2025 AI-Driven Smart Healthcare for Society **5.0**

Kolkata, India 14-15 February 2025



IEEE Catalog Number: CFP256B9-POD ISBN: 979-8-3315-3634-3

Copyright © 2025 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:
 CFP256B9-POD

 ISBN (Print-On-Demand):
 979-8-3315-3634-3

 ISBN (Online):
 979-8-3315-3633-6

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

E-mail: curran@proceedings.com
Web: www.proceedings.com



Table of Contents

PID	Paper Title	Page Numbers
	Welcome message from Chief Patron, Patron, Conference Chair, Organizing Chair, Conference Co-Chairs	
64992001	Using Machine Learning to predict and monitor Maternal Health Risk: A Case Study of Materna – an end user Web Application Lare Adeola, Celestine Iwendi, Kater Akeren	1-6
64992002	Artificial Intelligence and Machine Learning in Connected Health: A Bibliometric Analysis of Evolving Trends within Society 5.0 Mohammed Amine Lafraxo, Ahmed Remaida, Hind Achachi, Abdel Bacite Zarouali, Youssef El Madhi, Hinde Hami	7-12
64992003	Chronic Kidney Disease Classification: Comparing the Effectiveness of Multiple Ensemble Classifiers Praveen Kumar Patidar, Navdeep Kaur, Amit Vajpayee, Pradeepta Kumar Sarangi, Alok Kumar Agrawal	13-18
64992004	Music Therapy-Driven Mood-Based Music Recommendation System Integrating User Emotion, Song Lyrics, and Health Reflections Vyshnav S Narayanan, Anurina Tarafdar	19-24
64992005	Cybersecurity Enhancement in IoT-Enabled Public Health Information Systems Using Deep Learning Techniques Mahesh Kumar Mishra, Lalit Mohan Trivedi, Mansoor Farooq, Divya Nimma, Malik Bader Alazzam, B Kiran Bala	25-30
64992006	Detection and Classfication of Bone Tumor using Machine Learning Classifiers Madan Prasad S, Sai Sharmili V, Iniyan S	31-36
64992007	Enhancing Diabetes Prediction with Hybrid Sampling Techniques through Machine Learning and Deep Learning Models Arshia Tharannum, Ch. Bhanu Prakash, G. Saranya, Pothuru Alekhya, Dr.N. Supriya, Dr.A. Lakshmanarao	37-42
64992008	Predicting Alzheimer's Dementia Using Audio Transcript Data with a Stacked Deep Dense Neural Network Model Sri Nikila.M, K. Suresh Babu, K. Kavitha, B.Teja Sree, Shital Kakad, S Muthuperumal	43-47
64992009	IoT-based Covid-19 detection and patient monitoring in remote region using UAV Indrajit Das, Abheepsa Bhattacharya, Avilash Bhowmick, Debjit Das, Manash Chanda, Papiya Debnath	48-53
64992010	Breast tumor classification with fine-tuned hyperparameter training using deep learning models Yash Maini, Sanjay Kumar Singh, Pranshu Saxena	54-59
64992011	Frequency Rank Vector based Phylogeny: A new alignment-free protein sequence comparison Debrupa Pal, Papri Ghosh, Sudeshna Dey, Subhram Das	60-65
64992012	Detecting and Mitigating Anti-Forensic Techniques: A Comprehensive Framework for Digital Investigators Nadia Asim, Jude Osamor, Funminivi Olajide	66-72

64992013	Sustainable Biocompatible Sensors for Health Monitoring Using Hybrid Autoencoders-GANs in IoT-Integrated Wearable Devices S.T. Gopukumar, Malik Bader Alazzam, Dr. Suresh Babu Kondaveeti, Ban Safar Khalaf K.Madhavi, Ponni Valavan,	73-78
64992014	Early Diabetes Prediction Through Multiple Machine Learning Models: A Comparative Analysis Anuja Sharma, G S Pradeep Ghantasala, Laishram Bijialuxmi Devi, Pradeepta Kumar Sarangi, Rajesh Sharma R, Akey Sungheetha	79-84
64992015	Disease Prediction and Ayurvedic Guidance Applying Machine Learning N Manishramar, Sanika Saini, Iniyan S	85-90
64992016	Exploring Machine Learning Approaches for Diagnosing Autism Spectrum Disorder: Insights from Clinical and Technological Approaches Mekhla Sen, Shinjan Bhatta, Joydeep Sarkar, Debosmita Samanta, Dipanjan Basak, Subhadip Chandra, Piyali Datta	91-96
64992017	Enhancing Interpretability in Diabetics Prediction: A Comparative Study of SHAP, LIME and Permutation Feature Importance Uddalak Mitra, Parthib Sarkar, Joy Mondal, Joydeep Kundu	97-102
64992018	Identification of Dental Diseases Using Convolutional and Regional Convolutional Neural Networks Arpan Das, Barnali Kundu, Taniska Sarkar, Suman Ghosh, Banshari Deb Majumder, Debasrree Saha	103-108
64992019	Cancer Specific Epigenetic Biomarker Extraction from DNA Methylation and Gene Expression Data Panchami V U, Manish T I, and Manesh K K	109-114
64992020	Ai-Powered Mental Health Screening and Support for Homeless Children CH. Raga Madhuri, Jaya Sankar Krishna Bandaru, Medisetti Srinu,	115-120
64992021	Gangadhari Midhun Anand Vardhan Exploring Independent Feature Extraction Techniques for Context- based Image Retrieval in Healthcare Akshat Bokdia, Siri R Kulakarni, Nitin Lodha, Vijayarajan V, V. B.	121-126
64992022	Surya Prasath Enhancing Oral Disease Classification Using Dilated Convolutional Neural Network Priyanka Chakraborty, Nirupam Saha, Supratik Nath, Koyel Das	127-130
64992023	Comparative Analysis of The Black-winged Kite Algorithm (BWKA) With Ant Lion Optimizer and Grey Wolf Optimizer Using Benchmark Functions for Global Optimization Narayanan Ganesh, Aravind Shankar R, Srinivasan Arindham, Arvind	131-136
64992024	Venkat Ramanan Adaptive Multiscale Attention Networks (ASMA-Net) for Enhanced Diabetic Retinopathy Biswadip Basu Mallik, Sudeshna Das, Anshit Mukherjee, Sohini Banerjee, Avishek Gupta	137-142
64992025	Classifying Oral Health Issues from Spectral Imaging using Convolutional Neural Network Eman Justaniah, Areej Alhothali	143-148
64992026	Computational Assessment of the Toxicological Profiles of the Degradation Products of the COVID-19 Drug Paxlovid	149-152

	Areej Alhothali, Shubhashree Mondal, Tirath Kumar, Sandip Chatterjee, Rashmi	
64992027	An AI-driven GPT Model For Automated Detection of Heart Disease Using ECG Dataset	153-158
	Kingshuk Pati, Shubhayu Banik, Md Sahil SK, Abhrodip Srimani, Sima Ghosh, Sudakshina Dasgupta	
64992028	Supervised Learning-Driven Emotion Recognition through Facial Landmark Trajectories Enhanced by SMOTE Methodology Ishita Kar, Mehuli Chatterjee, Sukanya Manna, Akash Das, Stobak	159-164
64992029	Transformers in Cardiology: Automated ECG-Based Heart Disease	
	Detection Aritra Ganai, Spandan Bhowmick, Aashi Gupta, Parkavi K	165-170
64992030	Blockchain-Enabled IoT System for Real-Time Diabetes Monitoring and Management Monica Apte, Murthy Chavali, Suhani Apte, Bharat Kale	171-175
64992031	Revolutionizing Healthcare: Synergistic Integration of Genomics, Clinical Decision Support Systems, and Advanced Machine Learning for Precision Medicine Samarendra Das, Ranjali Roy, Anusreya Sarkar, Rajesh Bose, Indranil Sarkar, Sandip Roy	176-181
64992032	From Sensors to Insight: A Review of Physiological Signal Processing for Stress Prediction Alisha Madaan, Amritpal Singh	182-187
64992033	A Hybrid Quantum Particle Swarm Optimization based on Differential Evolution Strategy for Healthcare Applications Shashank Mouli Satapathy, Debashreet Das, Abhyudoy Chaki, Hriday Agarwal, Vidit Shah	188-193
64992034	Energy-Efficient Protocols for Remote Patient Monitoring Using Wireless Sensor Networks in Telehealth Applications Poornima N V, G Ahmed Zeeshan, anathkumar.S, Malik Bader Alazzam, Shamim Ahmad Khan, Ponni Valavan M	194-199
64992035	Near Infrared based Non Invasive Blood Glucose Monitoring using Statistical Models Sanjai Saravanan Hemalatha, Dharun Muthaiah Nataraj, Hariharan Vijay Arun, Jagannath Mohan	200-205
64992036	Evaluating AI Predictive Models for Enhanced Decision-Making in Cardiovascular and Respiratory Diseases Rama V. kaulgud, Nashwan Adnan Othman, Adkham Ibodullaevich Akhmedov, S.Suma Christal Mary, Al-Hussein Maysir Majid, A.Balakumar	206-211
64992037	Improving Skin Lesion Diagnosis with Grasshopper-Optimized ResNet-50 Architecture Ravindra Changala, Chamandeep Kaur, Gande Soma Raju, Abdul Rahman Mohammed AL Ansari, S.Suma Christal Mary, I Infant raj	212-217
64992038	Portable IoT-Based Health Monitoring and Prediction System with Machine Learning Arpan Biswas, Gargi Chakraborty, Sunipa Roy	218-223
64992039	AI for Early Warning of Dehydration Sayan Nath, Bidyutmala Saha, Ujjal Bhattacharya, Riddhi Lahiri, Shampurna Rakshit, Sandipan Mukhopadhyay	224-229

Automated System for Chromosome Karyotyping Raajameenakshi AL, Bhavana R Ramesh, Nirmala K, Mahitha Ta 64992042 Lung Cancer Classification Using Deep Neural Networks Pidikiti Keerthi, Srisai Satya Santosh Y, Iniyan Assistive Smart Stick: Safe and Independence Mobility for the	R 236-240
64992042 Lung Cancer Classification Using Deep Neural Networks Pidikiti Keerthi, Srisai Satya Santosh Y, Iniyan	R
Pidikiti Keerthi, Srisai Satya Santosh Y, Iniyan	i l
	241-246
Assistive Smart Stick: Safe and Independence Mobility for th	
Little of the state of the stat	e
64992043 Visually Disabled Using Sensor-Based Technology	247-252
Moupali Roy, Swati Barui, Abhijit Ghosh, Sanjoy Bhattacharjee	2,
Anurima Majumdar, Anushka Datta, Debraj Sadhukha	
Improving Disease Outbreak Predictions through Hybrid Dee	р
64992044 Learning Models in Population Health	253-258
P. Karthi, S.Muthukuma	r
Enhanced Myocardial Infraction Prediction Through ECG usin	g
64992045 Multimodal Transfer Learning	259-265
Dr. Omana J, Sanjay Akash R V, Harish Anand, Sujay Sai I	R
Emergence of Transfer Learning towards Specific Identification of	f
64992046 Alzheimer's Disease – A Prospective Approach	266-271
Soumik Podder, Chandramouli Halda	\overline{r}
An Approach towards detection of Alzheimer Symptoms using brai	n
64992047 image segmentation methods	272-277
Subrata Jana, Paramita Sarka	\overline{r}
Optimized Adaptive Routing and Link Health Management in Mobil	e
Ad Hoc Networks using Enhanced Meta Ant Advanced Reaconin	σ
with Integrated Auto-Repair and Security Protocols	278-282
T. Saravanan, Devisetty Shashi Preetham, A Venkatasubramania	$\frac{\overline{n}}{n}$
Detection of Bias Origins in Training Dataset of Cardiovascula	
64992049 Disease using Machine Learning Classifier	283-286
Jyoti Prakhar, Md. Tanwir Uddin Haide	Z03-Z0D