

Table of Contents

Transfer Learning Based Neural Machine Translation of English-Khasi on Low-Resource Settings Aiusha V Hujon, Thoudam Doren Singh, and Khwairakpam Amitab	1
Integration Of Renewable Energy Sources With Power Management Strategy For Effective Bidirectional Vehicle To Grid Power Transfer Pollepale Siddhartha, Thokala Sujeeth, Bandari Shiva, and J. Ramprabhakar	9
Classification of Breast Thermal Images into Healthy/Cancer Group Using Pre-Trained Deep Learning Schemes Seifedine Kadry, Rubén González Crespo, Enrique Herrera-Viedma, Sujatha Krishnamoorthy, and Venkatesan Rajinikanth	24
Offline HWR Accuracy Enhancement with Image Enhancement and Deep Learning Techniques Aashu Kumar, and Peeta Basa Pati	35
Sentiment Analysis using Bidirectional LSTM Network U.B. Mahadevaswamy, and P. Swathi	45
Detection of Network Attacks using Machine Learning and Deep Learning Models K.A. Dhanya, Sulakshan Vajipayajula, Kartik Srinivasan, Anjali Tibrewal, T. Senthil Kumar, and T. Gireesh Kumar	57
A Hybrid Classifier-based Ontology driven image Tag Recommendation framework for social image tagging Vaibhava Lakshmi R, Gerard Deepak, Santhanavijayan A, and Radha S	67
An Attention-based Pneumothorax Classification using Modified Xception Model C. Upasana, Anand Shanker Tewari, and Jyoti Prakash Singh	74
DynaTrack: Machine Learning Aided Variable Speed Limit System Sushil Kumar, Sunita Tiwari, Harshit Tewatia, Ankit Jain, and Jatin Popli.	83
Sarcasm Detection Using Bidirectional Encoder Representations from Transformers and Graph Convolutional Networks Anuraj Mohan, Abhilash M Nair, Bhadra Jayakumar, and Sanjay Muraleedharan.	93
A Factor Based Multiple Imputation Approach to Handle Class Imbalance Pranita Baro, and Malaya Dutta Borah	103
Smart Facial Emotion Recognition With Gender and Age Factor Estimation Surya Teja Chavali, Charan Tej Kandavalli, Sugash T M, and Subramani R	113
A hybrid Data-Driven framework for Spam detection in Online Social Network Chanchal Kumar, Taran Singh Bharti, and Shiv Prakash.	124
Quality Assessment Model for Handwritten Photo Document Images N Shobha Rani, K.A Akshatha, and K.S Koushik	133

Food Image Classification and Data Extraction Using Convolutional Neural Network and Web Crawlers Chaitanya A, Jayashree Shetty, and Priyamvada Chiplunkar	143
Object Detection on Scene Images: A Novel Approach Kaushik Das, and Arun Kumar Baruah	153
Enhancement in Skin Cancer Detection using Image Super Resolution and Convolutional Neural Network Ashutosh Lembhe, Pranav Motarwar, Rudra Patil, and Susan Elias	164
Machine Learning based Approximate Query Processing for Women Health Analytics A J Parvathi, Gopika H, Jasna Suresh, Sapa Laasya Sree, and Sandhya Harikumar	174
Identifying Colorectal Tumor For Single Cell RNA Sequence Using Rectified Linear Unit With Stochastic Gradient Descent Mothe Rajesh, Biswajit Senapati, Ranjita Das, and Sheshikala Martha	189
Ensemble Machine Learning Paradigms in Software Defect Prediction Tarunim Sharma, Aman Jatain, Shalini Bhaskar, and Kavita Pabreja	199
Data Mining Based Techniques for Covid-19 Predictions Rahul Rane, Aditya Dubey, Akhtar Rasool, and Rajesh Wadhvani	210
Text Sentiment Analysis based on Multichannel Convolutional Neural Networks and Syntactic Structure Debabrata Maity, Suvarna Kanakaraddi, and Shantala Giraddi	220
Acoustic Based Emergency Vehicle Detection Using Ensemble of deep Learning Models Usha Mittal, and Priyanka Chawla	227
Energy efficient machine learning based SMART-A-BLE implemented Wireless Battery Management System for both Hybrid Electric Vehicles and Battery Electric Vehicles Srikalaivani Pannerselvam, VAnantha Narayanan, and Gireesh Kumar T	235
Early detection of Parkinson's disease using machine learning Aditi Govindu, and Sushila Palwe	249
AIRO: Development of an Intelligent IoT-based Air Quality Monitoring Solution for Urban Areas Tarun Kumar, and Amulya Doss	262
A Scheme for Effective Skin Disease Detection using Optimized Region Growing Segmentation and Autoencoder based Classification Dasari Anantha Reddy, Swarup Roy, Sanjay Kumar, and Rakesh Tripathi	274
Comparison of Affine and DCGAN-based Data Augmentation Techniques for Chest X-Ray Classification Mayank Bali, and Tripti Mahara	283
Leaf Disease Detection and Classification Boda Venkata Nikith, Nagandla Krishna Sai Keerthan, and Sreekar Praneeth Marri	291
A short survey for Vietnamese micro-text augmentation techniques Huu-Thanh Duong, and Vinh Truong Hoang	301
6G: The Next Giant Leap for AI and ML Ankur Bang, Kapil Kant Kamal, Padmaja Joshi, and Kavita Bhatia	310
Hybrid Meta-Heuristic based Feature Selection Mechanism for Cyber-Attack Detection in IoT-enabled Networks Arun Kumar Dey, Govind P. Gupta, and Satya Prakash Sahu	318

Semantic segmentation of palpebral conjunctiva using predefined deep neural architectures for anemia detection	
Sabrina Dhalla, Junaid Maqbool, Tanvir Singh Mann, Aastha Gupta, Ajay Mittal, reeti Aggarwal, Krishan Saluja, Munish Kumar, and Shiv Sajan Saini.	328
Insect Classification Framework based on a Novel Fusion of High-level and Shallow Features	
Raye Haarika, Tina Babu, and Rekha R Nair.	338
Classification of Beans Leaf Diseases using Fine Tuned CNN Model	
Vimal Singh, Anuradha Chug, and Amit Prakash Singh.	348
A Deep Learning based model for the Detection of Pneumonia from Chest X-Ray Images using VGG-16 and Neural Networks	
Shagun Sharma, and Kalpna Guleria.	357
WSD based Ontology Learning from Unstructured Text using Transformer	
Akshay Hari, and Priyanka Kumar.	367
Enhanced Automatic Recognition of Human Emotions Using Machine Learning Techniques	
G.S Monisha, G.S Yogashree, R Baghyalaksmi, and P Haritha.	375
Music recommendation based on affective image content analysis	
Rushabh Chheda, Dhruv Bohara, Rishikesh Shetty, Siddharth Trivedi, and Ruhina Karani.	383
Integration of Global and Local Descriptors for Mass Characterization in Mammograms	
Devi Vijayan, and R. Lavanya.	393
Crop Yield Prediction using Machine Learning and Deep Learning Techniques	
Kavita Jhajharia, Pratistha Mathur, Sanchit Jain, and Sukriti Nijhawan.	406
Environmental Sound Classification using Hybrid Ensemble Model	
Anam Bansal, and Naresh Kumar Garg.	418
Diagnosis of Breast Cancer Using Random Forests	
Manas Minnoor, and Veeky Baths.	429
Design and Development of Hydrophobicity and Net charge Based Artificial Neural Network Model for IDP/IDPR Prediction	
Subrata Sinha, Sanchita Sharma, Surabhi Johari, Ashwani Sharma, and Sanchaita Rajkhowa.	438
Study of Word Embeddings for Enhanced Cyber Security Named Entity Recognition	
Smita Srivastava, Biswajit Paul, and Deepa Gupta.	449
Segregation of Ripe and Raw Bananas Using Convolutional Neural Network	
Anand Upadhyay, Sunny Singh, and Shona Kanojiya.	461
Customized FPGA Design and Analysis of Soft-Core Processor for DNN	
Harini. Sriraman, and Aswathy Ravikumar.	469
Comparative Approach to Detect Nocturnal Frontal Lobe Epilepsy Sleep Disorder through Frequency spectrum and its Energy Levels	
Shivam Tiwari, Deepak Arora, and Vishal Nagar.	479
An Intelligent Virtual Environment for Designers with Reduced Motor Abilities	
Rahul Bhaumik, Tarun Kumar, and Unais Sait.	488
Hand-Drawn Electronic Component Recognition Using ORB	
Pavithra S, N K Shreyashwini, H S Bhavana, G Nikhitha, and T Kavitha.	504
A Computational Aspect to Analyse Impact of Nutritional Status on the Performance of Anaesthesia on Surgical Patients	
Zakir Hussain, Rezaul Karim Ahmed, and Malaya Dutta Borah.	514

Tree Based Fault Classification in Underground Cable	
Sanhita Mishra, Sarat Chandra Swain, Tapaswini Biswal, and Aurobinda Routray	524
A Deep Learning Approach for Classification of Medicare Beneficiaries Based on Gender and being Affected with Cancer	
Manish K. Pandey, and Karthikeyan Subbiah	532
3D MRI Segmentation using U-Net Architecture for the detection of Brain Tumor	
Smarta Sangui, Tamim Iqbal, Piyush Chandra Chandra, Swarup Kr Ghosh, and Anupam Ghosh	542
EVMPCSA: Efficient VM Packing mechanism in cloud computing using Chaotic Social Spider Algorithm	
Sudheer Mangalampalli, Ganesh Reddy Karri, and K Varada Rajkumar	554
Memristor-Based CMOS Hybrid Circuit Design and Analysis	
Abhinav Vishwakarma, Kwame Owusu Ampadu, Michael Huebner, Santosh Vishvakarma, and Marc Reichenbach	563
Coronavirus disease identification using Multi-subband feature analysis in DWT domain	
Nikhat Ali, and Jyotsna Yadav	574
T5LSTM-RNN based Text Summarization Model for Behavioral Biology Literature	
Shivangi Chaurasia, Debalay Dasgupta, and Rajeshkhannan Regunathan	585
Performance Analysis and Deployment of Partitioning Strategies in Apache Spark	
Tinku Singh, Shivam Gupta, Satakshi, and Manish Kumar.	594
Intelligent Part of Speech tagger for Hindi	
Devashish Dutta, Subhanu Halder, and Tirthankar Gayen.	604
Optimal Path Planning for Mobile Robot Navigation Using FA-TPM in Cluttered Dynamic Environments	
Ngangbam Herojit Singh, Anuradha Laishram, and Khelchandra Thongam	612
MOD-DHGN for Autism Segmentation	
Ayain John, and Tripty Singh.	621
Ancient Epic Manuscript Binarization and Classification Using False Color Spectralization and VGG-16 Model	
Bipin Nair B J, Aadith Raj KV, Kedar M, Vaishak S Pai, and Sreejil EV	631
Towards Deep Learning for Efficient Image Encryption	
Kirtee Panwar, Sonal Kukreja, Akansha Singh, and Krishna Kant Singh	644
Smart Vernacular Architecture: A Framework for Assessment and Virtual Reality-based Visualisation of Indigenous Toda Dwellings	
Rahul Bhaumik, Sunny Prajapati, Tarun Kumar, Kriti Bhalla, and Shanthanu S. Ashok	651
Analysing Misinformation Sharing Amongst College Students in India During COVID-19	
Priyanka Harjule, Mohd. Tokir Manva, Tanuj Mehta, Shivam Gurjar, and Basant Agarwal	671
Hybrid Architecture using CNN and LSTM for Image Captioning in Hindi Language	
Ayush Kumar Poddar, and Dr. Rajneesh Rani	686
Prediction and comparison of psychological health during COVID-19 among Indian population and Rajyoga meditators using machine learning algorithms	
Shobhika, Prashant Kumar, and Sushil Chandra	697
Classification and Pathologic Diagnosis of Gliomas in MR Brain Images	
Meenakshi Sood, Shruti Jain, and Jyotsna Dogra	706

A Multi-modal CBIR Framework with Image Segregation using Autoencoders and Deep Learning-based Pseudo-labeling Manu John, Terry Jacob Mathew, and Bindu V R	718
Multi-Modal Semantic Segmentation Model using Encoder Based Link-Net Architecture for BraTS 2020 Challenge Gayathri Ramasamy, Tripty Singh, and Xiaohui Yuan	732
Face Detection and Recognition Using Face Mesh and Deep Neural Network Shivalila Hangaragi, Tripty Singh, and Neelima N	741
Mobile application for foreign language learning by cognitively unimpaired seniors Blanka Klimova	750
Imbalanced aspect categorization using bidirectional encoder representation from transformers Ashok Kumar Jayaraman, Abirami Murugappan, Tina Esther Trueman, Gayathri Ananthakrishnan, and Ashish Ghosh	757
Emotion Cause Pair Extraction By Multi Task Learning on Enhanced English Dataset Arunima Khunteta, and Pardeep Singh	766
Noble Approach on Sensor Fused Bio Intelligent Path Optimisation and Single Stage Obstacle Recognition in Customized Mobile Agent Rapti Chaudhuri, Suman Deb, and Hillol Das	778
Feature Correlated Auto Encoder Method for Industrial 4.0 Process Inspection Using Computer Vision and Machine Learning Pradeep Bedi, S B Goyal, Anand Singh Rajawat, Pawan Bhaladhare, Alok Aggarwal, and Ajay Prasad	788
Remediating data drifts and re-establishing ML models Sreeja Ashok, Sangeetha Ezhumalai, and Tanvi Patwa	799
Diagnosis of Coronary Artery Disease from Myocardial Perfusion Imaging Using Convolutional Neural Networks Vincent Peter C. Magboo, and Ma.Sheila A. Magboo	810
A Hybrid Machine Learning algorithm for Heart and Liver Disease Prediction Using Modified Particle Swarm Optimization with Support Vector Machine Mandakini Priyadarshani Behera, Archana Sarangi, Debahuti Mishra, and Shubhendu Kumar Sarangi	818
Segmentation of Sella Turcica in X-ray Image based on U-Net Architecture Kaushlesh Singh Shakya, Priti K, Manojkumar Jaiswal, and Amit Laddi.	828
Denoising Autoencoder based Long non-coding RNA-Disease Association Prediction C.P. Gopikrishnan, and Manu Madhavan.	836
Blended multi-class text to image synthesis GANs with RoBerTa and Mask R-CNN Siddharth M, and R Aarthi	845
Complexity Analysis of Ocular Signal for Detection of Human Fatigue Using Small Datasets Ashis Kumar Das, Prashant Kumar, and Suman Halder	858
A Deep Learning Approach to Automated Sleep Stages Classification Using Multi-Modal Signals Santosh Kumar Satapathy, Hari Kishan Kondaveeti, S R Sreeja, Hiral Madhani, Nitinsingh Rajput, and Debabrata Swain	867
Machine Learning Application in Enhancing Drilling Performance Aditi Nautiyal, and Amit Kumar Mishra	877
An Investigation into Power Aware Aspects of Rendering 3D Models on Multi-Core Processors Guruprasad Konnurmath, and Satyadhyam Chickerur	887

Indian News Headlines Classification using Word Embedding Techniques and LSTM Model Madhusmita Khuntia, and Deepa Gupta	899
Topic Modelling and Opinion Analysis On Climate Change Twitter Data Using LDA And BERT Model. Samson Ebeneazar Uthirapathy, and Domnic Sandanam	908
2D Lorentz Chaotic Model Coupled with Logistic Chaotic Model for Medical Image Encryption: Towards Ensuring Security for Teleradiology Siju John, and S.N Kumar	918
Functional Connectivity Analysis of Neuronal Interactions Nischay, M S G Sundeeep, Rohith Reddy, R Sunitha, and Anand Jatti.	927
An Efficient Search Space Exploration Technique for High Utility Itemset Mining Suresh B Patel, Sanjay M Shah, and Mahendra N Patel	937
Sentiment Analysis based Emotion Extraction for COVID-19 Using Crawled Tweets and Global Statistics for Mental Health Neha Nandal, Rohit Tanwar, and Al-Sakib Khan Pathan.	949
Experimental Analysis of Fuzzy Clustering Techniques for Outlier Detection Harsh Yadav, Jaspreeti Singh, and Anjana Gosain.	959
Impact on Air Quality Index of India Due to Lockdown Aditya Dubey, and Akhtar Rasool	969
English-Assamese Multimodal Neural Machine Translation using Transliteration-based Phrase Augmentation Approach Sahinur Rahman Laskar, Bishwaraj Paul, Partha Pakray, and Sivaji Bandyopadhyay	979
An efficacy analysis of data encryption architecture for cloud platform Sheenam Malhotra, and Williamjeet Singh	989
Anomaly detection using ensemble techniques for boosting the security of intrusion detection system Owais Bukhari, Parul Agarwal, Deepika Koundal, and Sherin Zafar	1003
Gauss Gradient Algorithm for Edge Detection in Retinal Optical Coherence Tomography Images Ranjitha Rajan, and S.N Kumar.	1014
Deep learning-based Automated Localisation of Anterior Commissure and Posterior Commissure Landmarks in 3D space from three-plane 2D MRI localiser slices of the brain Bakul Gohel, Lalit Kumar, and Divya Shah	1027
A Survey on Web Service approaches targeting network traffic reduction Nawras A. Al-Musawi, Dhiah Al-Shammmary, and i S. AlAl-foudi	1033
An IoT assisted Intelligent Parking System (IPS) for Smart Cities Amara Aditya, Shahina Anwarul, Rohit Tanwar, and Sri Krishna Vamsi Koneru.	1045
Diabetic Retinopathy Grading From Color Fundus Images: An Autotuned Deep Learning Approach T R Athira, and Jyothisha J Nair	1055
Stock Prediction by Integrating Sentiment Scores of Financial News and MLP-Regressor: A Machine Learning Approach Junaid Maqbool, Preeti Aggarwal, Ravreet Kaur, Ajay Mittal, and Ishfaq Ali Ganaie	1067
An Improved Two-Factor Authentication Scheme for Healthcare System Poornima Nag, Preeti Chandrakar, and Karan Chandrakar	1079
Path Generation Protocol to Improve Lifetime of WSN Santosh Anand, and Somnath Sinha.	1091

A Real-Time Deep Learning-based Smart Surveillance Using Fog Computing: A Complete Architecture M Fasial Nurnoby, and Tarek Helmy	1102
Reliable and Efficient Lane Changing Behaviour for Connected Autonomous Vehicle through Deep Reinforcement Learning Alagumuthukrishnan S, Deepajothi S, Vani Rajasekar, and Velliangiri S	1112
Encoder-Decoder Architecture for Image Steganography using Skip Connections. Akshay Kumar, Rajneesh Rani, and Samayveer Singh	1122
Application of neural networks in the teacher selection process Christian Ovalle, Wilver Auccahuasi, Sandra Meza, Franklin-Cordova-Buiza, Karin Rojas, Miryam Cosme, Miryam Inciso-Rojas, Gabriel Aiquipa, Hernando Martin Campos Martínez, Alfonso Fuentes, and Aly Auccahuasi	1132
Third Eye: Object Recognition and Speech Generation for Visually Impaired Koppala Guravaiah, Yarlagadda Sai Bhavadeesh, Peddi Shwejan, Allu Harsha Vardhan, and S Lavanya. . .	1144
Effective Deep Learning Data Augmentation Techniques for Diabetic Retinopathy Classification Mahesh S Patil, Satyadhyam Chickerur, Abhimalya C, Anishma Naik, Nidhi Kumari, and Shashank Maurya	1156
Predicting Pediatric Appendicitis using Ensemble Learning Techniques Abhilash Pati, Amrutanshu Panigrahi, Debashish Swapnesh Kumar Nayak, Ghanashyam Sahoo, and Debabrata Singh.	1166
Movie Recommender System Using Parameter Tuning of User and Movie Neighbourhood via Co-Clustering Sonu Airen, and Jitendra Agrawal	1176
Text Classification using Improved IWO-HAN Gunjan Singh, Arpita Nagpal, and Vijendra Singh	1184
LyEmoBERT: Classification of lyrics' emotion and recommendation using a pre-trained model Revathy V. R, Anitha S. Pillai, and Fatemah Daneshfar	1196
Identifying Potential Molecules Downregulating APOBEC3B Mutation for Controlling Breast Cancer A M Hima Vyshnavi, and P K Krishnan Namboori	1209
Personalized Multi-document Text Summarization using Deep Learning Techniques Venington K, Venkateswara Rao P V, and Ronalda M	1220
VATEX2020: pLSTM framework for video captioning Alok Singh, Salam Michael Singh, Loitongbam Sanayai Meetei, Ringki Das, Thoudam Doren Singh, and Sivaji Bandyopadhyay.	1229
WiFi Intrusion Detection using Artificial Neurons with Bio-inspired Optimization Algorithm Lenin Narengbam, and Shouvik Dey	1238
Muscle temperature analysis, using thermal imaging, applied to the treatment of muscle recovery Christian Ovalle, Wilver Auccahuasi, Sandra Meza, Franklin-Cordova-Buiza, Karin Rojas, Miryam Cosme, Miryam Inciso-Rojas, Gabriel Aiquipa, Hernando Martin Campos Martínez, Alfonso Fuentes, and Aly Auccahuasi	1247
Predictive Modeling and Analytics for Diabetes using Hyperparameter tuned Machine Learning Techniques Subhash Chandra Gupta, and Noopur Goel	1257
IntelEye: An Intelligent Tool for the Detection of Stressful State based on Eye Gaze Data While Watching Video C. Jyotsna, J. Amudha, Amritanshu Ram, and Giandomenico Nollo	1270

Automatic Detection and Categorization of Road Traffic Signs using a Knowledge-Assisted Method Vivek Srivastava, Sumita Mishra, and Nishu Gupta	1280
H2EMDCO: Design of a Hyper Ensemble Model for Evaluation of Heart Diseases from Clinical Observations Vaishali Baviskar, Aditya Ojha, Ishaan Verma, Sahajpal Mahla, Madhushi Verma, Pradeep Chatterjee, and Sunil Kumar	1288
Facial emotion recognition using Handcrafted features and CNN Chahak Gautam, and K.R Seeja.	1295
LSTM Based 24 hours Ahead Forecasting of Solar PV System for Standalone Household System S U Sabareesh, K S N Aravind, Kandru Bhargav Chowdary, S Syama, and Kirthika Devi V S.	1304
Machine Learning Techniques for Breast Cancer Prediction Varsha Nemade, and Vishal Fegade.	1314
Non-invasive early diagnosis of jaundice with computer vision Sreedha B, Prashant R Nair, and Reevu Maity	1321
Natural Language Processing for Covid-19 Consulting System Sushreeta Tripathy, Rishabh Singh, and Mousim Ray.	1335
A Vision Based Approach to Localize Waste Objects and Geometric Features Exaction for Robotic Manipulation R Aarthi., and G Rishma.	1342
Link Prediction based on bipartite graph for recommendation system using optimized SVD++ Anshul Gupta, and Pravin Shrinath	1353
Collaborative Filtering with Temporal Features for Movie Recommendation System Gopal Behera, and Neeta Nain.	1366
Multivariate Time Series Sensor Feature Forecasting Using Deep Bidirectional LSTM B. Sirisha, Surakanti Naveena, Greeshma Palanki, and Pottipally Snehaa	1374
Real-time Assamese Sign Language Recognition using MediaPipe and Deep Learning Jyotishman Bora, Saine Dehingia, Abhijit Boruah, Anuraag Anuj Chetia, and Dikhit Gogoi.	1384
AMSFMap Methodology to improve prediction accuracy of CNN model for Covid19 using X-ray images Hetal Chauhan, and Kirit Modi	1394
Botnet Detection Using Artificial Intelligence R. Sri Skandha Moorthy, and N. Nathiya.	1405
Prediction of Need for Cyber Training for University Students Using Artificial Neural Networks Saimul Bashir, and Bhavna Arora	1414
Forecasting Daily Stock Movement Using a Hybrid Normalization Based Intersection Feature Selection and ANN Binita Kumari, and Tripti Swarnkar.	1424
Diagnosis of Breast Cancer using Machine Learning Techniques -A Survey Rahul Kumar Yadav, Pardeep Singh, and Poonam Kashtriya	1434
An Unprecedented Approach for Deep Learning Assisted Web Application to Diagnose Plant Disease Shahina Anwarul, Manya Mohan, and Radhika Agarwal	1444
Deep Residual SVM: A Hybrid Learning Approach to obtain High Discriminative Feature for Land Use and Land Cover Classification Neha Kumari, and Sonajharia Minz.	1454

Framework for Ship Trajectory Forecasting Based on Linear Stationary Models Using Automatic Identification System	
Smita Srivastava, Lovneet Kumar, R. Jeyanthi, K. Deepa, and Vinay Aggrawal	1463
Reading Pixels Parallel and Processing Pixels Parallel (RPP-PPP): An Approach to Detecting and Tracking Objects in Static and Dynamic camera	
K. Sivakumar, and P. Shanmugapriya	1475
Simulating Federated Transfer Learning for Lung Segmentation using Modified UNet Model	
Sateesh Ambesange, B Annappa, and Shashidhar G Koolagudi	1485
Design and Analysis of Novel Chaotic Pelican-Optimization Algorithm for Feature-Selection of Occupational Stress	
Samriti Sharma, and Gurvinder Singh	1497
Anti-spoofing-enabled Contactless Attendance Monitoring System in the COVID-19 Pandemic	
Deepthi Saraswat, Pronaya Bhattacharya, Tirth Shah, Rushi Satani, and Sudeep Tanwar	1506
From Data Science to Bioscience: Emerging era of bioinformatics applications, tools and challenges	
Naiyar Iqbal, and Pradeep Kumar	1516
A non-invasive method for prediction of neurodegenerative diseases using gait signal features	
Vipin Syam, Shivesh Safal, Ongmu Bhutia, Amit Kumar Singh, Diksha Giri, Samrat Singh Bhandari, and Ranjit Panigrahi	1529
Detection and classification of anxiety in university students through the application of machine learning	
Shaurya Bhatnagar, Jyoti Agarwal, and Ojasvi Rajeev Sharma	1542
Automation of Brain Tumor Identification using EfficientNet on Magnetic Resonance Images	
Sushreeta Tripathy, Rishabh Singh, and Mousim Ray	1551
A Unified Framework for Monitoring Social Distancing and Face Mask Wearing Using Deep Learning: An Approach to Reduce COVID-19 Risk	
P. Kaviya, P. Chitra, and B. Selvakumar	1561
Introduction to Distributed Nearest Hash: On Further Optimizing Cloud Based Distributed kNN Variant	
Subhrangshu Adhikary, and Saikat Banerjee	1571
IoT Enabled Ubiquitous Healthcare System using Predictive Analytics	
Subasish Mohapatra, Amlan Sahoo, Subhadarshini Mohanty, and Debabrata Singh	1581
A Portable Executable Clinical Decision Support Tool for Pneumonia Classification using Average Probability on an Ensemble Model	
Lance Jansen C. Go, Ma. Sheila A. Magboo, and Vincent Peter C. Magboo	1591
Prediction of Software Effort by Using Non-Linear Power Regression for Heterogeneous Projects Based on Use case Points and Lines of code	
Amrita Sharma, and Neha Chaudhary	1601
Forensic Sketch to Real Image Using DCGAN	
Sreedev Devakumar, and Greeshma Sarath	1612
Heart Diseases Prediction based on Stacking Classifiers Model	
Subasish Mohapatra, Sushree Maneesha, Prashanta Kumar Patra, and Subhadarshini Mohanty	1621
Depression and Suicide Risk Detection on Social Media using fastText Embedding and XGBoost Classifier	
Sayani Ghosal, and Amita Jain.	1631
Sentiment analysis on images using different transfer learning models	
Gaurav Meena, and Krishna Kumar Mohbey	1640

Smart Detection System for Driver Distraction: Enhanced Support Vector Machine classifier using Analytical Hierarchy Process technique Hiteshwar Singh, and Jagpreet Sidhu.	1650
COVID-19 Lung CT image segmentation using localization and enhancement methods with U-Net Ahmet Ilhan, Kezban Alpan, Boran Sekeroglu, and Rahib Abiyev.	1660
MFBFST: Building a stable ensemble learning model using multivariate filter-based feature selection technique for detection of suspicious URL Sanjukta Mohanty, and Arup Abhinna Acharya.	1668
New GPU Sorting Algorithm Using Sorted Matrix Sumit Kumar Gupta, Dr. Dharendra Pratap Singh, and Dr. Jaytrilok Choudhary	1682
An Experimental Investigation on Unsupervised Text Summarization for Customer Reviews Manojkumar V K, Senthilkumar Mathi, and Xiao-Zhi Gao	1692
Prediction of Ground Water Level in Rajasthan State Using Machine Learning Devesh Kumar Srivastava, Aditi Shukla, and Divyans Jemni	1702
Convolutional Neural Network Based Maize Plant Disease Identification Sahil Jasrotia, Jyotsna Yadav, Navin Rajpal, Mukta Arora, and Juhi Chaudhary	1712
Automated Log Classification Using Deep Learning Shekar Ramachandran, Rupali Agrahari, Priyanka Mudgal, Harshita Bhilwaria, Garth Long, and Arisha Kumar	1722
Automatic Cropping of Handwritten Scanned Documents with Object Detection Algorithm Aanchal, Nidhi, Preeti, Gurpratap	1733
Identifying Fake Reviews in Relation with Property and Political Data Using Deep Learning Ashwin Valliappan S, and G R Ramya	1742
Voting-based Ensemble Learning approach for Cyber Attacks Detection in Industrial Internet of Things Roopa Golchha, Apoorv Joshi, and Govind Prasad Gupta	1752
Conversion from multi-spectral data into SAR data with Deep Convolution Neural Architecture using Generative Adversarial Network Anishi Gupta, and Sambhav Kumar Jain.	1760
A Natural Language Processing System using CWS Pipeline for Extraction of Linguistic Features Sandeep Kumar, and Arun Solanki	1768
An effective approach for the nuclei segmentation from breast histopathological images using star-convex polygon Alice Divya Nelson, and Sruthi Krishna	1778
Point Process based time sensitive personalised recommendation Khushnood Abbas, Dong Shi, and Asif Khan	1791
Miniature Crane Prototype: A Novel Approach for Recognizing Yoga Postures to Treat Autistic Children R. Raja Subramanian, Harini Mohan, Deepika Duggirala, and Shreya Tangirala.	1805
Software Fault Prediction for Imbalanced Data: A Survey on Recent Developments Sanchita Pandey, and Kuldeep Kumar	1815
TomConv: An Improved CNN Model for Diagnosis of Diseases in Tomato Plant Leaves Preeti Baser, Jatinderkumar R. Saini, and Ketan Kotecha.	1825
Performance Evaluation of Time-based Recommendation System in Collaborative Filtering Technique Gourav Jain, Tripti Mahara, and S.C. Sharma	1834

Classifying the stages of Alzheimer's disease by using multi layer feed forward neural network C R Nagarathna, and Kusuma M.	1845
Speech Emotion Classification using Ensemble Models with MFCC Meera Mohan, P. Dhanalakshmi, and R. Satheesh Kumar.	1857
Classification Of Lung Cancer Using Lightweight Deep Neural Networks Rashmi Mothkur, and B N Veerappa	1869
SCS-Net: An efficient and practical approach towards Face Mask Detection Umar Masud, Momin Siddiqui, Mohd. Sadiq, and Sarfaraz Masood	1878
Design of filters using current amplifiers for removal of noises from ECG signal Shruti Jain, and Sudip Paul	1888
Polyphonic Instrument Emotion Recognition using Stacked Auto Encoders: A Dimensionality Reduction Approach Sangeetha Rajesh, and N J Nalini	1905
An Explainable AI driven Decision Support System for COVID-19 Diagnosis using Fused Classification and Segmentation Niranjan K, Shankar Kumar S, Vedanth S, and Dr. S. Chitrakala	1915
VGG-COVIDNet: A Novel model for COVID detection from X-Ray and CT Scan images Lakshay Goyal, Anuradha Dhull, Akansha Singh, Sonal Kukreja, and Krishna Kant Singh	1926
Efficient Workflow Scheduling algorithm in cloud computing using Whale Optimization Sudheer Mangalampalli, Ganesh Reddy Karri, and G Naga Satish.	1936
Pseudo Computed Tomography estimation from brain MRI using anatomic signature and joint dictionary learning S Sreeja, and D.Muhammad Noorul Mubarak.	1946
Efficient Neural Net Approaches in Metal Casting Defect Detection Rohit Lal, Bharath Kumar Bolla, and Sabeesh E.	1958
Simplified & Novel Predictive Model using Feature Engineering over MIMIC-III Dataset Sarika R. Khope, and Susan Elias	1968
White Blood Cell Classification based on Gray Level Co-occurrence Matrix with Zero Phase Component Analysis Approach Rabul Saikia, and Salam Shuleenda Devi	1977
Answer Prediction for Questions from Tamil and Hindi Passages Ram Vignesh Namasivayam, and Manjusha Rajan	1985
Effect of Reconstruction Losses in Discriminative and Generative Learning based Networks for the Person Re-identification Abhishek Shah, Noopur Srivastava, and Manish Khare	1994
Movie Poster Classification Using Federated Learning Anannya Popat, Lakshya Gupta, Gowri Namratha Meedinti, and Boominathan Perumal	2007
Classifying Transactional Addresses using Supervised Learning Approaches over Ethereum Blockchain Rohit Saxena, Deepak Arora, and Vishal Nagar	2018
Custom Convolutional Neural Network for Detection and Classification of Rice Plant Diseases Sanasam Premananda Singh, Keisham Pritamdas, Kharibam Jilenkumari Devi, and Salam Devayani Devi.	2026
Soil textures and nutrients estimation using remote sensing data in north india - Punjab region Gaurav Dhiman, Jhilik Bhattacharya, and Sangita Roy.	2041

A comparative study of supervised Machine Learning classifiers for Intrusion Detection in Internet of Things	
Naveen Saran, and Nishtha Kesswani	2049
Building an Explainable Diagnostic Classification Model for Brain Tumor using Discharge Summaries	
Priyanka C. Nair, Deepa Gupta, Bhagavatula Indira Devi, and Vani Kanjirangat.	2058
Generative Adversarial Neural Approach Towards Construction of Warli-stick Figure Aboriginal Artwork	
Nataraj Das, Shaona Kundu, Suman Deb, and Soma Saha	2071
EEG Artifact Removal Using Canonical Correlation Analysis and EMD-DFA based Hybrid Denoising Approach	
Satyender, Sanjeev Kumar Dhull, and Krishan Kant Singh	2081
Enhanced Colorization of Thermal Images for Pedestrian Detection using Deep Convolutional Neural Networks	
Anagha Dangle, Radhika Mundada, Sonal Gore, Jeenisha Shrungare, and Harish Dalal	2091
Hindi to English Multimodal Machine Translation on News Dataset in Low Resource Setting	
Loitongbam Sanayai Meetei, Salam Michael Singh, Alok Singh, Ringki Das, Thoudam Doren Singh, and Sivaji Bandyopadhyay	2102
A survey on identification of influential users in social media networks using bio inspired algorithms	
Sebin Jose, and P. Victor Paul	2110
A Survey on Training Issues in Chili Leaf Diseases Identification Using Deep Learning Techniques	
Kantha Raju Kanaparthi, and S. Sudhakar Ilango	2123
An Emphatic Attempt with Cognizance of the Marathi Language for Named Entity Recognition	
Nita V. Patil	2133
Pothole Detection Using Deep Learning Classification Method	
Chemikala Saisree, and Dr. Kumaran U	2143
A GAN-Based Model of Deepfake Detection in Social Media	
Preeti, Manoj Kumar, and Hitesh Kumar Sharma	2153
Roses Greenhouse Cultivation Classification Using Machine Learning Techniques	
Jennifer P. Albarico, Glaiza Rein F. La Rosa, Regina Anne DJ. Santos, Alona Jane M. Tesorero, Ma. Sheila A. Magboo, and Vincent Peter C. Magboo	2163
Question Tags or Text for Topic Modeling: Which is better	
Sneh Prabha, and Neetu Sardana	2172
Performance Analysis of Averaged Perceptron Machine Learning Classifier for Breast Cancer Detection	
Vijay Birchha, and Bhawna Nigam	2181
A Survey on Quantum Computing for Internet of Things Security	
Diksha Chawla, and Pawan Singh Mehra	2191
CBLA: A Clique Based Louvain Algorithm for Detecting Overlapping Community	
Sumit Kumar Gupta, and Dr. Dharendra Pratap Singh.	2201
Segmentation for Lumbar Spinal Stenosis Using Convolutional Neural Networks	
Abhinav Shukla, Saurabh Bhardwaj, and Mandeep Singh	2210
A Comparative Analysis of End-To-End Trainable Motion Compensation based Video Super-Resolution Techniques	
Renuka Sambhaji Sindge, Maitreyee Dutta, and Jagriti Saini	2224

FireNet-v2: Improved Lightweight Fire Detection Model for Real-Time IoT Applications Anwer Shees, Mohammad Samar Ansari, Akshay Varshney, Mamoon Naveed Asghar, and Nadia Kanwal.	2233
Early Fire Detection and Alert System using Modified Inception-v3 under Deep Learning Framework Anuraag Biswas, Swarup Kr Ghosh, and Anupam Ghosh.	2243
Study of Data and Model parallelism in Distributed Deep learning for Diabetic retinopathy classification Mahesh S Patil, and Satyadhyan Chickerur.	2253
An investigation of videos for abnormal behavior detection Akshita Patwal, Manoj Diwakar, Vikas Tripathi, and Prabhishek Singh.	2264
A Novel Approach For the Detection of Tea Leaf Disease Using Deep Neural Network Saikat Datta, and Nitin Gupta	2273
Gujarati Script Recognition Abhinav Sharma, Dhiren Soneji, Aabha Ranade, Dhvani Serai, Priya RL, Lifna CS, and Shashikant R Dugad.	2287
An Intelligent ABM-based Framework for Developing Pandemic-Resilient Urban Spaces in Post-COVID Smart Cities Sunny Prakash Prajapati, Rahul Bhaumik, and Tarun Kumar	2299
Machine Learning and Trust Based AODV Routing Protocol to Mitigate Flooding and Blackhole Attacks in MANET Shaik Shafi, S Mounika, and S Velliangiri.	2309
iSGAN: An Improved SGAN for Crowd Trajectory Prediction from Surveillance Videos Aroma Agarwal, Muskan Lalit, Adya Bansal, and K.R Seeja	2319
Exploring Deep Ensemble Model for Insect and Pest Detection from Images Zeba Anwar, and Sarfaraz Masood	2328
Vision Transformer Outperforms Deep Convolutional Neural Network-based Model in Classifying X-ray Images Om Uparkar, Jyoti Bharti, R.K. Pateriya, Rajeev Kumar Gupta, and Ashutosh Sharma	2338
Dzongkha Handwritten Digit Recognition using Machine Learning Techniques Prottay Kumar Adhikary, Pankaj Dadure, Pradipta Saha, Tawmo, and Partha Pakray	2350
Attention Over Attention: An Enhanced Supervised Video Summarization Approach Isha Puthige, Tanveer Hussain, Suneet Gupta, and Mohit Agarwal	2359
Crop Yield Improvement with Weeds, Pest and Disease Detection S Divya Meena, Munagala Susank, Tarini Guttula, Srikrumum Hari Chandana, and J Sheela.	2369
A Model to Identify Redundancy and Relevancy in Question-Answer Systems of Digital Scholarly Platforms Mitali Desai, Rupa G. Mehta, and Dipti P. Rana	2383
Effectiveness of applying Machine Learning techniques and Ontologies in Breast Cancer detection Hakim El Massari, Noredine Gherabi, Sajida Mhammedi, Zineb Sabouri, Hamza Ghandi, and Fatima Qanouni	2392
Detection and Classification of Rheumatoid Nodule using Deep Learning Models Uma N. Dulhare, and Azmath Mubeen	2401
A Novel Extreme Value Theory Based approach to Hyperparameter Optimization Vivek Kumar Mishra, and Arun Rajagopalan	2411

DDoS Detection using Deep Learning	
Deepak Kumar, R.K. Pateriya, Rajeev Kumar Gupta, Vasudev Dehalwar, and Ashutosh Sharma	2420
Performance of Optimizers in Text Summarization for News Articles	
Namrata Kumari, Nikhil Sharma, and Pradeep Singh	2430
Real-Time Deep Learning Approach for Pedestrian Detection and Suspicious Activity Recognition	
Ujwalla Gawande, Kamal Hajari, and Yogesh Golhar	2438
Crowd counting analysis using deep learning: a critical review	
Akshita Patwal, Manoj Diwakar, Vikas Tripathi, and Prabhishek Singh.	2448
Sentiment Analysis of Customer Feedback and Reviews for Airline Services using Language Representation Model	
AKSH PATEL, PARITA OZA, and SMITA AGRAWAL	2459
Ensemble of Deep Learning Models for Brain Tumor Detection	
Suraj Patil, and Dnyaneshwar Kirange	2468
Data protection governance framework: A silver bullet for blockchain-enabled applications	
Karisma Karisma, and Pardis Moslemzadeh Tehrani	2480
Optimization of IoT-Fog Network Path and fault Tolerance in Fog Computing based Environment	
Pankaj Sharma, and P K Gupta	2494
A Systematic Review of Citrus Disease Perceptions and Fruit Grading Using Machine Vision	
Shantilata Palei, Santi Kumari Behera, and Prabira Kumar Sethy	2504
Efficient Feature Evaluation Approach for a class-imbalanced dataset using Machine learning	
Bidyapati Thiyam, and Shouvik Dey	2520
Speech emotion recognition system using gender dependent convolution neural network	
Vandana Singh, and Swati Prasad	2533
Deployment of Fractals through CNC Devices	
Deepsikha Bhattacharjee, Sukanya Nag, and Dr. Suman Deb	2541
Recent advances of Captcha security analysis: a short literature review	
Nghia Trong Dinh, and Vinh Truong Hoang	2550
Design of WSN Model with NS2 for Animal Tracking and Monitoring	
Tanveer Baigz, and Chandrasekar Shastry.	2563
Unbalanced Credit Card Fraud Detection Data: A Machine Learning-Oriented Comparative Study of Balancing Techniques	
Palak Gupta, Anmol Varshney, Mohammad Rafeek Khan, Rafeeq Ahmed, Mohammed Shuaib, and Shadab Alam	2575
Improved Medium Term Approach for Load Forecasting of Nigerian Electricity Network Using Artificial Neuro-Fuzzy Inference System: A Case Study of University of Nigeria, Nsukka	
Candidus.U. Eya, Ayodeji Olalekan Salau, Sepiribo Lucky Braide, and Onwe Divine Chigozirim	2585
Mobile Application Development for Disease Diagnosis based on Symptoms using Machine Learning Techniques	
Anirudh Sridhar, Ahmed Mawia, and A L Amutha	2594
BERT-CNN: Improving BERT for Requirements Classification using CNN	
Kamaljit Kaur, and Parminder Kaur	2604
Quantum Machine Learning: Scope for real-world problems	
Abhishek Jadhav, Akhtar Rasool, and Manasi Gyanchandani.	2612

Deep Learning based Wireless Channel Prediction: 5G Scenario Rajat Varshney, Chirag Gangal, Mohd. Sharique, and Mohammad Samar Ansari	2626
Revealing and Classification of Deepfakes Video's Images using a Customize Convolution Neural Network Model Usha Kosarkar, Gopal Sarkarkar, and Shilpa Gedam	2636
Multi-feature based Hazy Image Classification for Vision Enhancement Tannistha Pal, Mritunjoy Halder, and Sattwik Barua.	2653
A multi stage approach to handle class imbalance: An ensemble method Shiva prasad Koyyada, and Thipendra P Singh.	2666
Deep and handcrafted feature supported diabetic retinopathy detection: A study Seifedine Kadry, Rubén González Crespo, Enrique Herrera-Viedma, Sujatha Krishnamoorthy, and Venkatesan Rajinikanth	2675
A Machine Learning-Based Comparative Approach to Predict the Crop Yield Using Supervised Learning With Regression Models Bharati Panigrahi, Krishna Chaitanya Rao Kathala, and M. Sujatha.	2684
A Voyage on Neural Machine Translation for Indic Languages Shailashree K Sheshadri, Deepa Gupta, and Marta R Costa-Jussà	2694
An Enhancement Process for Multi-focus Images Resulted from Image Fusion using qshiftN DTCWT and MPCA in Multiresolution Domain Rama Mohan, S. Kiran, and A.Ashok Kumar	2713
Improving biomedical named entity recognition through transfer learning and asymmetric tri-training Medha Bhattacharya, Swati Bhat, Sirshasree Tripathy, Anvita Bansal, and Monika Choudhary	2723
Detection of Reading Impairment from Eye-Gaze Behaviour using Reinforcement Learning Harshitha Nagarajan, Vishnu Sai Inakollu, Punitha Vancha, and Amudha J.	2734
Evaluation of Computational Methods for Single Cell Multi-Omics Integration Shahid Ahmad Wani, and S.M.K. Quadri	2744
Performance evaluation of Machine Learning algorithms on System on Chips in Wearables for Healthcare Monitoring Purab Nandi, K.R. Anupama, Apoorva Bajaj, Saurav Shukla, Tejas Musale, and Sparsh Kachadiya	2755
A Deep Stacked Bidirectional LSTM (SBiLSTM) Model for Petroleum Production Forecasting B Sirisha, Katamouni Kranthi Chaitanya Goud, and B.T.V Saketh Rohit.	2767
Performance Analysis of Support Vector Machine Learning Based Carrier Aggregation Resource scheduling in 5G Mobile Communication Samiksha Mathur, Yogesh Chaba, and Amandeep Noliya.	2776
Automatic detection of lung nodule in CT scan slices using CNN segmentation schemes: A study Seifedine Kadry, Enrique Herrera-Viedma, Rubén González Crespo, Sujatha Krishnamoorthy, and Venkatesan Rajinikanth	2786
Fusion Fuzzy Logic and Deep Learning for Depression Detection Using Facial Expressions Anand Singh Rajawata Pradeep Bedib S B Goyal, Pawan Bhaladhare, Alok Aggarwal, and Ravi Shankar Singhal.	2795
An Internet of Things-based Efficient Solution for Smart Farming Senthilkumar Mathi, R Akshaya, and K Sreejith.	2806

Use of Artificial Neural Networks in the Design of Adaptive Fuzzy Logic Controllers in the manufacturing of Prosthetic Knees	
Mangolika Bhattacharya, Pat O'Neill, Mark Southern, and Martin Hayes	2820
Performance Enhancement of Distributed System Using HDFS Federation and Sharding	
Praveen M Dhulavvagol, and S G Totad	2830
Smart Soil Property Analysis Using IoT: A Case Study Implementation in Backyard Gardening	
R. Aarthi, D. Sivakumar, and Vinayagam Mariappan	2842