2024 Second International Conference on Inventive Computing and Informatics (ICICI 2024)

Bangalore, India
11-12 June 2024

IEEE Catalog Number: CFP24L34-POD
ISBN: 979-8-3503-7330-1

Copyright © 2024 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: CFP24L34-POD
ISBN (Print-On-Demand): 979-8-3503-7330-1
ISBN (Online): 979-8-3503-7329-5

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

2024 Second International Conference on Inventive Computing and Informatics (ICICI)

ICICI 2024

Table of Contents

Message from Conference Chair ..... **xxi**
Message from Organizing Chair ..... **xxii**
Organizing Committee ..... **xxiii**
Program Committee ..... **xxiv**

Computing

Constructing Co-Occurrence Graphs and Deriving Flood Ontologies for Enhanced Understanding. 1
Sundos Nasser Said Al Subhi (Georgia State University, USA), Armin R. Mikler (Georgia State University, USA), and Mario M. Kubek (Georgia State University, USA)

Forecasting Cardio Vascular Diseases Using Kernel Machine 9
K N V P S Siva Nishanth (Koneru Lakshmaiah Education Foundation, India), Syed Althaf Basha (Koneru Lakshmaiah Education Foundation, India), Vissamsetty Srikanth (Koneru Lakshmaiah Education Foundation, India), Kommi Purna Narendra (Koneru Lakshmaiah Education Foundation, India), and Venubabu Rachapudi (Koneru Lakshmaiah Education Foundation, India)

Diabetes Prediction Using SMOTE and Machine Learning 15
Maganti Khyathi Sarayu (Koneru Lakshmaiah Education Foundation, India), Shaik Ayesha Bhanu (Koneru Lakshmaiah Education Foundation, India), Karanam Deekshitha (Koneru Lakshmaiah Education Foundation, India), Maduri Meghana (Koneru Lakshmaiah Education Foundation, India), and Iwin Thanakumar Joseph (Koneru Lakshmaiah Education Foundation, India)

Deep Vision: Lane Detection in ITS: A Deep Learning Segmentation Perspective 21
P. Santhiya (Karunya Institute of Tech. and Sci., India), Immanuel JohnRaja Jebadurai (Karunya Institute of Tech. and Sci., India), Getzi Jeba Leelipushpam Paulraj (Karunya Institute of Tech. and Sci., India), Jenefa A (Karunya Institute of Tech. and Sci., India), S Kiruba Karan (Karunya Institute of Tech. and Sci., India), and Edward Naveen V (Sri Shakthi Institute of Engg. and Tech., India)

Design and Development of Fire Detection Using Deep Learning Algorithm 27
S Santhi (KIT-Kalaignarkarunanidhi Institute of Technology, India) and Kishore Kumar S (KIT-Kalaignarkarunanidhi Institute of Technology, India)

Empowering Conversations: An Innovative Recommendation Chatbot Framework 31
Dasari. Venkateshu (Koneru Lakshmaiah Education Foundation, India), Chintapanti. Teja Krishna (Koneru Lakshmaiah Education Foundation, India), Polina. Ramya Sri (Koneru Lakshmaiah Education Foundation, India), Ganisetti. V.D. Bhagya Sree (Koneru Lakshmaiah Education Foundation, India), and Jonnalagadda. Surya Kiran (Koneru Lakshmaiah Education Foundation, India)

Multimodal Emotion Analysis for Depression Detection- Integrating Facial Expression and Speech Recognition 37
Baruni Moghe (SRM Institute of Science and Technology, India), Meet Kachhara (SRM Institute of Science and Technology, India), and Kiruthika M (SRM Institute of Science and Technology, India)

An Analysis on Integrating Advanced Conversational AI in Legal Summarization and Information Retrieval 43
Jaideep Singh Garlyal (SRM Institute of Science and Technology, India), B. Hariharan (SRM Institute of Science and Technology, India), and Adarsh Kumar Singh (SRM Institute of Science and Technology, India)

Investigation of Student Engagement Monitoring System Using Machine Learning 47
Amish Abraham G (Karunya Institute of Technology and Sciences, India), Titus Isaac (Karunya Institute of Technology and Sciences, India), and J Sebastian Terrance (Karunya Institute of Technology and Sciences, India)

Diffusion Inference with Dynamic Classifier-Free Guidance 53
Aryan V S (PES University, India), Ashish Kulkarni (PES University, India), Dhruv Chawla (PES University, India), Aryan Rawther (PES University, India), and Jayashree Rangareddy (PES University, India)

Multimodal Image Fusion for Enhanced Brain Tumor Detection Using Advanced Machine Learning Techniques 60
K. Dwarakadeesh (SRM Institute of Science and Technology, Chennai), Sritej Shinde (SRM Institute of Science and Technology, Chennai), and P. Kanagaraju (SRM Institute of Science and Technology, Chennai)

Emotion Classification Using Artificial Neural Networks and Haar Cascade 66
Agnel Hilarian L (Karunya Institute of Technology and Sciences, India), Snowlin Preethi Janani (Karunya Institute of Technology and Sciences, India), M.S.P Subathra (Karunya Institute of Technology and Sciences, India), Ancy Jenifer J (Karunya Institute of Technology and Sciences, India), Stewart Kirubakaran S (Karunya Institute of Technology and Sciences, India), and Ebenezer V (Karunya Institute of Technology and Sciences, India)

Navigating Tomorrow's Engagement: A Comprehensive Social Media Management Platform ... 73
Kuldeep Vayadande (Vishwakarma Institute of Technology, India), Vipul Gejage (Vishwakarma Institute of Technology, India), Rutvik Gaikwad (Vishwakarma Institute of Technology, India), Sanket Gangode (Vishwakarma Institute of Technology, India), Akash Gadekar (Vishwakarma Institute of Technology, India), and Sarthak Ghavate (Vishwakarma Institute of Technology, India)

Forecasting Heart Disease Risk Using Machine Learning and Regularized Neural Networks 80
M Kalyani (PACE Institute of Technology & Sciences, India), Pathan. Hussain Basha (PACE Institute of Technology & Sciences, India), and V Sriharsha (PACE Institute of Technology & Sciences, India)

Human Computer Interaction on Children Based on AI 85
Konda Lydia (Karunya Institute of Technology and Sciences, India), E. Bijolin Edwin (Karunya Institute of Technology and Sciences, India), M. Roshni Thanka (Karunya Institute of Technology and Sciences, India), Shalem Preetham Gandu (George Mason University, United States), Stewart Kirubakaran (Karunya Institute of Technology and Sciences, India), and V. Ebenezer (Karunya Institute of Technology and Sciences, India)

Skin Cancer Diagnosis Using Deep Learning, Transfer Learning and Hybrid Model 90
Ravi Prakash (VIT, Chennai), Trilok Nath Pandey (VIT, Chennai), Bibhuti Bhusan Dash (KIIT Deemed to be University, India), Sudhansu Shekhar Patra (KIIT Deemed to be University, India), Utpal Chandra De (KIIT Deemed to be University, India), and Abinash Tripathy (KIIT Deemed to be University, India)

A Model for Predicting Chronic Renal Failure Using CatBoost Classifier Algorithm and XGBClassifier 96
Krishna Kishore Thota (Koneru Lakshmaiah Education Foundation, India), J S V Gopala Krishna (Sir C R Reddy College of Engineering, India), K Sravani (S R K R Engineering College, India), Bhavani Sankar Panda (GIET University, India), Geetanjali Panda (Centurion University, India), and R Shiva Shankar (S R K R Engineering College, India)

Deep Learning Based Automated Food Image Classification 103
Mukkamala Sumanth (Koneru Lakshmaiah Education Foundation, India), Anumula Hemanth Reddy (Koneru Lakshmaiah Education Foundation, India), Dandu Abhishek (Koneru Lakshmaiah Education Foundation, India), Sanaka Venkata Balaji (Koneru Lakshmaiah Education Foundation, India), Amarendra K (Koneru Lakshmaiah Education Foundation, India), and P V V S Srinivas (Koneru Lakshmaiah Education Foundation, India)

AI-Powered Workout Analysis Application for Posture Feedback and Repitition Grading 108
Prateek Prateek (SRM Institute of Science and Technology, India), Afraz Tanvir (SRM Institute of Science and Technology, India), and Brindha R (SRM Institute of Science and Technology, India)

Investigation of Hand Gesture Recognition and Script Generation Models 112
M Udhayakumar (Karunya Institute of Technology and Sciences, India), Titus Issac (Karunya Institute of Technology and Sciences, India), and J Sebastian Terance (Karunya Institute of Technology and Sciences, India)

Predicting Protein-Ligand Binding Affinities: A Machine Learning Approach 119
Akhil P A (Amrita Vishwa Vidyapeetham, India), Sooraj N (Amrita Vishwa Vidyapeetham, India), and Ani R (Amrita Vishwa Vidyapeetham, India)

Disease Detection and Dietary Suggestions Using Machine Learning 125
Anushaa Putta (Vignan's Institute of Engineering for Women, India), Vidhya Nimmana (Vignan's Institute of Engineering for Women, India), Deepthi Sree Chekuri (Vignan's Institute of Engineering for Women, India), Sravya Chintala (Vignan's Institute of Engineering for Women, India), and Sowmya Muvva (Vignan's Institute of Engineering for Women, India)

Diabetes Prediction with the Concept of AADE7 Behavior Using Machine Learning Approach 130
Alhuseen Omar Alsayed (Universiti Teknologi Malaysia (UTM), Malaysia), Nor Azman Ismail (Universiti Teknologi Malaysia (UTM), Malaysia), Layla Hasan (Universiti Teknologi Malaysia (UTM), Malaysia), and Abinash Tripathy (KIIT University, India)

Mutiple Syndrome Classification Using Ensemble Learning Techniques ..... N/A
Sheshang Degadwala (Sigma University, India), Darshanaben Dipakkumar Pandya (Sankalchand Patel University, India), Vanita Dandhwani (Ahmedabad Institute of Technology, India), Nita Jashugiri Goswami (Monark University, India), Vandanabahen Gopalbhai Patel (Silver Oak University, India), and Dhairya Vyas (The Maharaja Sayajirao University of Baroda, India)

Enhancing Hybrid Filtering for Evolving Recommender Systems: Dealing with Data Sparsity and Cold Start Problems 141
Swathi Mirthika G.L. (SRM Institute of Science and Technology, India) and B. Sivakumar (SRM Institute of Science and Technology, India)

Crowdfunding for Environmental Projects: A Sustainable Approach to Community-Led Initiatives 147
Dhara Lakshmi K (Amrita Vishwa Vidyapeetham, India), Sri Pranavi CV (Amrita Vishwa Vidyapeetham, India), Tanvi Y (Amrita Vishwa Vidyapeetham, India), Sreevidya B (Amrita Vishwa Vidyapeetham, India), and Rajesh M (Amrita Vishwa Vidyapeetham, India)

DeepSVM-A Novel Approach for Early Detection and Classification of IoT Botnet Attacks 152
Veena Antony (Karpagam Academy of Higher Education, India) and N. Thangarasu (Karpagam Academy of Higher Education, India)

Automated Detection of Diabetic Retinopathy Segmented Images Using ResNet50 and VGG16 Deep Learning Algorithms 159
Sashi Kanth Betha (GITAM Deemed to be University, India) and J.B. Seventline (GITAM Deemed to be University, India)

Predictive Analytics for Anticipating Adverse Drug Reactions to Ameliorate Drug Development and Prescription Practices 166
Ch. Aneesh (Amrita Vishwa Vidyapeetham, India), Gembali Saumik (Amrita Vishwa Vidyapeetham, India), K.V.V. Varun (Amrita Vishwa Vidyapeetham, India), Rajesh M (Amrita Vishwa Vidyapeetham, India), and Sreevidya B (Amrita Vishwa Vidyapeetham, India)

Enhancing Credit Card Security: Exploiting Machine Learning for Fraud Detection 171
Sonali Jagdish Mahure (New Horizon College of Engineering, India) and Vennala M Reddy (New Horizon College of Engineering, India)

AI-Driven Credit Scoring and Credit Line Solution for the Unreserved and Self-Employed 178
Tanuj Kumbhar (Fr. Conceicao Rodrigues College of Engineering, India), Drishti Agrawal (Fr. Conceicao Rodrigues College of Engineering, India), Lavil Saldanha (Fr. Conceicao Rodrigues College of Engineering, India), and Dipali Koshti (Fr. Conceicao Rodrigues College of Engineering, India)

Mental Health Prediction Using Machine Learning Models and Large Language Model 185
Supriya Kamoji (Fr. Conceicao Rodrigues College of Engineering, India), Sanika Rozario (Fr. Conceicao Rodrigues College of Engineering, India), Sania Almeida (Fr. Conceicao Rodrigues College of Engineering, India), Shruti Patil (Fr. Conceicao Rodrigues College of Engineering, India), Sanika Patankar (Fr. Conceicao Rodrigues College of Engineering, India), and Heenakausar Pendhari (Fr. Conceicao Rodrigues College of Engineering, India)

Medico Bot: AI Based Telemedicine System with Disease Diagnosis and Expert Recommendation System with Blockchain Implementation 191
Harshithan K S (KCG College of Technology, India) and Babymol Kurian (KCG College of Technology, India)

Pose Detection with Corrective Feedback to Aid Physiotherapy for Parkinson's Disease 198
Aryansh Bhargavan (PES University, India), Avanish Bhat (PES University, India), Avni Gupta (PES University, India), Krishna Nikhil Mehta (PES University, India), and Preet Kanwal (PES University, India)

Virtual Glamour: AI-Enhanced Makeup Recommendations and Trials 206
Likhitha Daram (Chaitanya Bharathi Institute of Technology, India), Gayathri Pullakhandam (Chaitanya Bharathi Institute of Technology, India), Nageshwari Godari (Chaitanya Bharathi Institute of Technology, India), and S. Shobarani (Chaitanya Bharathi Institute of Technology, India)

Multi Cancer Prediction Using Deep Learning and CNN Algorithm 214
Siddharth Patel (SRM Institute of Science and Technology, India), Zayd Hassan (SRM Institute of Science and Technology, India), S. Iniyan (SRM Institute of Science and Technology, India), and Usha Desai (S.E.A. College of Engineering & Technology, India)

Predictive Analysis of Liver Cirrhosis Stages: An Ensemble Learning Approach ..... N/A
Sheshang Degadwala (Sigma University, India), Brijesh Kumar Bhardwaj (Dr. Ram Manohar Lohia Avadh University, India), Kavita Srivastava (K N I P S S, India), Harshit Singh (Dr. Ram Manohar Lohia Avadh University, India), and Dhairya Vyas (The Maharaja Sayajirao University of Baroda, India)

Enhanced Feature Extraction for Image Dehazing: A Comparative Study Between Deep Learning Architectures and FFA-NET 228
Sarthak Chaudhary (SRM Institute of Science and Technology, India), Samridh Gupta (SRM Institute of Science and Technology, India), and S. Iniyan (SRM Institute of Science and Technology, India)

Automated Bird Species Identification Using Audio Signal Processing and Convolutional Neural Network 236
Syed Ruby Farah (PACE Institute of Technology & Sciences, AP), S. Giri Babu (PACE Institute of Technology & Sciences, AP), and D. Janardhan (PACE Institute of Technology & Sciences, AP)

Strategies for VAWT Optimisation in Highway Environments 243
Lokesh Khedekar (Vishwakarma Institute of Technology, India), Bhumika Divate (Vishwakarma Institute of Technology, India), Krishna Endela (Vishwakarma Institute of Technology, India), Aditi Dyavanpalli (Vishwakarma Institute of Technology, India), Atharv Ekbote (Vishwakarma Institute of Technology, India), and Digvijay Bote (Vishwakarma Institute of Technology, India)

YOLO Based Object Detection Techniques for Autonomous Driving 249
Samson Anosh Babu Parisapogu (Chaitanya Bharathi Institute of Technology, India), Nitya Narla (Chaitanya Bharathi Institute of Technology, India), Aarthi Juryala (Chaitanya Bharathi Institute of Technology, India), and Siddhu Ramavath (Chaitanya Bharathi Institute of Technology, India)

Detection of Autism Spectrum Disorder Using Deep Learning Models 257
Kotha Chakradhar (Amrita Vishwa Vidyapeetham, India), Kotte Thulasi Tharun (Amrita Vishwa Vidyapeetham, India), Periyavaram Sandesh Kumar Reddy (Amrita Vishwa Vidyapeetham, India), and Thangam S (Amrita Vishwa Vidyapeetham, India)

Enhancing Access Control: A Biometric Approach with Facial Recognition and Near-Field Communication Integration 263
Rahulkrishnan Ravindran (Amrita Vishwa Vidyapeetham, India), Sabarinath Udayakumar (Amrita Vishwa Vidyapeetham, India), Yellanki Revanth (Amrita Vishwa Vidyapeetham, India), and Kalakunnath Namitha (Amrita Vishwa Vidyapeetham, India)

Pothole Detection and Road Damage Assessment System Utilizing Image Processing Techniques .. 269
R Swathika (Sri Sivasubramaniya Nadar College of Engineering, India), N Radha (Sri Sivasubramaniya Nadar College of Engineering, India), Parthiban D (Sri Sivasubramaniya Nadar College of Engineering, India), and Sriram J (Sri Sivasubramaniya Nadar College of Engineering, India)

Catalyzing Domestic Waste Management: A Deep Learning and IoT Enabled Smart Bin 279
R. Swathika (Sri Sivasubramaniya Nadar College of Engineering, India), Srinivasan Raghavan (Sri Sivasubramaniya Nadar College of Engineering, India), N. Radha (Sri Sivasubramaniya Nadar College of Engineering, India), and Subhalakshmi Chellakumar (Sri Sivasubramaniya Nadar College of Engineering, India)

Malpractice Detection in Examination Hall Using Deep Learning 286
Aruna S K (CHRIST University, India), Madhumitha A (CHRIST University, India), Selvanayaki Kolandapalayam Shanmugam (CHRIST University, USA), Senthil Kumar Thangavel (Amrita Vishwa Vidyapeetham, India), and Maiga Chang (Athabasca University, Canada)

Performance Assessment of Various Machine Learning Algorithms in Recommendation 292
Siddharth Ranjan (Vellore Institute of Technology, India), Trilok Nath Pandey (Vellore Institute of Technology, India), Bibhuti Bhusan Dash (KIIT Deemed to be University, India), Manoj Ranjan Mishra (KIIT Deemed to be University, India), Utpal Chandra De (KIIT Deemed to be University, India), and Sudhansu Shekhar Patra (KIIT Deemed to be University, India)

Dynamic Energy Management and Carbon Footprint Mitigation Using AI and IoT in Residential Communities 298
J. Relin Francis Raj (Saveetha Institute of Medical and Technical Sciences, India), U. Karthikeyan (SRM Institute of Science and Technology, India), R. Santhana Krishnan (SCAD College of Engineering and Technology, India), G. Vinoth Rajkumar (J.P. College of Engineering, India), Sincy Elezebeth Kuruvilla (RajaRajeswari College of Engineering, India), and Sakthidevi I (Adhiyamaan College of Engineering, India)

Optimizing EEG Artifact Removal in Motor Imagery BCI: Integrating FCIF, FCFBCSP, and Modified DNN for Enhanced Performance 307
Srinath Akuthota (SR University, India), K. Rajkumar (SR University, India), and Ravichander Janapati (SR University, India)

Designing A Concrete Kernel Computation Model for Chronic Kidney Disease Using Learning Approach 311
Surendar Kumar S (Karpagam Academy of Higher Education, India), Karthik B (Karpagam Academy of Higher Education, India), Suraj J (Karpagam Academy of Higher Education, India), and Mahalakshmi S (Karpagam Academy of Higher Education, India)

PAN Card Tampering Detection Using Machine Learning Techniques 316
H Abdurrahman Lalsudhesh (Sri Sivasubramaniya Nadar College of Engineering, India), R Keerthana (Sri Sivasubramaniya Nadar College of Engineering, India), N. Radha (Sri Sivasubramaniya Nadar College of Engineering, India), and R. Swathika (Sri Sivasubramaniya Nadar College of Engineering, India)

Protein Sequence Prediction Research Using Machine Learning Algorithm 323
Yihan Yao (Henan University, China)

Smart System for Elderly Care Based on Portable Sensor Positioning and Video Surveillance ... 330
He Lingmei (Qujing Medical College, China), Ding Luping (Qujing Medical College, China), Dai Yu (Qujing Medical College, China), and Ning Shuhua (Qujing Medical College, China)

LiDAR and BIM Integration for 3D Reconstruction and Preservation of Cultural Heritage Images in Ancient Architecture 336
Yuanyuan Liu (Guangzhou City Construction College, China)

ML Based Projector to Smart Board Conversion 342
Unik Lokhande (Fr. Conceicao Rodrigues College of Engineering, India), Nitesh Jaiswal (Fr. Conceicao Rodrigues College of Engineering, India), Joseph William (Fr. Conceicao Rodrigues College of Engineering, India), Malik Mohammad Ali Ahmad (Fr. Conceicao Rodrigues College of Engineering, India), and Shubham Sonar (Fr. Conceicao Rodrigues College of Engineering, India)

Advanced Navigation Solutions for the Blind and Visually Impaired 352
Harinarayanan R (Amrita Vishwa Vidyapeetham, India), Anand Sai G (Amrita Vishwa Vidyapeetham, India), and Binu P K (Amrita Vishwa Vidyapeetham, India)

AI-Driven Summarization of Academic Literature Using Transformer Model 359
N. Radha (Sri Sivasubramaniya Nadar College of Engineering, India), R. Swathika (Sri Sivasubramaniya Nadar College of Engineering, India), K.R. Uthayan (Sri Sivasubramaniya Nadar College of Engineering, India), and Mitul Krishna B (Sri Sivasubramaniya Nadar College of Engineering, India)

Attendswift Hub:- An Advanced Attendance Monitoring System for Classrooms 365
Jacob P (College of Engineering Aranmula, India), Akhil M (College of Engineering Aranmula, India), Febin S P (College of Engineering Aranmula, India), Harilal K H (College of Engineering Aranmula, India), Adarsh V (College of Engineering Aranmula, India), and Shihabudeen H (College of Engineering Aranmula, India)

Fashion Forecasting: Insights into the Latest Advances in Fashion Recommendation Systems .. 371
Swathi Tejah Yalla (Chaitanya Bharathi Institute of Technology, India), Akshaya Laxmi Ragi (Chaitanya Bharathi Institute of Technology, India), Meghana Munaga (Chaitanya Bharathi Institute of Technology, India), and Tanmayi Devineni (Chaitanya Bharathi Institute of Technology, India)

Transforming Healthcare: Unified Medical Identification and AI-Enabled Treatment Advancements 378
Abhinand Arun (Amrita Vishwa Vidyapeetham, India), K V Aswin Babu (Amrita Vishwa Vidyapeetham, India), Goutham Rajesh (Amrita Vishwa Vidyapeetham, India), Parthasaradhi H (Amrita Vishwa Vidyapeetham, India), and Bindhya Bhadran (Amrita Vishwa Vidyapeetham, India)

An Analysis on Conversational AI: The Multimodal Frontier in Chatbot System Advancements 383
Gunda Nikhil (Lovely Professional University, Punjab), Durga Revanth Yeligatla (Lovely Professional University, Punjab), Tejendra Chowdary Chaparala (Lovely Professional University, Punjab), Vishnu Thejaa Chalavadi (Lovely Professional University, Punjab), Hardarshan Kaur (Lovely Professional University, Punjab), and Vinay Kumar Singh (Lovely Professional University, Punjab)

Predictive Modeling in Forex Trading: A Time Series Analysis Approach 390
Tanjim Mahmud (Rangamati Science and Technology University, Bangladesh), Tahmina Akter (Port City International University, Bangladesh), Sakibul Anwar (Southern University Bangladesh, Bangladesh), Mohammad Tarek Aziz (Chittagong University of Engineering & Technology, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technology, Sweden)

Integration of NLP and Deep Learning for Automated Fake News Detection 398
Tanjim Mahmud (Rangamati Science and Technology University, Bangladesh), Tahmina Akter (Port City International University, Bangladesh), Mohammad Tarek Aziz (Chittagong University of Engineering & Technology, Bangladesh), Mohammad Kamal Uddin (Chittagong University of Engineering & Technology, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technology, Sweden)

Enhancing Road Safety: A Deep Learning Approach to Automated Crack Detection 405
Taohidur Rahman (BGC Trust University Bangladesh, Bangladesh), Tanjim Mahmud (Rangamati Science and Technology University, Bangladesh), Swagata Roy (BGC Trust University Bangladesh, Bangladesh), Mokame Mahmuda Setara (BGC Trust University Bangladesh, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technology, Sweden)

Enhancing Skin Cancer Diagnosis with Ensemble Deep Convolutional Neural Networks: A Multi-Model Optimization Approach 412
Natarajan K (Vinayaka Mission's Kirupananda Variyar Engineering College, Deemed to be University, India), Vinod Kumar D (Vinayaka Mission's Kirupananda Variyar Engineering College, Deemed to be University, India), Murali G (Vinayaka Mission's Kirupananda Variyar Engineering College, Deemed to be University, India), Arunkumar Madhuvappan C (Vinayaka Mission's Kirupananda Variyar Engineering College, Deemed to be University, India), Kannan S (Vinayaka Mission's Kirupananda Variyar Engineering College, Deemed to be University, India), and Mathesh M (Vinayaka Mission's Kirupananda Variyar Engineering College, Deemed to be University, India)

Informatics

Unveiling Malware Secrets Through Cutting-Edge Analysis 417
Rajgopal Hota (Koneru Lakshmaiah Education Foundation, India), Peteti Paul Kiran (Koneru Lakshmaiah Education Foundation, India), Bandaru Venkata Rakesh (Koneru Lakshmaiah Education Foundation, India), Pati Siva Satya Vinay (Koneru Lakshmaiah Education Foundation, India), and Swetha K (Koneru Lakshmaiah Education Foundation, India)

Cloud Transformation and the Key Concerns for Cloud Security and Challenges 423
Masina Sai Kiran (Koneru Lakshmaiah Education Foundation, India), Balajee R M (Koneru Lakshmaiah Education Foundation, India), Koripella Veera Venkata Satya Sai (Koneru Lakshmaiah Education Foundation, India), M V V Satya Kishore (Koneru Lakshmaiah Education Foundation, India), and Srithar S (Koneru Lakshmaiah Education Foundation, India)

A Comprehensive Study on Misconfiguration- SAAS Security Threat 433
Kovvuru Dhanush (Koneru Lakshmaiah Education Foundation, India), Shaik Abdul Azeez (Koneru Lakshmaiah Education Foundation, India), Kolagani Hari Naga Vara Prasad (Koneru Lakshmaiah Education Foundation, India), Patcha Mohan Sai Kiran (Koneru Lakshmaiah Education Foundation, India), S Kavitha (Koneru Lakshmaiah Education Foundation, India), and M Kavitha (Koneru Lakshmaiah Education Foundation, India)

CDSS Based Mobile Application for Stroke Assistance 439
Manasi Shah (VESIT, India), Kaushik Sahasranam (VESIT, India), Chaitanya Sondur (VESIT, India), Riya Nadagire (VESIT, India), and Gresha Bhatia (VESIT, India)

Scalable Web Data Extraction for Xtree Analysis: Algorithms and Performance Evaluation 447
K Varada Rajkumar (MLR Institute of Technology, India), Kolluru Sri Nithya (MLR Institute of Technology, India), Chelamkuri Teja Sai Narasimha (K L University, India), Vahiduddin Shariff (Sir C R Reddy College of Engineering, India), Vemuri Jaya Manasa (Sir C R Reddy College of Engineering, India), and N S Koti Mani Kumar Tirumanadham (Sir C R Reddy College of Engineering, India)

A Comprehensive Review on Navigating the Web 3.0 Landscape 456
Kuldeep Vayadande (Vishwakarma Institute of Technology, India), Abhilash Baviskar (Vishwakarma Institute of Technology, India), Jaywant Avhad (Vishwakarma Institute of Technology, India), Susmit Bahadkar (Vishwakarma Institute of Technology, India), Parth Bhalerao (Vishwakarma Institute of Technology, India), and Akash Chimkar (Vishwakarma Institute of Technology, India)

Smart Charging Slot Reservation and Utilization System for Electric Vehicles 464
H. James Deva Koresh (KPR Institute of Engineering and Technology, India), Santhoshkumar K (KPR Institute of Engineering and Technology, India), Samyuktha M R (KPR Institute of Engineering and Technology, India), Saranraj S (KPR Institute of Engineering and Technology, India), and Viswa K (KPR Institute of Engineering and Technology, India)

Environment Prediction System for Smart Greenhouses Using IoT-Based Spatial Monitoring Applications 470
Maheswar R (KPR Institute of Engineering and Technology, India), Nidhish Kumar P (KPR Institute of Engineering and Technology, India), Logesh N (KPR Institute of Engineering and Technology, India), Mohanraj M (KPR Institute of Engineering and Technology, India), Kishore Kumar K (KPR Institute of Engineering and Technology, India), and Giridhar C R (KPR Institute of Engineering and Technology, India)

Forecasting the Consumer Price Index Using SARIMAX Modeling 477
Vivek K (Acharya Institute of Graduate Studies (Afiliated to Bengaluru City University), India), A R Deepti (Acharya Institute of Graduate Studies (Afiliated to Bengaluru City University), India), and Farzeen Basith (Acharya Institute of Graduate Studies (Afiliated to Bengaluru City University), India)

Optimizing Recommendation Systems: A Hybrid Approach for Improved Accuracy 484
Geluvaraj B (New Horizon College of Engineering, India), Keerthe Balamurugan (New Horizon College of Engineering, India), Ajay Balamurugan (New Horizon College of Engineering, India), and Akshay Balamurugan (New Horizon College of Engineering, India)

Adaptive Deep Ensemble Learning for Robust Network Intrusion Detection in Industrial IoT Networks 490
A. Essaki Muthu (SCAD College of Engineering and Technology, India), S. Balamurugan (Velammal College of Engineering and Technology, India), Shalini Prasad (City Engineering College, India), A. Pitchi Rani (SCAD College of Engineering and Technology, India), R. Santhana Krishnan (SCAD College of Engineering and Technology, India), and G. Vinoth Rajkumar (J.P. College of Engineering, India)

Smart Tender Contract Management System 497
Lingaraj K (Rao Bahadur Y Mahabaleswarappa Engineering College, India), Harshitha B (Rao Bahadur Y Mahabaleswarappa Engineering College, India), M Deepika (Rao Bahadur Y Mahabaleswarappa Engineering College, India), Madeeha Tanzeem Badal (Rao Bahadur Y Mahabaleswarappa Engineering College, India), and Kavya K R (Rao Bahadur Y Mahabaleswarappa Engineering College, India)

Secured Voting System Based on Multilayered Biometric Authentication 502
Gunda Sathwik (Sreenidhi Institute of Science and Technology, India), Pendayala Druva Teja Reddy (Sreenidhi Institute of Science and Technology, India), Manu Gupta (Sreenidhi Institute of Science and Technology, India), Myadam Rahul (Sreenidhi Institute of Science and Technology, India), and Mohan Dholvan (Sreenidhi Institute of Science and Technology, India)

A Privacy Preserving Sentiment Analysis Using Federated Learning 510
Supriya Kamoji (University of Mumbai, India), Rohan Mathew (University of Mumbai, India), Justin Abreo (University of Mumbai, India), Jaden Dsa (University of Mumbai, India), Heenakausar Pendhari (University of Mumbai, India), and Unik Lokhande (University of Mumbai, India)

Adaptive Digital Beam Forming for Massive Array Employed in the XOR MUX Full Adder FPGA Implementation 516
Thamilazhagan T (Vinayaka Mission's Research Foundation – Deemed to be University, India), T. Muthumanickam (Vinayaka Mission's Research Foundation – Deemed to be University, India), T. Sheela (Vinayaka Mission's Research Foundation – Deemed to be University, India), G. Suresh Kumar (Vinayaka Mission's Research Foundation – Deemed to be University, India), and G. Ramachandran (Vinayaka Mission's Research Foundation – Deemed to be University, India)

Energy-Efficient ECG Signal Processing Based on Approximate Pruned Haar Discrete Wavelet Transform Implemented on FPGA 521
R. Ragavi (Vinayaka Mission's Research Foundation – Deemed to be University, India), T. Sheela (Vinayaka Mission's Research Foundation – Deemed to be University, India), T. Muthumanickam (Vinayaka Mission's Research Foundation – Deemed to be University, India), G. Suresh Kumar (Vinayaka Mission's Research Foundation – Deemed to be University, India), and G. Ramachandran (Vinayaka Mission's Research Foundation – Deemed to be University, India)

Brain Tumor Detection Using EEG Waveforms 526
Asha Rani Borah (New Horizon College of Engineering, India), Ashok K (New Horizon College of Engineering, India), Rakshith M P (New Horizon College of Engineering, India), Rakesh M (New Horizon College of Engineering, India), and Chethan R M (New Horizon College of Engineering, India)

Pharmashield: Using Blockchain for Anti-Counterfeit Protection 529
SK Khaleelullah (Vignan Institute of Technology and Science, Hyderabad), K. Siri Reddy (Vignan Institute of Technology and Science, Hyderabad), A. Sruthi Reddy (Vignan Institute of Technology and Science, Hyderabad), Devarasetty Kedhar (Vignan Institute of Technology and Science, Hyderabad), Moru Bhavana (Vignan Institute of Technology and Science, Hyderabad), and P. Naresh (Vignan Institute of Technology and Science, Hyderabad)

Trip Craft: Personalized Travel Recommendation Bot 535
Hema Senthil Murugan (Amrita Vishwa Vidyapeetham, India), Kalidindi Bhavana (Amrita Vishwa Vidyapeetham, India), Sarikonda Sri Nimitha (Amrita Vishwa Vidyapeetham, India), and Manazhy Rashmi (Amrita Vishwa Vidyapeetham, India)

Envision – An Object Detection System Using Jetson Nano 542
Gajendra Parthasarathi (Karpagam Academy of Higher Education, India), Prethashree U (Karpagam Academy of Higher Education, India), Harish A (Karpagam Academy of Higher Education, India), Moulieshwaran R (Karpagam Academy of Higher Education, India), and Shunmugadinesh M (Karpagam Academy of Higher Education, India)

Empowering Computer Network Security Using K-Means Reinforcement Learning Resource Allocation (KRL-RA) 546
S. Ayyasamy (Vellore Institute of Technology, India), Aayan Rashid (Vellore Institute of Technology, India), and Yash Singhal (Vellore Institute of Technology, India)

Enhanced Urban Infrastructure: IoT-Based Sewer Vault Monitoring and Cautioning System 552
Netaji Gandi (Vignan's Institute of Engineering for Women, India), Jyothi Sree Karri (Vignan's Institute of Engineering for Women, India), Sri Satya Swathi Nune (Vignan's Institute of Engineering for Women, India), Lakshmibhavani Ravada (Vignan's Institute of Engineering for Women, India), and Deepika Darapu (Vignan's Institute of Engineering for Women, India)

Real-Time Monitoring and Health Management of Aquatic Life with AquaTracker 556
Asha Rani Borah (New Horizon College of Engineering, India), Rajlakshmi Ghatkamble (New Horizon College of Engineering, India), Manik Gupta (New Horizon College of Engineering, India), Sudeep M Arashingodi (New Horizon College of Engineering, India), and Shreya Acharya (New Horizon College of Engineering, India)

Integrating Emotion Detection with Sentiment Analysis for Enhanced Text Interpretation 562
Arpan Ghosh (SRM Institute of Science and Technology, India), Naimish Pandey (SRM Institute of Science and Technology, India), and C. AshokKumar (SRM Institute of Science and Technology, India)

Data-Driven Decision Support System for Sustainable Energy Management: An AI-IoT Fusion Approach 569
R. Santhana Krishnan (SCAD College of Engineering and Technology, India), J. Relin Francis Raj (Saveetha Institute of Medical and Technical Sciences, India), P. Saveetha (Karpagam Academy of Higher Education, India), P. Ebby Darney (RajaRajeswari College of Engineering, India), R. Rajkumar (Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, India), and G. Ram Sankar (Adhiyamaan College of Engineering, India)

An Improvement to the Existing Cloud-Enabled Medication Reminder Device 577
Kusum K Singh (Shri Ramdeobaba College of Engineering and Management, India) and R.A. Deshmukh (Shri Ramdeobaba College of Engineering and Management, India)

Multitask Sentiment Analysis Integrated Machine Learning Framework to Classify Informative Tweets from Multidomains 584
Aswaththaman A (Karpagam Academy of Higher Education, India), Lokesh N (Karpagam Academy of Higher Education, India), Parthiban D (Karpagam Academy of Higher Education, India), and Gokilavani S (Karpagam Academy of Higher Education, India)

Aquatic Metrics: Exploring Quantity and Caliber Analysis Using IoT 590
V S Ratna Kumar Ramoju (Vignan's Institute of Engineering for Women, India), Sri Harshini Pakalapati (Vignan's Institute of Engineering for Women, India), N S S L Reshma Kondepudi (Vignan's Institute of Engineering for Women, India), Lavanya Devara (Vignan's Institute of Engineering for Women, India), and Madhuri Magapu (Vignan's Institute of Engineering for Women, India)

Smart ICU Patient Monitoring System 596
Rupali Balpande (Yeshwantrao Chavan College of Engineering, Nagpur), Saniya Kalambe (Yeshwantrao Chavan College of Engineering, Nagpur), Laxmikant Umate (Datta Meghe Institute of Higher Education and Research, Wardha), Nutan Gore (Yeshwantrao Chavan College of Engineering, Nagpur), Nikita Khirade (Yeshwantrao Chavan College of Engineering, Nagpur), and Ankita Gedam (Yeshwantrao Chavan College of Engineering, Nagpur)

Towards Sustainable Energy Solutions: Integrated Solar-Powered Battery Charging System Optimization 605
Palanichamy Naveen (KPR Institute of Engineering and Technology, India), Nandha Kumar N (KPR Institute of Engineering and Technology, India), Sridharan D (KPR Institute of Engineering and Technology, India), Thamaraiselvan S (KPR Institute of Engineering and Technology, India), Venkatachalam R (KPR Institute of Engineering and Technology, India), and Saravanan M (Sri Eshwar College of Engineering, India)

Anti-Collision Speed Control System Based on Embedded System Using RFID 609
Komathy Vanitha Krishnan (CSI College of Engineering, India), Angeline Felicia Moses (CSI College of Engineering, India), Charan Anthony Joseph Robert (CSI College of Engineering, India), Johnjacked Abraham (CSI College of Engineering, India), and Sriram Vasudevan (CSI College of Engineering, India)

A Comparative Literature Analysis Framework (CLAF) Utilizing Data Mining Algorithms 615
Yanan Wang (Henan University of Science and Technology, China)

Aircraft Engine Fault Detection Algorithm Based on Multivariate Time Series Sensor Data 622
Hongning Bian (Jinan Vocational College, China), Qian Zou (Jinan Vocational College, China), and Xinyi Kong (Jinan Vocational College, China)

Spatio-Temporal Data Analysis of Internet of Vehicles: from Scene Information Collection to Remote Analysis 630
Weiwei Lang (Beijing Information Technology College, China)

Intelligent Passenger Coordination and Management of Urban Rail Transit Based on Network Information Analysis 637
Jun Li (Tianjin Transportation Technical College, China)

Exploring the Application of Multi-Objective Optimization Algorithms in Logistics Sensor Networks 644
Shuguang Guo (Jiangsu Maritime Institute, China)

Psychological Activity Data Classification Based on Micro-Expression Recognition 651
Mengxuan Zhou (Zhujiang College of South China Agricultural University, China)

5G News Empowers State Grid to Redefine News Dissemination Channels 657
Jiaoli Liu (State Grid Information & Telecommunication Branch, China), Feng Li (State Grid Information & Telecommunication Branch, China), Yaxi Li (State Grid Information & Telecommunication Branch, China), Zhiyu Chen (State Grid Information & Telecommunication Branch, China), Yu Yan (State Grid Information & Telecommunication Branch, China), and Buqiao Deng (State Grid Information & Telecommunication Branch, China)

Exploring Advanced Techniques for Security Testing of Sensor Device Chips 665
Suye Li (Jinan Vocational College, China)

A Novel Subway Automatic Ticket Inspection System Based on RFID Devices 670
Ruijuan Liu (Tianjin Transportation Technical College, China)

Modeling Intrusion Detection for the Landscape Design Software Procreate from Data Layer .. 676
Xiang Zhao (Xiamen Institute of Technology, China) and Lushan Shi (Xiamen Institute of Technology, China)

Application of Multi-Party Computation in Data Security and Privacy Protection Under the Context of Blockchain 683
Rongwang Jiang (University of Sanya, China), Caofang Long (University of Sanya, China), Ming Yang (University of Sanya, China), and Zhiyong Liang (University of Sanya, China)

Optimization Methodology for Cruise Ship Route Planning Integrating Sensor Networks and Communication Systems 689
Chao Qu (Hospitality Institute of Sanya, China) and Baogang Lv (Dalian Maritime University, China)

Technological Innovations and Practical Applications of Unmanned Aerial Vehicles in Intelligent Urban Planning 695
Lin Wang (Sichuan Vocational College of Culture and Communication, China) and Haitong Jiang (Sichuan Vocational College of Culture and Communication, China)

Application and Optimization of Robot Systems in Industrial Production Line 701
Min Tan (Chongqing Aerospace Polytechnic, China), Zhenlai Liu (Chongqing Aerospace Polytechnic, China), and Peng Wang (Chongqing Aerospace Polytechnic, China)

Defending the Digital World: A Comprehensive Guide Against SQL Injection Threats 707
Gaurav Kailash Borana (D.Y. Patil University, India), Neeraj Harikesh Vishwakarma (D.Y. Patil University, India), Shakil Tamboli (D.Y. Patil University, India), Pooja Sharma (D.Y. Patil University, India), Moresh M. Mukhedkar (D.Y. Patil University, India), and Nitin A. Dawande (D.Y. Patil University, India)

Securing Information Transfer with Hybrid Cryptography via Cloud 715
Shreenagamanjula Rani (New Horizon College of Engineering, India), B V Santhosh Krishna (New Horizon College of Engineering, India), Tejaswini S (New Horizon College of Engineering, India), Uma Maheshwari A (New Horizon College of Engineering, India), and Triveni A (New Horizon College of Engineering, India)

Bidirectional Charger System Design Enabling V2G and G2V Energy Transfer 720
Gayatri Rajput (SVKM's Institute of Technology, India), Gaurav B. Patil (SVKM's Institute of Technology, India), Bhagyashree Patil (SVKM's Institute of Technology, India), Dhiraj Sonawane (SVKM's Institute of Technology, India), Sahil Pendharkar (SVKM's Institute of Technology, India), and Yash Patil (SVKM's Institute of Technology, India)

Linearity Performance and Distortion Characteristics of T and π – Gate AlGaN/GaN HEMT 726
Praveen Pal (Indian Institute of Technology, India) and Sneha Kabra (University of Delhi, India)

Exploring the Frontiers of Blockchain and Web Technologies for a Dynamic Digital Future 732
Kuldeep Vayadande (Vishwakarma Institute of Technology, India), Ayush Bhoyar (Vishwakarma Institute of Technology, India), Aditya Gorave (Vishwakarma Institute of Technology, India), Ajit R. Patil (Bharati Vidyapeeth' s College of Engineering, India), Yash Bhale (Vishwakarma Institute of Technology, India), Omkar Bhojane (Vishwakarma Institute of Technology, India), and Harshal Behare (Vishwakarma Institute of Technology, India)

A Deep Automated System for Detection of Fake Currency 743
Kota Sai Sree (PACE Institute of Technology & Sciences, India), S. Suneetha (PACE Institute of Technology & Sciences, India), and S. Giribabu (PACE Institute of Technology & Sciences, India)

IoT-Based Precision Agriculture Monitoring System: Enhancing Agricultural Efficiency 749
Tahmina Akter (Port City International University, Bangladesh), Tanjim Mahmud (Rangamati Science and Technology University, Bangladesh), Rishita Chakma (Rangamati Science and Technology University, Bangladesh), Nippon Datta (Chittagong University of Engineering & Technology, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technolog, Sweden)

IoT in Action: Design and Implementation of a Tank Water Monitoring System 755
Tahmina Akter (Port City International University, Bangladesh), Tanjim Mahmud (Rangamati Science and Technology Universit, Bangladesh), Rishita Chakma (Rangamati Science and Technology Universit, Bangladesh), Nippon Datta (Chittagong University of Engineering & Technology, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technology, Sweden)

Smart Monitoring and Control of Hydroponic Systems Using IoT Solutions 761
Tahmina Akter (Port City International University, Bangladesh), Tanjim Mahmud (Rangamati Science and Technology University, Bangladesh), Rishita Chakma (Rangamati Science and Technology University, Bangladesh), Nippon Datta (Chittagong University of Engineering & Technology, Bangladesh), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), and Karl Andersson (Luleå University of Technology, Sweden)

A Review : Complete Analysis of the Cache Architecture for Better Performance 768
Surekha Lanka (Stamford International University, Thailand), Prem Chand Konjeti (BTech- Computer science, India), and Colin. A. Pinto (Stamford International University, Thailand)

Author Index **773**