samruddha S, Sini Anna Alex, Anita Kanavalli</i>	
Power Quality Challenges in Integrated Distribution Generation and Scope of Intelligent Control Techniques.....	229
<i>Tushar Birje, Nalini Karchi, D. B. Kulkarni, Nihal Karchi</i>	
Efficiency Comparison of Parallel and Serial Computation Techniques for Multi-Regional Weather Data Aggregation.....	235
<i>Mallegowda M, Vikas Hajjarge, Vinayak Vittal Divate, Krishna Mohan, Anita Kanavalli</i>	
A Systematic Investigation on Different Scene Text Detection and Recognition Method Using Deep Learning Techniques.....	241
<i>Sridhar Gujjeti, Sriram M, Ganesan V</i>	
A Comprehensive Survey and Adaptive Fuzzy Median Filtering Based Breast Cancer Detection and Segmentation Techniques .....	246
<i>Srinivas B, Sriram M, Ganesan V</i>	
Time and Accuracy Based Impact Analysis of Poisoning Attack on Support Vector Machine Algorithm .....	254
<i>Ponasuresh M, T. Dhilipan Rajkumar</i>	
Brain-Computer Interface Research Survey .....	258
<i>Sheshank Mahipal, Satyam Aggarwal, Pritika Goel</i>	

Enhancing Driver Safety: Real-Time Drowsiness Detection Through Eye Aspect Ratio and CNN-Based Eye State Analysis .....	264
<i>Rajkumar Rajasekaran, Narayananamoorthi M, Rashi Solanki, Veer Sanghavi, Yilmaza S</i>	
Development and Application of a Novel Improved Hybrid Multi Objective Black Widow Optimization Algorithm for Optimization of a Utility Network Connected Hybrid System in View of Cost of Electrical Energy, Dependability, Impact on Atmosphere .....	271
<i>Joy Bandopadhyay, Provas Kumar Roy</i>	
Fire Monitoring and Prevention System Based on the Severity of Fire Using NodeMCU and Cloud.....	279
<i>Madan Lal Saini, Ratish Kumar, Dayal Chandra Sati, Tanushree Bharti</i>	
Automated Bird Detection Using Snapshot Ensemble of Deep Learning Models.....	285
<i>Fazeelath Jahan Shaik, Ganesan V</i>	
Breast Cancer Assessment Using a HybridANN-CNN Approach.....	291
<i>Y. Venkat Vivek, K. Umamaheswari, T. Venkata Sai Sriharika, R. Nikesh, G. Rupesh</i>	
Exploring the Role of AI in Web Design and Development: A Voyage Through Automated Code Generation .....	296
<i>Veera Harish Muthazhagu, Surendiran B</i>	
Cloud-Driven Machine Learning with AWS: A Comprehensive Review of Services .....	304
<i>Manya K Ravindranathan, D. Sendil Vadivu, Narendran Rajagopalan</i>	
Hobby Based Learning for Automata Theory and Computability .....	312
<i>Pallavi N, Darshana A, Naik Manjula L, Keerthi P</i>	
Revolutionizing Transportation Infrastructure and Communication Technology Through Blockchain and 5G Simulation.....	319
<i>Pallavi N, Darshana A Naik, Soumya C S, Jayanth Mahadesh, Joseph A Braganza, Prakhar Singh, Rohith Nanda</i>	
Analysis of Network Attacks in Cyber Security Using Deep Learning.....	326
<i>Varshini P, Pavithra K, Anu P</i>	
Battery Consumption Optimization in Electric Vehicles Using Gyroscope Sensor.....	333
<i>Srikar M, Suhaas S Sastry, Sampreeth S, Priya R Sankpal</i>	
Multi-View Human Action Recognition Using Adaptive Optimization Algorithm with Skeleton Based Graph Neural Networks .....	338
<i>Srilakshmi N, Radha N</i>	
Kannada Text Summarization.....	345
<i>Krutika Badiger, Sakshi Sonagaj, Sindurani Giraddi, B. M. Reshma</i>	
Person Identification Using Periocular Region .....	350
<i>Evangeline D, Parkavi A, Rutuja Bhutaki, Sanjana Jhawar, Nithya Bharadwaj P, Malladi Sri Pujitha</i>	
Analysis of Leaf Disease Detection in the Solanaceae Family Plants Using Machine Learning Algorithms.....	356
<i>Anitha P, Abhishek Kuthkunja, Aditya G, Anvitha V</i>	
Utilizing Artificial Immune System to Improve Account Takeover Fraud Detection .....	362
<i>Rohan Gupta, Peshal Ghanghas, Ridil Kumar, Arshiya Gupta</i>	

Revolutionizing Healthcare: Screening System to Identify Diseases Using Machine Learning Approach .....	366
<i>Sangeetha V, Vaneeta M, Sinthuja M, Ishwariya Pani</i>	
Designing a Secure Large Scale E -Voting System Leveraging Sharding Blockchain with Interoperability Protocol and Consensus Mechanism .....	371
<i>Alka Maurya, Rajendra Kumar Dwivedi</i>	
Deep Learning for Cyberthreats: Performance Analysis and Application of Malware Classification in Edge Computing.....	378
<i>Akhil M R, Adithya Krishna V Sharma, Abhijith Nadig, Pavan A, Ashray Shetty, Sumathi A</i>	
Artificial Intelligence Techniques to Reduce Thermal Pollution.....	383
<i>Siddharth Goswami, Sachin Sharma, Priya Kohli</i>	
Study of Multilevel Inverter with SHE-PWM Using PSO Algorithm.....	389
<i>Shaik Shakeera, K. Rachananjali</i>	
Improved Grey Wolf Optimization Abetting Fuzzy Logic Controllers Used for Load Frequency Control in Two-Area Interlinked Reheat Thermal Power Plants Applying Governor Dead Band and Generation Rate Constraint Non-Linearity.....	394
<i>Shasya Shukla, Shyam Kant Jha</i>	
Deep Learning Based Abnormal Event Detection in Pedestrian Pathways .....	400
<i>Narasimha Chary. S, Ganesan V</i>	
Image-Based Distance Estimation of a Target from a Camera Using Color Checker Chart.....	405
<i>Vedavyasa Kamath, Ciji Pearl Kurian, Shailesh K. R, Suprabha Padiyar U, Mangalam Sontakke</i>	
Analysing Various Algorithms Applied to Alzheimer's Disease Dataset to Help the Future Generation .....	410
<i>S. Athinarayanan, K. Navaz, Tamilselvi. P, Shajeena J, Vishwa Priya V, M. Robinson Joel</i>	
State Space Modelling and Seamless Transition Between Islanded and Grid-Connected Operation Modes .....	415
<i>Harendra Pal Singh, Ankush Sharma, Sourav Bose, Anurag Kumar Swami</i>	
Cervical Cancer Classification: Optimizing Accuracy, Precision, and Recall Using SMOTE Preprocessing and t-SNE Feature Extraction .....	421
<i>B. Hemalatha, B. Karthik, C. V. Krishna Reddy, D. Gokulakrishnan</i>	
A Survey on the Usage of Numerous ML Models for Agriculture .....	428
<i>Jyothi A P, Spandana A P</i>	
Detecting and Diagnosing Brain Tumor MRI Image.....	433
<i>Gudapuri Sudheer, Ganesan V</i>	
CNN and Random Forest-Based Tomato Disease Urgency Prediction: A Vital Tool for Agriculture .....	438
<i>Deepak Banerjee, Vinay Kukreja, Prateek Srivastava, Siddhant Thapliyal</i>	
Synergizing CNN and Random Forest for Enhanced Damping off Disease Classification in Tomatoes .....	444
<i>Deepak Banerjee, Vinay Kukreja, Dibyahash Bordoloi, Ankur Choudhary</i>	
Machine Learning for Gravitas-Based Disease Prediction: CNN Vs. Random Forest.....	450
<i>Deepak Banerjee, Vinay Kukreja, Dibyahash Bordoloi, Siddhant Thapliyal</i>	

Smart Detection of Rose Rust Using CNN-Random Forest Fusion .....	456
<i>Deepak Banerjee, Vinay Kukreja, Ashish Garg, Deepak Singh Rana</i>	
Elevating Crop Protection: Vision Transformer Models for Brassica Black Rot Detection .....	462
<i>Vinay Kukreja, Vikrant Sharma, Rishabh Sharma</i>	
Exploring Novel Anticancer Peptides: Evolutionary Prediction of Potential tRNA-Encoded Peptides for Targeted Therapies .....	467
<i>Pallavi M. Shanthappa, Nidheesh Melethadathil</i>	
AI-Driven Strategies for Identifying and Classifying Mango Scab Disease .....	473
<i>Arshleen Kaur, Vinay Kukreja, Deepak Singh Rana, Ashish Garg, Rishabh Sharma</i>	
Utilizing a Hybrid CNN-LSTM Model for Automated Severity Classification of Rice Panicle Blast Disease .....	477
<i>Vinay Kukreja, Vikrant Sharma, Rishabh Sharma</i>	
Next-Gen Hybrid Deep Learning for Accurate Pepper Leaf Mosaic Virus Classification .....	482
<i>Arshleen Kaur, Vinay Kukreja, Lisa Gopal, Garima Verma, Rishabh Sharma</i>	
Harnessing the Power of Deep Learning for Corn Rust Disease Severity Classification.....	486
<i>Arshleen Kaur, Vinay Kukreja, Lisa Gopal, Garima Verma, Rishabh Sharma</i>	
Evaluating Boosting Algorithms for Academic Performance Prediction in E-Learning Environments.....	490
<i>N S Koti Mani Kumar Tirumanadham, Thaiyalnayaki S, Sriram M</i>	
Design and Analysis of Optimized Clear Channel Assessment for Data Transmission in IEEE 802.15.4 Based Networks.....	498
<i>Manjunath G. Asuti, Venkatesh Bhandage, Nirmalkumar S. Benni</i>	
Optimizing User Satisfaction and Streamlining Operations in Online Retail Using CNN Algorithm .....	504
<i>Rayavel P, Sendhil Kumar K S, Sarah Rachel S, Sushmitha K, Akalya P</i>	
Live Temperature Monitoring System Using MQTT .....	511
<i>Jamuna Rani Muthu, Kriuthika Thimmaraj, Sowmiyashri Jayaraman Sasikala</i>	
Evaluation of Virtual Reality Experiential Dimensions Using Sentiment Analysis .....	517
<i>Rina Daline T, Joby Thomas</i>	
Review on Augmented Reality in Civil Engineering Education and Application .....	523
<i>R. Sivapriyan, Lavan Raj, Tamil Selvi, Ganesh Raj</i>	
Machine Learning-Based Approaches for Early Prediction of Depression .....	528
<i>Khushi Shah, Urmi Patel, Yogesh Kumar</i>	
Machine Learning-Based Approaches for the Prognosis and Prediction of Multiple Diseases.....	535
<i>Priya Bhardwaj, Yogesh Kumar, Shakti Mishra</i>	
Soil Moisture Monitoring and Seed Sowing Robot with ThingSpeak Integration .....	541
<i>Swetha Rani L, Jenitta J, Akash S, Ashutosh Mallick, Bhumika V</i>	
Classification of Online News Articles Using Optimized Deep Learning Models.....	545
<i>Priyanshu Malaviya, Hardeep Patel, Priyansh Sanghavi, Yogesh Kumar</i>	

Enhancing Diabetic Retinopathy Image Classification Using CNN, Resnet, and Googlenet Models with Z-Score Normalization and GLCM Feature Extraction .....	552
<i>S. Balaji, B. Karthik, D. Gokulakrishnan</i>	
Electrode Engineering of Nano-Pillar Based CdS/CdTe Solar Cell .....	559
<i>Shyam Krishnan N, Dinesh Kumar</i>	
Interactive Agriculture Relying on Artificial Intelligence and Convolution Neural Network .....	563
<i>Nandhini J, Mohanapriya D, Kalaiarasasi G, Lakshmipriya N, Arunprasath M. M</i>	
IntegraSec: Securing IoT with an Integrated Lightweight Privacy-Aware Publish-Subscribe Framework.....	569
<i>Rashmi H Chamarajappa, Guruprakash C Dyamanna</i>	
Accurate Prediction of Bacterial Infections Using Deep Learning-Based Approaches: A Recent Study and Progress .....	577
<i>Jasdeep Singh, Ashish Oberoi, Yogesh Kumar</i>	
Image-Based Cognitive States Identification Through Deep Learning .....	583
<i>S Kundan Rao, Siddarth Ambannavar, G. R. Sinha</i>	
AgriAid: An Intelligent Farmer Companion Using Deep Learning Approach.....	587
<i>N Ilakkiyaselvan, Aarthi Dhandapani, K Khadar Nawas, Abhinav Bhattacharya</i>	
Diagnosis of Human Heart Ailment Using GridSearchCV .....	593
<i>E. Babby, K. Rajakumari</i>	
Ensemble Learning Methodologies for Electrocardiogram Analysis: A Comparative Study .....	598
<i>Basak Ersoz Yildirim, Murat Taskiran, K. Nur Bekiroglu</i>	
Forecasting of Long Term Renal Disease Using Machine Learning .....	604
<i>V Karthik, K. Rajakumari</i>	
An Enhanced Mutual Authentication Scheme for Healthcare Systems Using Elgamal and ECC.....	609
<i>Muthukumar Manickam, Ganesh Gopal Devarajan</i>	
Applying Machine Learning Algorithms to Investigate Cervical Cancer.....	617
<i>Apurvanand Sahay, Gokul Gopakumar, S Gokulan, D Subham, Amrita Thakur</i>	
Sobriety Period Prediction of Relapsed Alcohol Dependent Patients Using Machine Learning Approach .....	622
<i>P. G Sunitha Hiremath, Adarsh Sidnal, Sayam Jain, Vivek V. Pais, Rohan Jadhav, Anushree Motagi</i>	
A Composite Approach for a Multi-Layer Perceptron Implementation of Digital Predistortion in Power Amplifiers.....	628
<i>Aruna R, Pushpa Mala S, Keerti Kulkarni</i>	
Demand Side Management in Power Grids Through Particle Swarm Optimization Algorithm .....	633
<i>Shaleena Manafuddin, Mabel Ebenezer, Bisharathu Beevi</i>	
Detection of Image Forgery Using Error Level Analysis .....	641
<i>S Chandana, C R Nagarathna, A Amrutha, A Jayasri</i>	
A Deep Learning Approach for Digitization of Invoices.....	646
<i>Sarvesh Siras, Saurabh Kshirsagar, Vandana Inamdar</i>	

Autonomous Vehicle Lane Change Maneuver: A Comprehensive Analysis .....	650
<i>Sayandip Paul, C Hemanth Kumar, Arunkumar Bongale</i>	
Heuristic Methods for Fetal Contour Segmentation .....	656
<i>N Sriraam, Mohammed Sinad, Seshadhri Suresh, Suresh Sudharshan</i>	
Design and Simulation of Solar Powered Electric Cart for University Campus .....	661
<i>Chethan K, Vinesh S, Shanmukha G. K, Kiran D. B, Sharmila N</i>	
RSA Cryptosystem with Parallel Thread Execution Using Dual Public Keys .....	667
<i>Sangeetha V, Aisiri K S, Bharathi S</i>	
Efficiency Evaluation of Scalable Multiply and Accumulate Architectures in DSP: A Comparative Study of LUT Based and LUT-Less Based Approaches.....	672
<i>M. Bharathi, Yasha Jyothi M Shirur</i>	
Mastering Commercial Market Predictions: A Stacked Ensemble Approach with Credit Scoring Models.....	677
<i>R. Ramesh, M. Jeyakarthic</i>	
Attribute Selection Model Using Meta Classifiers for Pneumonia Diagnosis System.....	683
<i>G. Harshavardhan Reddy, B. Karthik, B. Kalaiselvi, S. P. Vijayaragavan, T. Vijayan</i>	
Assessment of Breathing Variations to Recognize Respiratory Disorders .....	688
<i>Purnima B R, N Sriraam, Shashank C, M Mohith, Gagan M, Sri Krishna L, TD Senthilkumar</i>	
Convolutional Neural Network-Based Image Tamper Detection with Error Level Analysis .....	693
<i>Manjunatha S, Swetha M D, Rashmi S, Ananda Kumar Subramanian, Vinoth Kumar V, Mallikarjuna Swamy S</i>	
A Double-Band Antenna of Microstrip Feature with Dual Rectangular Step-Slots for Application in Wireless Systems.....	700
<i>S K Dash, B K Behera, S N Mishra, J R Panda</i>	
Application of Scrum Framework and Low Code No Code Platform for Development and Implementation of In-Patient Electronic Visitor Management System to Optimise Hospital Operations .....	704
<i>Kalaivani S, Arun Senthilkumar, Akash Prabhune, Mathan Babu Durairaj, Sachin S Bhat</i>	
Integrated Traffic Control System for Emergency Vehicles .....	710
<i>Sarala T, Sunitha S V, Ashwini S Savanth</i>	
Blockchain-Aided Privacy Preserving Framework for Federated Learning.....	715
<i>Chitresha Jain, Payal Chaudhari</i>	
Enhancing Accessibility to Primary Healthcare Centres Through the Development and Validation of a Machine Learning-Based Gravity Model: Strengthening Public Health Coverage.....	721
<i>Akash Prabhune, Vinay R Srihari, Ananya Biswas Bidrohi, Ashitha Reddy, Aishwarya Mallawaram</i>	
Optimizing Medication Access in Public Healthcare Centers: A Machine Learning Stochastic Model for Inventory Management and Demand Forecasting in Primary Health Services .....	728
<i>Sachin S Bhat, Vinay R Srihari, Akash Prabhune, Subodh S Satheesh, Ananya Biswas Bidrohi</i>	
End to End Model to Reduce the Inference, Jamming, and to Increase the Trust from the Compromised Secondary Nodes in Cognitive Radio Networks.....	733
<i>Shashank Dhananjaya, Narendra M, Sunitha R</i>	

A Comprehensive Study on Technological Advancements in Treatment and Prognosis of Acute Myeloid Leukemia .....	743
<i>Anaswara Venunadh, Shyam P Joy</i>	
Modelling and Experimental Generation of 500 Nanoseconds Virtual Front Time Current Impulse.....	750
<i>Jithin Pauly P, Bandi Venkata Nagachandra, Prabhakar C., G Pandian</i>	
Nanomaterial-Based Antenna Study for mmWave Applications.....	754
<i>Priyadarshini K Desai, Bindu S</i>	
Adaptive Bit-Loading and Channel Estimation with IMN for Plain Line and Line with Bridge Taps in Broadband PLC .....	758
<i>Smitha Gayathri. D, K. R. Usha Rani, Yasha Jyothi Shirur</i>	
Road Feature Extraction Using CNN and GRU in Edge-Enabled Vehicular Cloud Networks .....	765
<i>K. Satya Sandeep, T. Anusha, A. Saranya, Sk. Arsha, S. Manasa</i>	
Evaluation and Comparison of Novel Yolo V5 Algorithm in Identifying Land Cover Area of Geographical Regions Over Single Shot Detector Algorithm Accuracy .....	770
<i>K. Aravind, S. Pradeep Kumar</i>	
Identification of Cognitive Deterioration in Elderly Patients using Visual Geometric Group 19 and Compare the Accuracy with CNN.....	775
<i>K Mahimaa, P. V. Pramila</i>	
Prediction of Brain Tumor Severity with Magnetic Resonance Imaging Using Ridge Regression Over Recurrent Neural Network.....	780
<i>D. Mohamed Bilal, S. Tamilselvan</i>	
Intelligent Pathological Voice Detection Based on Social Media Application Using Conditional Random Field Contrasted and Support Vector Machine Calculation .....	784
<i>A. J Yuktha Mukhey, K. Logu</i>	
Improving the Efficiency of Image Captured Via PGC and Stereo Vision Using Novel VJ Algorithm in Comparison with Local Binary Pattern Histogram Algorithm.....	788
<i>Harshitha Ramisetty, N P G Bhavani</i>	
Denoising Disease Using the Medical Image Using SYMLET Over RBJOR.....	792
<i>M Narendra, V. Rajmohan</i>	
Evaluation of Novel 16-Bit Vedic Multiplier Using Carry Look Ahead Adder for High Speed and Low Area in Comparison with Carry Select Adder .....	797
<i>D Surya Teja, P Jagadeesh</i>	
Enhancement of Accuracy in Facial Age Identification Using Comparing the Ensemble Support Vector Machine Algorithm to the Linear Regression Algorithm .....	803
<i>Jagadheesh Silla, S. Dinakar Raj</i>	
Comparison of Digital Image Watermarking Using Hybrid DWT-DCT Algorithm with Fuzzy-Based Algorithm for Improving PSNR.....	808
<i>B. Harshavardhansai, Sheela D</i>	
Improving Disease Detection in Tomato Leaves Using Visual Geometry Group 19 Compared to the Artificial Neural Network Algorithm .....	812
<i>Jothika G, Rashmita Khilar</i>	

The Nanoscale Technology and Photovoltaics Convergence: A Detailed Analysis of the Quantum Leap Achieved by Silver Nanoparticle Incorporation into SiO <sub>2</sub> Non- -Reflective Coatings for Solar Cell Efficiency Enhancement .....	817
Manikandan S, Radhika Baskar, Sathish G	
Harnessing Photovoltaic Cell Potential: A Thorough Investigation of TiO <sub>2</sub> Anti-Reflective Coatings and Silver Nanoparticles, Revealing Intriguing Findings Using Photovoltaic QCRF-FDTD Simulator Simulations .....	821
Manikandan S, Radhika Baskar, Sathish G	
Analysis of Leaf Disease Detection in the Solanaceae Family Plants Using Machine Learning Algorithms.....	825
Anitha P, Abhishek Kuthkunja, Aditya G, Anvitha V	
Enhanced Malware Detection Using Convolutional Neural Network with Robust Ensemble Algorithm—"LIGHTGBM" .....	831
Satya Sandeep Kanumalli, Neha Dalavayi, Varsha Veernapu, Poojitha Kota, Ratna Priya Katari	
A Novel Method for Design and Development of Hybrid Land and Water Buoyancy Trash Collecting Robot.....	838
Suresh Muthusamy, Sarathkumar Duraisamy, Meenakumari Ramachandran, Jamunadevi Karthikeyan, James Israel David, Harish Kumar Settu, Ajith Rathinasamy	
Real-Time Estimation of Heart Rate from Facial Video.....	843
Jyothi A P, S V V. Sai Madhu Sudhan Reddy, Praneeth. P, Nagoor Hamed	
Optimizing City Transit: IoT and Gradient Boosting Algorithms for Accurate Bus Arrival Predictions.....	849
S. Shanthi, B. Maruthu Kannan, Giriprasad. S, R. Babuji, S. Sivakumar, N. Malathi	
Improving Manpower Allocation at Primary Healthcare Facilities: Development and Validation of a Machine Learning Quadratic Model to Strengthen Public Health Service Availability .....	854
Sachin S Bhat, Vinay R Srihari, Akash Prabhune, Aishwarya Mallawaram, Ananya Biswas Bidrohi	
GAN Generated Fake Human Face Image Detection.....	860
Swati Shilaskar, Mayur Talewar, Soham Tak, Sidhesh Goud	
Speech Modeling with Linear Auto Regressive and Nonlinear Hammerstein Models.....	866
Chaitra N, Vyasaraj T, Murali Mohan D	
Digital Watermarking Techniques for Secure Image Distribution.....	870
Radhika Baskar, Rajat Kumar Dwibedi, T. Rajesh Kumar, Vijayalakshmi. N, Rajesh Kanna R, Gosu Nageswara Reddy	
Exploring the Implications of IoT Integration in Urban Infrastructures for Sustainable Smart Cities .....	874
Priti Sharma, J. B. Ammini, S. Vijayalakshmi, Vijayalakshmi. N, A. Meenambika, Vijendra Pratap Singh	
LiDAR-Equipped Speed Bump Alert System: Pioneering Safety Innovation.....	879
Ravi. G, Cherina Williams Paul K, Dena Dinesh M M	
Exploring Convolution Neural Networks for Image Classification in Medical Imaging .....	884
Vishwa Priya V, Padmini Chettu, K. Sivasankari, Dnyaneshwar Tukaram Pisal, Bantupalli Renuka Sai, D. Suganthi	

Real-Time Object Detection on Edge Devices Using Mobile Neural Networks .....	888
<i>Jose Reena K, Charul Nigam, G. Kirubasri, S. Jayachitra, Anurag Aeron, D. Suganthi</i>	
Comparative Analysis of Time Series Forecasting Methods in Workforce Planning Using Predictive Analytics.....	892
<i>Brijesh Singh, Rupali Khaire, Sashikala V</i>	
Fraud Detection in Financial Transactions: A Machine Learning Approach Vs. Rule-Based Systems .....	896
<i>Arshiya Khanum, Chaitra K S, Brijesh Singh, C Gomathi</i>	
Employee Engagement Prediction: A Comparative Study of Support Vector Machines and Neural Networks .....	901
<i>Shalini S, Venkatesh</i>	
Secure Multi-Party Computation for Collaborative Data Analysis in Network Security .....	905
<i>Tamilselvi P, V. Lathika, S. Jayachitra, S Arunkumar, M. Balasubramani, V Kalaichelvi</i>	
Investigating the Effectiveness of Recurrent Neural Networks for Network Anomaly Detection .....	910
<i>S. Joshua Kumaresan, C. Senthilkumar, Dinokumar Kongham, Beenarani B B, P. Nirmala</i>	
Harnessing Quantum Systems for Simulating Complex Physical Phenomena .....	915
<i>C. Senthilkumar, Dinokumar Kongham, Beenarani B B, P. Nirmala, S. Joshua Kumaresan</i>	
A Secure Data Encryption Mechanism in Cloud Using Elliptic Curve Cryptography .....	919
<i>I. Sudha, Cecil Donald, S. Navya, G. Nithya, Manivannan Balamurugan, S. Saravanan</i>	
Analysis of PV Grid Connected Bidirectional Batteries.....	924
<i>Sandeep Ushkewar, Abhishek Deore, Abbas Saifee, Vishal Moyal, S. P Deshmukh, S. K Bhil</i>	
Automatic Smart Irrigation System.....	929
<i>Poornima G C, Rakshitha B, Siddhanth Kashyap, Vyasaraj T</i>	
Neural Networks-Based Predictive Models for Self-Healing in Cloud Computing Environments.....	933
<i>D. Sujatha, Michael Raj. Tf, G. Ramesh, Moorthy Agoramoorthy, Ahamed Ali S</i>	
Predictive Analysis of 50 KW Solar Photovoltaic System Using PVsyst .....	937
<i>Shweta Baviskar, Gaurav B. Patil, Rahul Beldar</i>	
A Multiclass Semi-Supervised Deep Convolutional Generative Adversarial Network for Music Genre Classification Using Mel-Frequency Cepstral Coefficients.....	941
<i>Ashutosh Satapathy, Neelima Duda, Jaswanthi Machcha, Kokila Thottempudi</i>	
High Frequency Transient Behavior of Oil Filled Instrument Transformer Against Transients Generated During Switching of High Voltage Disconnector.....	947
<i>K Urukundu, K A Aravind, Pradeep M Nirgude, C Pallavi</i>	
Bundling Brilliance: Maximizing Telecom Operator Profits Through Handset Leasing.....	951
<i>Tanvi Hazarika, P Ashok, Sandeep Prabhu</i>	
Illuminating the Dark: Gaining Insights and Managing Risks with Dark Analytics .....	956
<i>Pranav Ravindranathan, P Ashok, Sandeep Prabhu</i>	
Design & Development of an Automated Wheelchair for Differently Abled Person Using Keypad & Bluetooth Technology .....	962
<i>Venkatesha K, Sudalai Shunmugam S, A Kumar, Vijayashree L</i>	

Smart Motion Detection and Location Tracking System for Enhanced Security Applications Using LoRa .....	967
<i>Rajashekhar V, Rohith J E, Priya R Sankpal</i>	
Enhancing Dynamic Abstract Generation for Code Summarization Using CODE-OAN Models and DBWTFF Frames .....	972
<i>Chandradeep Bhatt, Manish Sharma, Sanjay Sharma, Shefali Gupta, Teekam Singh, Mukesh Kumar</i>	
Efficient Real-Time Face Recognition-Based Attendance System with Deep Learning Algorithms .....	977
<i>Kritagya Painuly, Yukti Bisht, Himadri Vaidya, Akanksha Kapruwan, Rupesh Gupta</i>	
Deep Learning-Based Object Detection System for Crowd Monitoring in High-Security Areas .....	982
<i>Anurag Pandey, Hitesh Kandpal, Shubham Singh Rawat, Himadri Vaidya, Ruchira Rawat, Bura Vijay Kumar</i>	
Paving the Way to Safety: An Automated Traffic Management and Challan Generation System.....	988
<i>Chandradeep Bhatt, Dev Arora, Gotte Ranjit Kumar, Pashupati Bhatt, Teekam Singh</i>	
GANs and Augmented Reality in Virtual Clothing Try-On.....	994
<i>Achintya Mishra, Shubhanshu Kaintura, Yogesh Singh Yadav, Vishal Joshi, Himadri Vaidya, Akanksha Kapruwan</i>	
Unveiling the Dynamics of Online Culinary Convenience: A Systematic Exploration.....	1000
<i>Chandradeep Bhatt, Anurag Bisht, Sanjay Sharma, Shefali Gupta, Teekam Singh, Sanjay Sharma</i>	
Implementation of Internet of Things in Building Smart Cities .....	1005
<i>Atharva Rana, Rahul Chauhan, Vivek Singh Sajwan, Swati Devliyal, Shefali Gupta</i>	
Elevating Online Retail: An In-Depth Look at the Implementation of React JS in Advanced E-Commerce .....	1013
<i>Chandradeep Bhatt, Divyanshu Tiwari, Deepika Dua, Shefali Gupta, Teekam Singh</i>	
Portable Fingerprint Based Attendance System with Raspberry-Pi.....	1017
<i>Sanchit Negi, Rahul Chauhan, Siddhartha Tomar, Swati Devliyal, Shefali Gupta</i>	
Boosting Approach for Sonic Log Prediction Using Wavelet Transform.....	1026
<i>Lisa Gopal, Aditya Verma, Swastik Bhat, Preeti Chaudhary, Ayushi Jain, Shefali Gupta</i>	
Neuroscience of Virtual Reality.....	1033
<i>Krishna Sharma, Himanshu Singh Aswal, Rahul Chauhan, Ruchira Rawat, Rupesh Gupta</i>	
A Comparitive Study of MTCNN, Viola-Jones, SSD and YOLO Face Detection Algorithms .....	1039
<i>Sumit Tariyal, Rahul Chauhan, Yogesh Bijalwan, Ruchira Rawat, Rupesh Gupta</i>	
Climate Change: The Impact and Exploring the Path Forward .....	1046
<i>Harshita Joshi, Nokshi, Rahul Chauhan, Ruchira Rawat, Rupesh Gupta</i>	
Cryptographic Algorithms for IoT Devices .....	1053
<i>Md Mokarram Alam, Anamika Arora, Aditya Bhatt, Swati Devliyal, Shefali Gupta</i>	
A Modified Conventional Neural Network for Detecting and Classifying Leukemia.....	1060
<i>Utkarsh Nautiyal, Ashish Bhatt, Rahul Chauhan, Ruchira Rawat, Rupesh Gupta</i>	
Structered Deep Visual Models for Robot Manipulation .....	1067
<i>Chirag Danu, Rahul Chauhan, Chandradeep Bhatt, Swati Devliyal, Shefali Gupta</i>	

Electrical Power Plant Decision-Making by Utilizing IFS Weighted Averaging Operator .....	1072
<i>Annu Dagar, Amit Mittal, Akhilesh Singh, Shailendra Giri, Sachit Rathee</i>	
Experimental Evaluation of Systematic Animal Classification System Using Advanced Deep Learning Principle .....	1076
<i>S. Mary Diana, R. Porselvi, B. Geetha, B. Vanitha, K. Muthukannan, S. Ravi</i>	
A Smart and Systematic Vehicle Headlight Operations Controlling System Based on Light Dependent Resistor.....	1082
<i>J. Sumithra, Sumalatha A, Vanitha A, B. Sivadharshini, V. Samuthira Pandi, S. Ravi</i>	
A Comprehensive Evaluation of Deep Learning Based Melanoma Detection and Classification Scheme .....	1088
<i>T. Ramesh, L. Vigneash, Samraj S, S. Preema Jacinth Shalom, Maheshwari B, S. Kamatchi</i>	
Implementing Various Systems with DevOps to Make Successful Decisions Based on Intelligent Learning Strategy .....	1094
<i>T. Pandiyavathi, B. Sivakumar</i>	
A Smart Electronic Wheelchair Design Using Artificial Intelligence and Intelligent Sensors Association .....	1100
<i>R Balamurugan, D. Kanchana, B. Anni Princy, J Jaisudha, P. Malathi, E Glory</i>	
Implementation of an Effective Methodology to Avoid DDoS Attacks Using Cybersecurity Norms .....	1106
<i>R Balamurugan, B. Anni Princy, D. Kanchana, M. Murugesan, A Josphin Selsia, M Dinesh</i>	
WPT: A Smart Magnetic Resonance Technology Based Wireless Power Transfer System Design for Charging Mobile Phones .....	1112
<i>M Tamilselvi, C Ramesh Babu Durai, B Senthilkumar, B. Latha, V. Samuthira Pandi, J. Lakshmi Priya</i>	
Voltage Control in a ZETA Converter Compared with a DC-DC Converter by Varying Duty Cycle .....	1118
<i>Manish K, S Jaana Rubavathy, Gomathi S</i>	
Enhancing Road Safety Through Innovative Traffic Sign Detection and Recognition with YOLOv5 .....	1123
<i>Soumya Ashwath, Chidananda T, Ashwin Shenoy M, Santhosh S, Supreetha D R</i>	
Optimizing Agricultural Productivity: A Data-Driven Ensemble Model for Crop Recommendation Based on Site-Specific Characteristics and Weather Conditions in India.....	1127
<i>Sandeep Kumar S, Vaikunta Pai T, Ashwin Shenoy M, Santhosh S, Rakesh V S, Prashanth B S</i>	
Classification of Images Related to Kidney Cancer Using Hybrid Deep Learning.....	1131
<i>V Asha, S P Sreeja, Arpana Prasad, Gautam V Kathari, Karthik A S, Kathayayini</i>	
Intrusion Detection System to Detect Impersonation Attacks in IoT Networks .....	1137
<i>Manjula H S, Chaitra M, Arun Channaraju, Nehashree K R, Navya K N, Kiran C</i>	
Restaurant Feasibility Study and Behavioural Based Restaurant Recommendation .....	1143
<i>Prakruthi M K, Chaitra M, Shashidhar A S, Suchith Kumar G M, Sukanya Bakare, Vinay M V</i>	

#### **Author Index**