

2025 1st International Conference on Smart and Intelligent Systems (SISCON 2025)

**Thiruvananthapuram, India
19-20 December 2025**

IEEE Catalog Number:
ISBN:

CFP250S0-POD
979-8-3315-9489-3



Copyright © 2025, IEEE

All Rights Reserved

Copyright and Reprint Permissions:

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

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

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

IEEE Catalog Number:	CFP250S0-POD
ISBN (Print-On-Demand):	979-8-3315-9489-3
ISBN (Online):	979-8-3315-9488-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA

Phone:	(845) 758-0400
Fax:	(845) 758-2633
E-mail:	curran@proceedings.com
Web:	www.proceedings.com

TABLE OF CONTENTS

Advance Health Hazard Monitoring with Sustainable Wireless Sensor Networks	1
<i>Sumit Chopra, Jasmeet Kaur, Gagandeep Singh, Mamta Bansal, Sangeeta, Manmeet Kaur</i>	
Retrieval-Augmented Generation and Knowledge Graphs for Intelligent Ayurvedic Chatbots	7
<i>S Supal, S M Anzar, C Prem Sankar, O V Abhilash</i>	
A Double Deep Q Network Approach to Control HVAC Systems	13
<i>Yaqub Moosa Mohamed, Syed Muhammed Fahd, Imthias Ahamed T P, Mohammed Yaseen S</i>	
Enhanced Pet Image Classification with Deep Learning: A Comprehensive Model Comparison	19
<i>Anitha V, Inisha Sallove R, Deepiga S, Rexcy Medona W, Uma Makeshwari M</i>	
Breast Cancer Segmentation and Classification Using Attention Unet and EfficientDFE-Net	25
<i>Anitha V, Inisha Sallove R, Karishma P, Madhumitha S, Sivasankari G</i>	
Sentiment Analysis in Finance: Predicting Market Trends with Artificial Intelligence	31
<i>Reena S. Satpute, Divyani V. Chatarkar, Nura Muhammad Sani</i>	
Transformer-Based Approach for Pragmatic Ambiguity Detection in Natural Language Processing	37
<i>Reena S. Satpute, Nura Muhammad Sani</i>	
AnaPose - Anatomy Aware Loss for Pose Estimation in the Operating Room	43
<i>Jasira P K, Jobin Jose</i>	
Encrypted Text Based Emotion Detection System Using Transformer Model	49
<i>Ashna Yoosaf, Salim A</i>	
Multi-Objective Optimal PMU Placement Using Binary Arithmetic Optimization Algorithm	54
<i>Aishwarya Premnath, Divya N A</i>	
Intelligent Computation and Communication Framework for Social and Smart Networks: A Context-Aware Perspective	60
<i>Arvinder Singh, Jagvinder Singh, Shivali Chandel, Tarandeep Singh</i>	
Sliding Mode Control of a Mecanum Wheeled Mobile Robot	66
<i>Anju Mariam Thomas, V R Jisha</i>	
Smart Diagnosis of Blood Cell Cancer (ALL) Using CNN-Based Transfer Learning Techniques	72
<i>Somya Pokharna, Shivang Agarwal, Vedhit Suresh Katekhaye, Kavipriya G</i>	
Emotion Recognition System for Children with Autism Spectrum Disorder Using Image data	78
<i>Aiswarya K S, Leena V A</i>	
A NeRF-Transformer Hybrid Framework for High-Quality 3D Scene Reconstruction and Contextual Interpretation	84
<i>M.S. Minu, Pujari Keerthika, Padmalakshmi S, Moksha R</i>	
Multi-Organ Plant Disease Detection Using CNN and Machine Learning: A Root-to-Leaf Approaches	91
<i>Shibi B, Shyam Sundar N, Abhinav George, Saran R, Bhavanshree U, Nagasuri Meerash</i>	
An Extensive Exploration Of Deep Learning Methods for Raga Recognition in Indian Classical Music	97
<i>Amrita Jiju, Akhil V V</i>	

An Efficient Method for Insulator Fault Detection Using Deep Learning Techniques	103
<i>Chinchu M, Vennila. H, Bibin G.s</i>	
Advancements in Deep Learning for Skin Cancer Detection: A Comprehensive Survey	109
<i>Jinu Mathai, Jenefa A, Ebenezer V, M. Robinson Joel</i>	
Predicting IPL Cricket Scores Using Machine Learning Techniques	117
<i>Geetha S, Sabeena K., Sulaja Sanal, Nikhil N., Joseph Jaison</i>	
Pandemic Simulation Using PINN Model in GAMA Platform	123
<i>Aaron Johns, Adith Abhilash, Annu Jaison, Pooja Shibu, Rashmi Annamma George</i>	
Augmentation-Free Contrastive Learning for Few-Shot Hindi Fake News Detection	129
<i>Sherin Mary Rajee, Amit Praseed</i>	
Temporal Variations in Wind Parameters at Different Locations in India	135
<i>Pramod N E, K. Satheesh Kumar</i>	
A Frame Work for Smart Water Management System : A Case of Water Leak detection and Management Using Machine Learning	140
<i>Devanand J, Akhil Palas Biswas, Suresh Kumar N, Alfred Johnson, Adharsh S</i>	
Bus Odyssey: The Intelligent College Bus Tracking Companion	146
<i>Neetha K, Melvin Varghese, Milan Mani Paul, Vaishnav K Rao, Viswanath D</i>	
Edufit – Career Catalyst: AI-Powered Resume Analysis and Adaptive Learning for Career Development	151
<i>Aman Nair, John B Varghese, Nikita Anna Ajith, R Sidharth, Anjali S</i>	
A Smart Irrigation System Using IoT and Machine Learning for Real-Time Environmental Monitoring and Crop Recommendation	157
<i>Dheeraj Doma, Kota KedharNadh, M. Sai Krishna, M. Rishitha, Abhishek S</i>	
Autonomous Delivery Drone	164
<i>Nishanth N, Nethaji PA, Vishal KS, Jayanthi Vinay Kumar, Abhishek S</i>	
Sentinel Turret Rover: Intruder Defense System with Precision Shooting	169
<i>Abhishta H Mallaya, Vyshnav Kumar S, Gowtham S D, Kanishka S J, Abhishek S, Akhil V M</i>	
Attention-Based Multi-Sensor IMU Framework for Parkinson's Disease Detection Using Hybrid Deep Learning Models	175
<i>S Lakshmi Sankeerthi, Srinidhi Srinivasan, M Nohitha, N Chandana, Abhishek S</i>	
Comparative Evaluation of A*, RRT and DWA for Autonomous Robot Navigation with Real Time Intruder Detection	180
<i>Kalla Vaishnavi, Mettu Sathvika, Pola Srinitha, Golla Ram, Anand Mohanan, Abhishek S, Akhil V M</i>	
Design and Implementation of an Autonomous Self-Controlled Delivery Robot with an OTP-Based Secure Delivery	186
<i>Devarajan S, M. Sharukesh, Shayan Athif, Ghanashyam Vinod, Abhishek S</i>	
Airport Ground Assistance Rover	192
<i>Deep Amit Lodaya, Ashwin Jayachandran, Pranav Sivakumar, Rithesh S S, Abhishek. S, Gargi Khurana</i>	
Fetchmate - Autonomous Indoor Mapping and Object Detection with AI Vision	198
<i>Sriman Rakshan, Nidish SR, LalithKishore J, Gowtham K, Abhishek S, Akhil VM, Gargi Khurana</i>	

Virtual Modeling and Simulation of DC Motor Dynamics	204
<i>Abhishek S S, Anand P S, Akshatha T S, Vignesh V S, Sreeram K, Preetha P K</i>	
Bio-Inspired Snake Robot for Real-Time Victim Detection in Disaster Environments	211
<i>Jeevakamal K R, Kavya Sri B, Shatha Varsha Sree T, Guhan K B, Abhishek S, Akhil VM</i>	
Overcoming Labeled Data Scarcity and Class Imbalance in Medical Imaging Using Semi-Supervised Contrastive Learning	217
<i>Neethu M S, Vinod Chandra S S</i>	
Weighted Text-to-Image Retrieval Using CLIP, OCR, And Keyword Matching	223
<i>Abhinav Prakash, Abhishek S., Rhon S. George, Ritin George D.</i>	
Motorised Wheelbarrow for Easy Transportation of Goods	229
<i>Anu Sunny, Jovan Jain P, Muhammed Hashim K.C, Vaseem Saman, Albin Benny, Jithin K Jose</i>	
Beyond the Horizon: Exploring Osteoarthritis Predictive Models	234
<i>Zareena Jamaluddin, V Amsaveni</i>	
An Eye Gesture-Controlled Wheelchair Base	240
<i>Amitabh Anand, Dasigi Prasanna Jagannath, Vimal P Menon, Harigovind Krishnan, Abhishek S</i>	
A Comparative Study on Machine Learning Models for Currency and Object Detection	246
<i>Sreeja Sasidharan Rajeswari, Rizwan Shajahan, Mohammed Anas A R, S Abhijith, S Abhilash</i>	
AI Powered Prosthetic Arm	250
<i>Risana N A, Shahin M Abdulla, PA Muhammed Saalim, Keerthana S, Athul P</i>	
Enhancing Aerodynamic Prediction of Airfoils Using Advanced Machine Learning Models	256
<i>Samuel Maju, Aby Thomas, Sangeeth Siva R, Keerthi Krishnan</i>	
A Comprehensive Review of IOT-Based Security Models for Intrusion Detection Methods Using Deep Learning	262
<i>Hemavathy J., Dhanalakshmi A.</i>	
Possibility of More Than Two 1-Dimensional Holes in the Neuronal Manifold	268
<i>Adwaith Vijayakumar</i>	
Comparative Analysis of Dataset Balancing and Augmentation Techniques for Pedestrian Action Recognition Using the JAAD Dataset	274
<i>Rajasree R, Sreelatha G</i>	
Automated Cattle Disease Detection and Classification: A Comprehensive Review	280
<i>L. Krishna, V. Ebenezer</i>	
End-to-End Deep Learning for Secure Wireless Communications with STAR-RIS and Artificial Noise	286
<i>Natasha Francis, Ruikang Zhong, Khoa Tran Phan, Peng Cheng</i>	
Real-Time Processing and Digitization of Palm-Leaf Manuscripts Using an Integrated Portable Device	292
<i>Maheswari, Maheswari, Gangarapu</i>	
Integrating AI, IoRT, and UAVs for Crop Residue Management in Precision Agriculture	299
<i>Ayushi, Rajni Goyal, Amar Nath</i>	
Enhance Business Intelligence by Using a Residual Network for Efficient Organizational Management	305
<i>Anju Mathew Cherian, Indu Govinda Pillai, Bobby Sathyaseean, Greeshma Eliyan</i>	

Federated Learning-Based Network Intrusion Detection System with Differential Privacy: A Multi-Model Approach	310
<i>Sisira R Nair, Piyoosh Purushothaman Nair</i>	
Data-Driven Techniques and Their Application in Agriculture Using Machine Learning	316
<i>TV Naveen, ArunKumar S</i>	
Wall Climbing Glass Cleaning Robot	322
<i>Nidha Navas, Nahala M. S, Muhammed Irfan V. S, Rizwan Fariz P. N, Shahin M. Abulla</i>	
AI-Powered Space Situational Awareness (SSA) and Orbital Defense: An Intelligent System for Predicting and Preventing Unusual Spatial Movements	328
<i>Shreeyaa Senthilnathan</i>	
Trash Collection and Oil Skimming Boat	334
<i>Aaliya Fathima, Aparna K B, Noorul Haque, Afreed Mohammed, Smitha K M</i>	
EnergiVerse: AI-Powered Decentralized Energy Marketplace System	340
<i>Sangeeth M.S, Neha Lilly Kishor</i>	
Seconds of Meeting Using NLP	346
<i>K. Jaspin, M. Jagan, N. Iniyaaraja</i>	
Weakly Supervised Semantic Segmentation for Brain Tumor Detection in MRI Using Ensemble Heatmap Guidance	352
<i>Dincy Paul, Jisha G</i>	
An Ensemble-Based Deep Learning Framework for Cardiovascular Risk Assessment	357
<i>Jiya Julius, Dincy Paul</i>	
Travel Navigator : A Generative AI Driven Personalized Travel Planning Website	363
<i>Fathima Nasrin P. K, Hima Jyothish, Sameera T U, Seethal Anil, Chinchu Jacob</i>	
Performance Metrics Comparison of BAT, PSO and WOA for Battery Temperature Estimation in EVs	369
<i>Shyni P Nair, Ashmi N S</i>	
Automated Detection of Upper Extremity Bone Fractures in X-Ray Images Using Advanced Deep Learning Architectures	375
<i>Hritish D, Amutha S, Kavipriya G, Dhanush R</i>	
Design of Synchronous Buck Converter with Overvoltage Protection	381
<i>Angitha Anoop, Joice Mary Ajith, Merlin Raji, Pooja A.B, Midhun. G</i>	
Performance Analysis of Optimized MPPT Control Using WOA for Hybrid Solar-Acoustic Energy Systems	388
<i>Shyni P Nair, Srinivasan P, Rajendran A</i>	
Topology-Aware Dynamic Cable Redistribution Framework for Scalable and Fault-Tolerant LANs	393
<i>Magreth Dunstan Giga, Vinod Chandra S. S</i>	
Enhancing Stroke Recovery: Rehabilitation Using MRI and Predictive Modeling	399
<i>Anna G. Samuel, Angel T. John, Anna Biju Abraham, Vismaya C.P., Jisha John, Tom Xavier</i>	

Deep Learning Models for Classification of Red Blood Cells in Microscopy Images to Aid in Sickle Cell Anemia Diagnosis	405
<i>G. Malarselvi, Aditya Vikram Singh, Aditya Teotia, Rudranil Patra, Sindhu Chandra Sekharan</i>	
Performance Optimization of Coverless Video Steganography via Enhanced Bit-Plane Segmentation and Hash Sequence Generation	411
<i>Vani M., Shyna A, Jini Raju, Reena Mary George</i>	
Decentralized Control of Construction Vehicle Fleets for Optimized Energy Consumption: A Multi-Agent Reinforcement Learning Paradigm	416
<i>Tanish Gupta</i>	
High-Performance Deep Learning for Large-Scale Image Recognition: A GPU-Accelerated Convolutional Approach	422
<i>Tanish Gupta</i>	
Optimizing Social Network User Experience Through Personalized Ranking Algorithms	428
<i>Tanish Gupta</i>	
An Enhanced Approach to Predict the Concentration Level in Smart Video Tutorial Using CSP With Random Forest Classifier	434
<i>Sakthivel Nageshwaran, M. Lilly Florence</i>	
Multi-Scale Arrhythmia Detection Using Wavelet-Enhanced Deep Learning	440
<i>Sruthi T P, Helen Mary M C</i>	