

2025 IEEE International Conference on Biomedical Engineering, Computer and Information Technology for Health (BECITHCON 2025)

**Dhaka, Bangladesh
29-30 November 2025**

IEEE Catalog Number:
ISBN:

CFP25V58-POD
979-8-3315-6106-2



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:	CFP25V58-POD
ISBN (Print-On-Demand):	979-8-3315-6106-2
ISBN (Online):	979-8-3315-6105-5

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

TABLE OF CONTENTS

Probing Deeper Zone of Lung using Four Electrode Techniques: An FEM Approach	1
<i>Mahjabin Mobarak, Habiba Begum, Md. Moniruzzaman, Abdullah Al Mahfazur Rahman, Md. Ruhul Amin</i>	
Hematological Biomarker-Driven Dengue Fever Prediction: A Multi-Algorithm Approach with Explainable Artificial Intelligence	5
<i>Md. Mahmudul Hasan Moon, Jannatul Ferdous, Md. Masrafi Al Amin, Mst. Asrufa Anne Md. Tuhinuzzaman Tuhin, Md Assaduzzaman</i>	
Multi-Class Retinal Disease Detection Using VGG-19 with K-Fold Cross-Validation	11
<i>Syed Enayet Hossain, Marufur Rahman, Md Tauhidur Rahman Sakib, Sadika Zaman, Md Solaiman Ahamed Prima Tamanna, Rupali Hossain, Md Abu Talha</i>	
Multi-Strategy Optimization of U-Net Variants for Orthopantomogram Segmentation	17
<i>Shakib Absar, Iftexhar Ahmed, Shadman Sakib, Nabajyoti Sharma, Siam Tahsin Bhuiyan, Saadia Binte Alam Ashrafur Islam, Rashedur Rahman</i>	
Frequency-Channel Attention and Prototype Calibration with Uncertainty-Aware Inference for Brain MRI Classification	23
<i>Toha Gazi Muhammed</i>	
In-Silico Investigation of Sonchus arvensis-Derived Natural Compounds as Potential HER2 Inhibitors in Breast Cancer	29
<i>Nasrin Akter Tithe, Anik Chandro Paul, Md. Abdul Alim, Mohammad Taufiq Alam</i>	
Evaluation of Flaxseed Extract-Based Hydrogel for Antibacterial Activity	35
<i>Nafisa Nawal, Sadia Islam Shuchi, Prapti Thapa, Maruf Hasan</i>	
An Ensemble Machine Learning Approach for ASD Detection: Handling missing channels with IDW Interpolation and Unveiling Key EEG Features through Explainable AI	41
<i>Al Mukshit Plabon, Sazid Salahuddin, Abdul Mukit, Omar Faruk Jehady, Fatima Tuz Zuba Md. Faisal Mina</i>	
AI-Enabled Bilingual Wearable System for Real-Time Remote Health Monitoring	47
<i>Sadia Islam Mumu, Moriom Jerin Shithil, A. B. M. Aowlad Hossain</i>	
FAMIT-P: Fairness-Aware Mobility-Modulated Transformer for Future Pandemic Forecasting	53
<i>Nafis Wadud Ansari, Tanvir Ahmed, Mehedi Hasan, Md. Abid Hasan Rafi, Md. Mahid Arfan Rahat Noushin Akter Trina, Sanzida Ali Tanfe</i>	
Deep Learning Based Multi-Class Classification of Aedes Larvae Images	59
<i>Sohel Rana, Md. Julker Nayeem, Nahid Hasan, Md Shoeb Howlader, Payer Ahmed</i>	
AI-Enhanced Explainable Models for Early Detection of Neurodevelopmental Impairments in Children	65
<i>Farhad Hossain Rakib, Hossen A. Mustafa</i>	
Optimized Ensemble Learning with SMOTE-Tomek Resampling for Early Detection of Hepatitis B	71
<i>Nusrat Mahjabin, Ashfaqul Islam, Mahmudul Hasan Rabbi, Istiack Amin Khandaker Mohammad Mohi Uddin</i>	
A Novel Photonic Crystal Fiber Biosensor for Organic Acid Detection in the THz Regime	76
<i>Mohammad Abrar Nasif, Md. Jahedul Islam</i>	

CBC-ViT: Blood Cell Type Classification Using a Hybrid Convolutional Multi-Head Attention Vision Transformer with Explainable AI	82
<i>Mahin Montasir Afif, Abdullah Al Noman, K. M. Tahsin Kabir, Koushik Biswas Arko, Md. Mortuza Ahmmed</i>	
Explainable Ensemble Learning and Hybrid Feature Selection for Robust Low Birth Weight Prediction	88
<i>Inamul Haque Inam, Ashfaqul Islam, Abdul Kadar Muhammad Masum, Khandaker Mohammad Mohi Uddin</i>	
Exploring Sleep Disorder Classification: An Evaluation of Traditional and Ensemble ML Models with XAI Interpretability	94
<i>Rakibul Hasan Efty, Ashfaqul Islam, Muhaimen Khan, Abdul Kadar Muhammad Masum Khandaker Mohammad Mohi Uddin</i>	
Obesity Prediction with Optimized Feature Selection and Ensemble Learning Techniques	100
<i>Bushra Tabassum, Tanjim Hasan, Meratul Jannat, Md. Mahbubur Rahman Khandaker Mohammad Mohi Uddin</i>	
Epileptic Seizure Detection from EEG Using Rank-Based Channel Selection and Neural Networks	106
<i>Suraiya Akter Mumu, Supta Das, M. A. H. Akhand, Abdus Salam, Md Abdus Samad Kamal</i>	
ECG-Based Cardiac Abnormality Identification with Customized Hybrid Lightweight Architecture	112
<i>Md. Abid Hasan Rafi, Semanto Sharma, Md Morsalin Islam, Nahid Islam, Pankaj Bhowmik</i>	
A Low-Cost IoT-based CPR Feedback Device	118
<i>Abu Yousuf Md. Eftekhari Sadiq, Md. Jarjis Mondal, Md. Ishraq Anzum</i>	
Sleep Disorder Classification Using CNN and Continuous Wavelet Transform Applied to EEG Data	123
<i>Md. Nahid Hasan Shoaib, Md. Shahriar Kabir, Sifat Hossain</i>	
Hybrid 3D-CNN and Vision Transformer Framework for Multi-Class Retinal Disease Classification	127
<i>Soleman Hossain, S. T. A. Mahmud Tonmoy, Sihab Mahmud, M Shamimul Haque Mondal Shimul Riasat Khan</i>	
Detection and Classification of Parkinson's Disease using Machine Learning	133
<i>Mohsina Mehrin, Md. Rokonzaman Mim</i>	
Design and Development of a Low-Cost 3D-Printed Hand Exoskeleton for Rehabilitation	138
<i>Tasnim Anam Tusti, Sraboni Hossain, G. M. Mahmudur Rahman, Md Abu Shahid Chowdhury</i>	
Advancing Brain Disease Diagnosis: A Comparative Study of Transformer and CNN Architectures on Multi-Class MRI Classification	144
<i>Golam Mukaddir Sezan, Md. Ariful Islam, Md. Safiullah, Md Al Emran, Md. Wajed Ali, Md Shamsul Alam</i>	
EHR Based Patient's Severity Prediction using Machine Learning	150
<i>Faria Nourin, Barnabas Prentice, Rifat Al Mamun Rudro, Kamruddin Nur</i>	
Metamaterial-Inspired Antenna Sensor Design for Non-Invasive Blood Potassium Level Determination	156
<i>Md. Monjurul Hoque, Mir Md. Aminuzzaman, Md. Rajib Sheikh, Md. Asraful, Tahrima Ashraf</i>	
Explainable Hybrid Deep Learning Model for Multi-Class COVID-19 Sentiment Classification	162
<i>Md Raihanul Islam Tomal, Mahmudul Hasan, Khandaker Mohammad Mohi Uddin Mohammad Mahmudur Rahman, Iffat Sania Hossain, Abdul Kadar Muhammad Masum</i>	
Autism Detection through Laplacian-based EEG Feature Selection and Deep Learning	168
<i>Zahrul Jannat Peya, Sk Masiur Rahman, M. A. H. Akhand, N.Siddique</i>	

Dielectrophoresis-Based Cell Separation and Controlled Transportation in Microfluidics System	174
<i>Shaharia Gazi, A K M Shoriful Islam, Monoara Moni, Israt Jahan Lamia, Sadia Elin Khan</i>	
<i>Ashik Alam Sunny, Omar Faruk, M. Monsur Islam, Moazzam Hossain</i>	
From Black Box to Bedside: Explainable Machine Learning and the Clinical Uptake of Diagnostic Support Systems	180
<i>Tawfiqul Hasan, Koushik Biswas Arko, Md. Mortuza Ahmmed</i>	
Design and Development of a Cost-Effective Wireless Syringe Pump for Telehealth Applications	185
<i>Md Tanvir Hasan, Amit Dutta Roy, Avishek Ghosh</i>	
Assessing Two-Stage and Set-Based Detectors for Cervical Cytology	191
<i>Md. Roni Khan, Asim Mondal Avi, Safia Aktar Dipa</i>	
Deep Learning for Chest X-rays: Segmenting Thoracic Organs	197
<i>Kafayet Monoar Nahin, Tanvir Ahmed, Yeasin Usrat Shanin, Abduz Zami, Mohiuddin Ahmed</i>	
GPNet: Lightweight DCNN for GERD and Colorectal Polyp Classification with SHAP Explainability	203
<i>Montakir Emtiaz Ahmed Rafid, Md Atique Enam</i>	
Robust Brain Stroke Prediction via Ensemble Machine Learning with Class Imbalance Handling and Threshold Tuning	209
<i>Abhijite Deb Barman, Most. Tazfia Sultana, Kamona Rani Roy, Somaiya Kazi, Ashis Kumar Mandal</i>	
<i>Masud Ibn Afjal, Pankaj Bhowmik</i>	
A Novel Approach for a Smart IoMT-Based BAN for an Old Home Healthcare Monitoring System Using Starlink	215
<i>Shermin Sultana Setu, Amena Akter Pinky, Md. Abdul Awal, Sheekar Banerjee, Ishtiak Al Mamoon</i>	
A Lightweight CNN Model for Interpretable White Blood Cell Classification with Grad-CAM and Grad-CAM++	220
<i>Khaled Mahmud Sujon, Adnan Shafi, Md Muzahidul Islam, Aminul Islam Miraz</i>	
<i>Md. Tahmid Farabe Shehun, Tahmedur Rahman, Md Monirul Islam Molla</i>	
Modeling Biosensor IDE for Detection of Antigen Employing Impedimetric Method	226
<i>Ahmed Jebail Meraj, Sheikh Md. Rabiul Islam</i>	
A Novel Hybrid Stacked Ensemble Model with XAI for Robust and Interpretable HIV Infection Prediction	232
<i>Khaled Mahmud Sujon, Aminul Islam Miraz, Tahmedur Rahman, Md. Tahmid Farabe Shehun, Adnan Shafi</i>	
<i>Md Muzahidul Islam, Md Monirul Islam Molla</i>	
A Voice-Assisted Smart Device for the Visually Impaired People: Leveraging AI Vision, Object Detection, and GPS-Based Navigation	238
<i>Shithi Datta, G. M. Mahmudur Rahman, Prionty Majumder, Shaira Afra Redhila, K M Fazle Rabbi Nipun</i>	
ViT-SMOTE: An Attention-Guided Vision Transformer with SMOTE for Automated PCOS Diagnosis using Ultrasound Imaging	244
<i>Md Rakibul Islam Midul, Aryan Kumar Singh, Md Rousanuzzaman, Misbahul Karim, Md Mahe Alam</i>	
<i>Rabul Hussain Laskar</i>	
Lightweight Deep Learning for Skin Arsenicosis Detection Using Multi-Teacher Stochastic Knowledge Distillation	250
<i>Mushfique Abdullah Rafi, Augustine Gomes, Riasat Khan</i>	

Edge-Guided U-Net with Frequency Domain Refinement for Efficient Skin Lesion Segmentation	255
<i>Aryan Kumar Singh, Md Rakibul Islam Midul, Md Shohan Mia, Priyanshu Kumar Gupta</i>	
<i>Md Kayser Ahmed Hridoy, Chowdhury Hasibur Rahaman, Rabul Hussain Laskar</i>	
Fall Detection with HSV-Based Keyframe Clustering and Hybrid Neural Networks	261
<i>Tahiat Mahabub Chowdhury, Saadman Sakib, Kaushik Deb</i>	
ER-SE Hybrid Model for Automated Kidney Abnormality Detection in CT Images	267
<i>Yesrif Hasan Emon, Shyla Afroge, Mahmudun Nabi Saikat, Sumaiya Rahman, Shatadal Sikder</i>	
<i>Spandan Basu</i>	
Colonoscopy Classification using PVT-Xception ensemble Framework with Explainable AI	273
<i>Nafis Fahim, Sadman Samir Rafith, Md. Fahim Kabir Chowdhury, Saif Mostasir Rohan, Avijeet Dey Sarker</i>	
<i>Md. Sayem Kabir</i>	
Unlearning for Clinical Deployment: Scalable Data Erasure in Medical Image Classification Models	279
<i>Urbana Jaman Orthee, Abu Saleh Muhammad Naeem, Tamanna Khatun, Meharun Ohona, Nafees Mansoor</i>	
A Deep Learning Based Approach to Identify Colon Cancer from Endoscopic Images	285
<i>Md. Sadat Rahman, Syed Abu Ammar Muhammad Zarif, Mahmudul Hasan, Emon Karmoker</i>	
<i>Raiyan Rahman</i>	
EEG Signal-Based Spectral and Complexity Features Analysis for Emotion Recognition Utilizing CNN Architecture	291
<i>Rabita Hasan, Sheikh Md. Rabiul Islam</i>	
Comparative Analysis of Vision Transformer Models for Oral Cancer Classification	297
<i>Rajkumar Biswas, Anamika Rani, Md. Golam Kibria, Chinmoy Modak Turjo, Tonmoy Ghosh</i>	
An IoT-Based Optical Shunt Sensor for Hydrocephalus	303
<i>Zaman Mohammad Rafsun, S.M. Rafiur Rahman, Tasnim Anam Tusti, Kazi Zannatul Ferdushee</i>	
HAF-Net: Hybrid CNN-Transformer Model with Multi-Head Attention for Accurate and Explainable Pneumonia Diagnosis from Chest X-Rays	309
<i>Progga Parmita Roy, Shionty Ghosh, Amit Chakraborty, Md Shakib Ahamed</i>	
Multiclass Emotion Classification using xLSTM Learning of Optimized Features from EEG Signal	315
<i>Md. Husain Hamid Chowdhury Ruddro, A. B. M. Aowlad Hossain</i>	
Exploring Fine-Tuned Vision-Language Model for Multi-Class Skin Disease Classification	320
<i>Atia Shahnaz Ipa, Mohiuddin Ahmad</i>	
Hybrid Deep Learning with Uncertainty Quantification for Robust Detection of Acute Lymphoblastic Leukemia in Blood Smear Images	325
<i>Sadia Jannat Mitu, Md.Ferdous Jaman, Somaia Sarmin Shouma, Masuma Parvin</i>	
Trans-SPANet: A Unified Transformer-CNN Architecture with Enhanced Boundary Optimization for Polyp Segmentation	331
<i>Tasneea Zahra, Kalyan Kumar Halder</i>	
Few-Shot Learning for Medical Image Segmentation: A Comparative Study on Polyp Detection	337
<i>Sukanta Nag Hirock, Samiha Islam Hristee</i>	

Drug Gene Interaction Mapping in Autism Spectrum Disorder Using BioGRID for Repurposing Opportunities	342
<i>Samad Ali, K.M. Navid-Al-Islam, Abdullah Al Bassam, Abdus Sobhan</i>	
SecureEndoNet: An Encryption-Enabled, Transfer Learning–Based Approach for Endoscopic Image Classification	348
<i>Ahmmad Musha, Ahsanul Islam, Tonmoy Ghosh</i>	
Survival Forecasting of Breast Cancer Patients Using Advanced Machine Learning Approaches	353
<i>Sadia Jannat Mitu, Syada Tasmia Alvi, Mashuka Bashar Chowdhury</i>	
A Two-Stage Deep Learning Framework for Liver and Hepatocellular Carcinoma Segmentation on MRI	359
<i>Md. Zafor Iqbal, Siam Tahsin Bhuiyan, Riyadul Islam, Halima Khatun, Samiul Karim Mazumder Rashedur Rahman, Ashraful Islam, Saadia Binte Alam</i>	
ChestAidNet: Leveraging Lightweight CNN to Detect Chest Diseases from Radiology Images	365
<i>MD Asif Hasan, MD. Fahim, Arabinda Paul Turja, Rafi Siddiki, Dewan Ziaul Karim</i>	
Energy-Efficient and Uncertainty-Aware ConvNeXt for MRI-Based Tumor Diagnosis	371
<i>Shatadal Sikder, Shyla Afroge, Rafi Ahammed Songram, Anirban Sarwar, Souvik Biswas Yesrif Hasan Emon</i>	
Explainable Monkeypox Classification Using Lightweight Attention-Based Separable CNN and Real-Time Web Application	377
<i>Md. Ismiel Hossen Abir, Abir Mahmud Shahariar, Sanjana Islam Kasfia</i>	
Large-Scale Skin Disease Classification Using Merged Datasets: Performance Analysis of CNN and Transformer-Based Deep Learning Models	383
<i>Rejaul Islam Shanto, Masum Hasan, Tahmid Karim Saad, Md. Shahriar Hussain</i>	
Ensemble Deep Learning of CNN and Vision Transformers for Accurate Multi-Class Gallbladder Disease Detection	388
<i>Sadia Jannat Mitu, Mashuka Bashar Chowdhury, Md. Rashedul Alam</i>	
Lightweight SAM Fine-Tuning for Colonoscopy Polyp Segmentation	394
<i>Tapas Chandra Dev</i>	
Recognition of Human Facial Expression using Novel Feature Descriptor	399
<i>Mousumi Bala</i>	
A Robust Deep Learning Approach for Automated Cardiovascular Disease Diagnosis Using ECG Image Analysis	405
<i>M D. Allama Shiam Shanto, Md. Ferdous Jaman, Sadia Jannat Mitu</i>	
Automated Species Classification: A Vision Transformer Model for Biodiversity Monitoring	411
<i>M D. Nasibul Haque, Tangina Sultana</i>	
Designing a Dry-Lab Pipeline for Multiplex CRISPR μ PAD Assays against Dengue and Chikungunya	416
<i>Mithila Arman, Lamia Akther Urmi, Maher Ali Rusho, Poritosh Dey, Intezab Alam Sheikh Md. Khurshid Jahan</i>	

3C-Net: Cervical Cancer Cell Classification from Liquid-Based Cytology Pap Smear Images using Deep Learning Techniques	421
<i>Md. Safayet Hossain Sawom, Md. Adnan Khan, Md. Ahnaf Rasheed Zaki, Mst. Noushin Fariha Ronok Dewan Ziaul Karim</i>	
Lightweight Hybrid Transformer System for Robust and Explainable Multi-Modality Breast Cancer Recognition	427
<i>Mahfuzur Rahman, Rasel Mahmud Jewel, Md Imranul Hoque Bhuiyan, Sanjida Akter, Istiak Kabir Abdullah Al Sakib, Shafiur Rahman, Mostafizur Rahman Shakil</i>	
A Unified Framework for Tea Leaf Disease Detection and Classification Using Attention-Enhanced YOLOv5 and EfficientNet	433
<i>Abdullah Al Noman, Chanda Rani Debi, Fahmida Rahman, Lubna Sultana, Md. Khaliluzzaman</i>	
Temporal Correlation Between Heart Valve Acoustic Events and ECG Signal Variations Across Varying Junctional Potentials	439
<i>Abu Talha Haque Miah, Miss Al Ive, Fatema Tuj Zohora, Hafsa Haque</i>	
Cybersecurity in Medical AI: Parkinson Voice Biomarkers Security: Anti-Adversarial Protection Against Attacks	445
<i>Md Muhasin Ali, Ashraful Hasan Chad, Shovan Samanta Turzo, Mohammad Soad Khan Md. Jahidul Islam Mozumdar, Nasim Parvez</i>	
Efficient Human-Robot Communication: A T5 Paraphrase Approach for Enhanced Command Intent Recognition	451
<i>Md Muhasin Ali, Md. Fajle Rabbi Islam, Shovan Samanta Turzo, Md. Jahidul Islam Mozumdar Tahsinur Rahman Tanjim, Md Saimum Ahammed</i>	
Comparative Evaluation of Machine Learning Classification and Regression Approaches for Postpartum Hemorrhage Prediction	457
<i>Ajwad Mohtasim, Mashfique Mehzad, Sayma Alam Suha</i>	
Optimized Ensemble Learning with SMOTE for Gastric Cancer Classification	463
<i>Sunipun Seemanta, Mahmudul Haque Shakir, Md. Saef Ullah Miah</i>	
A Resilient Deep Learning Based Model for Automated Detection of Cardiovascular Abnormalities in ECG Images with Grad-CAM XAI	469
<i>Md. Shahariar Sarkar, Kh. Mustafizur Rahman, Noshin Un Noor, Mohammad Anwar Hossain Rehana Karim, Hasibul Hasan Rifat</i>	
Explainable Deep Learning for Liver Fibrosis Staging Using Attention-Augmented Convolutional Neural Networks	476
<i>Tahmina Hasan, Sabrina Yesmin, Samiha Muntaha Mahin</i>	
Enhanced CNN with Special Attention Module and Explainable AI for Advanced Skin Cancer Detection	482
<i>Mir Khalid Bin Ahsan, Rajib Goswami, Md. Obaidullah, Md. Solaiman Mia, Md. Shoab Alam</i>	
Deep Learning Approach for Identification and Classification of Leukemia from Peripheral Blood Smear Images	488
<i>Most. Umama Jannat, Sancoy Barua</i>	

CIFAKE: Explainable Deep Learning for Classifying Real and AI-Generated Images Using CNN and 3D-CNN	494
<i>Md. Hamid Hosen, Mikdad Mohammad Asif, Altaf Uddin, Rituparna Chowdhury, Pappuraj Bhattacharjee Arnob Saha</i>	
NeuroNet16: An Explainable Transfer Learning Framework for Brain Tumor Diagnosis	500
<i>Md. Shahariaz Anwar, Abu Naim Khan, M. Raihan, Meherab Hossen, Sanzida Sazzad Khushi Md. Inzamam-Ul-Hossain</i>	
Precision-Vision: A Deep Learning Approach to Ocular Disease Detection and Classification	506
<i>Md. Anwar Hossain</i>	
A Comparative Analysis of Machine Learning Algorithms for the Identification of Parkinson's Disease Using Optimized Feature Selection	511
<i>Md. Rakibul Islam, Farhan Iasir Rafi, Ashfaqul Islam, Abdullah, Khandaker Mohammad Mohi Uddin</i>	
Cuff-less Arterial Blood Pressure Waveform Synthesis from Single-site PPG using Transformer & Frequency-domain Learning	517
<i>Muhammad Wasim Nawaz, Muhammad Ahmad Tahir, Ahsan Mehmood, Muhammad Mahboob Ur Rahman Kashif Riaz, Qammer H. Abbasi</i>	
A Bio-inspired Reputation Based Consensus Mechanism for Secure and Scalable Permissioned Blockchain in Electronic Health Record Systems	523
<i>Md. Yusuf, Maftun Ahommed, Takia Nawrin, Fahmeda Hossain Orna, Iffat Jahan Kona, Nafees Mansoor</i>	
Novel Task-Specific Features Extraction and Comparative Evaluation for Parkinson's Detection from Digital Pen Signal Data	529
<i>Tanzeem Tahmeed Reza, Sharafat Hossain, Eshat Jahan Arifa</i>	
GraphHeartNet: A Correlation-Aware Graph Neural Network for Cardiovascular Disease Prediction	535
<i>Rubiat Jahan Momtahina, Ashraful Goni, Md Umor Faruk Jahangir, Md. Abdul Awal Ansary</i>	
An Ensemble Machine Learning and Explainable AI Framework for Thyroid Disease Classification	541
<i>Noor Ahmad Faiz Khan, Fabiha Mahmud, Ashfaqul Islam, Abdul Kadar Muhammad Masum Khandaker Mohammad Mohi Uddin</i>	
An Interpretable and Accurate Ensemble Machine Learning Approach for Dementia Prediction	547
<i>Md Mahbubur Rahman Druvo, Abir Chowdhury, Md. Shariful Islam, Md. Tahzib Ul Islam, Md. Abdul Based Khandaker Mohammad Mohi Uddin</i>	
Optimized Feature Selection and SHAP-Based Explainable ML for Celiac Disease Prediction	553
<i>Md Mahbubur Rahman Druvo, Abir Chowdhury, Md. Shariful Islam, Md. Tahzib Ul Islam, Md. Abdul Based Khandaker Mohammad Mohi Uddin</i>	
VARENet: Variance-Aware Residual Enhancement Network for Microscopic Fungal Classification	559
<i>Mahamodul Hasan Mahadi, Souhardo Rahman, Md. Nasif Safwan, Md. Iftekharul Mobin</i>	
Deep Learning Architectures for Real-Time Multifocal Chest Disease Detection in Heterogeneous CT Data	565
<i>Ashok Pal Emon, Mohammed Saifuddin Munna, Abid Hassan Mahir</i>	
BrainXAI-Net: An Interpretable Neural Framework for Spectro-Temporal EEG Emotion Recognition	571
<i>Hasin Almas Sifat, Koushik Biswas Arko, Md Anjir Jaman, Md. Mortuza Ahmmmed</i>	

Hybrid Autonomous-Manual Control Framework for Hospital Logistics Robots with Multi-Modal Interaction Capabilities	577
<i>Abdul Islam Alif, Saadman Jawad Naveed, Abdul Hasib, Saurav Chandra Das, Md. Tajbir Ahmed Md. Tanjim Khan</i>	
Multi-Class Viral Skin Lesion Diagnosis Using ConvNeXt Deep Learning with Explainable AI	583
<i>Md. Shakil Ahmed, Abdul Hasib, Md. Rakibul Hasan, Saurav Chandra Das, Kamrul Islam S. M. Khalid Bin Zahid</i>	
Development and Optimization of a Deep Learning Model Based on Inception v3 for Automated Detection of Retinopathy Using Optical Coherence Tomography Images	589
<i>Devdoot Parial, Punam Das, Jahidul Islam Shikdar, Tofayet Sultan, Ramisa Anjum Oishi, Md. Asraf Ali</i>	
XCA-TransUNet: Cross-Scale Attention Guided Deeply Supervised Transformer Network for Retinal Vessel Segmentation on the FIVES Dataset	595
<i>Saimum Islam Jeem, Tarsheed Zaman Radif, Saiba Aabira, Md Hossam-E-Haider</i>	
DuoPath-SPGNet: Dual-Path Strip-Pyramid Gated U-Net for Robust Thyroid Nodule Segmentation on DDTI	600
<i>Saimum Islam Jeem, Tarsheed Zaman Radif, Saiba Aabira, Zia Md Galib Ul Alim</i>	
Sensitivity of Generative Adversarial Network Augmentation on Brain Tumor Detection Using Convolutional Neural Network	604
<i>Mahin Montasir Afif, Abdullah Al Noman, Md Moynul Islam, K. M. Tahsin Kabir, Md. Mortuza Ahmmed</i>	
Wavelet Scattering on Band-Limited EEG for Imagined Speech: A Comparative Study with DWT	610
<i>Tonmoy Paul, Dip Muhuri</i>	
Advancing Gastrointestinal Tract Segmentation: Dense-UPerNet and a Benchmark of 18 Encoder-Decoder Models	616
<i>Samiul Karim Mazumder, Nafiul Islam Santo, Md. Samiul Alom, Md. Abdul Awal, Ishtiak Al Mamoon</i>	
Intravenous Saline Flow Regulation Using Arduino Uno Microcontroller and DC Servo Motor	622
<i>Monjurul Islam Nimon, Prithiraj Modak, Nishan Ahamed, Md. Sadman Sakib, Insia Tabassum Razia Fahmida Haque, Muhibul Haque Bhuyan</i>	
Machine Learning Approach Using LLMs for Early Detection of Nomophobia in University Students	628
<i>Mohammed Aftab Uddin Alif, Bayajid Alam Joyel, Anusa Awolad Orchy</i>	
Brain Tumor Classification in MRI Images: A Computationally Efficient Convolutional Neural Network	633
<i>Md Fahimul Kabir Chowdhury, Jannatul Ferdous</i>	
Study of Dispersion Engineered Chalcogenide PCF for Mid-Infrared Supercontinuum Generation	639
<i>M. R. Karim, Md. Mahdi Hasan Parves, Eftekhara Alom Sykot, Md. Moinul Islam</i>	
A Statistical Evaluation of Wearable Health Monitoring Device Adoption in Bangladesh: Forecasting, Correlation, and Infrastructure Readiness for Disaster Resilience	645
<i>Mridul Devnath, Jannat Jahan, Sharmin Akter Aziza, Momotaz Khatun Tripti, Sabit Bin Shakhawat Mahfuza Khatun</i>	
Ensemble Transfer Learning Approach for Multi-Class Skin Cancer Classification	651
<i>Md Shahriar Rajib, Md Touhid Hasan Tonu</i>	

A Robust Ensemble Framework for Brain Stroke Detection with Explainable Artificial Intelligence	657
<i>Nashin Tabassum, Md. Salah Uddin Yusuf</i>	
A Hybrid Deep Learning Model for Classifying Myocardial Infarction Complications Through ECG Images with XAI	663
<i>Progga Parmita Roy, Aishwarya Saha, Mahafujer Rahman, Khadiza Akter</i>	
Automated Classification of Brain Tumor Based on MRI Images Using Deep Learning	669
<i>Somaia Sarmin Shouma, Md. Rubel Miah, Shadhin Ahmed, Md. Ariful Islam, Ragib Raiyan Md. Saymon Ahammad</i>	
Digital Psychiatry: Machine Learning Solutions for Mental Disorder Categorization	675
<i>Raisa Ferdush, Md. Muaj Chowdhury, Sadia Akter Sinthia, Md. Mustak Ahmed, Mahjabeen Hossain Nur-A-All Asif</i>	
Usability Evaluation and Inclusive Redesign of Job Hunting Applications in Bangladesh for Neurodivergent Users	681
<i>Fatema Tuz Johra, Most. Mahazabin, Mst. Shadia Sajneen, Muhammad Nazrul Islam</i>	
A Hybrid Framework for Enhanced Early Diabetes Prediction using Explainable AI	687
<i>Md. Arafath Khan, Jannatun Nahar Bably, Rasel Miah, Md. Solaiman Mia</i>	
A Unified Computational Framework for Biomedical Sensing, AI, and Assistive Technologies	693
<i>Tashdid Ahmed Shitab, Md. Emam Hossain Emon, Anjuman Ara Mim, Anika Ibnat Oni, Razin Rayan Rahat Prima Fariya Auishe</i>	
Entropy-Based Color Image Segmentation Through Median Filter Measuring Probabilistic Rand Index	699
<i>Raju Roy, Lasker Ershad Ali, Anik Sarker, Soumyo Joti Chakraborty, Rakib Hossain, Badhan Roy Sharlina Rahman Mumu</i>	
Remote Teleoperation of an Anthropomorphic Robotic Hand with Cloud-Enabled Wearable Sensing and Lightweight MLP	705
<i>Faiaz Ahsan, Anamul Haque Akash, Najeed Ahmed Bhuiyan, Nazia Hasan Dana</i>	
Risk-Calibrated YOLO: A Lightweight Pipeline for Reliable Pneumonia Detection in Chest X-Rays	711
<i>Hussain Mohammad Ricon, Tabassum Alam, Md. Tanzeem Rahat, Kamruddin Nur</i>	
DeepEyeNet-XAI: A Hybrid Deep Learning Framework with Grad-CAM Explainability for Multiclass Retinal Disease Classification	717
<i>Sadia Afroz, Najmus Saadat, Mamunur Rashid Alex, Md Masud Rana, Umma Habiba Mitu</i>	
Efficient and Accurate Multiclass Brain Tumor Classification from MRI Using a Lightweight ConvNeXt Architecture for Clinical Integration	723
<i>Md Olid Hasan, Noushin Jahan Ahmad, Kazi Rubaya Nowrin, Junaed Mia, Salman Bin Arif Khan Amimul A Hasan Rofik, Rakibul Islam, Md Khairul Islam, Md Sipon Mia</i>	
DRdetect: A Deep Learning Framework for Diabetic Retinopathy Classification with Attention Mechanisms and Real-Time Deployment	729
<i>Abdullah Al Noman, Chanda Rani Debi, Md Anamul Haque, Asma Akter Mukta, Fahmida Rahman Md. Khaliluzzaman</i>	
Efficient and Interpretable Skin Lesion Classification Using Light HybridViT: A Hybrid CNN-Transformer Model	735
<i>Foujia Afrose Tanha, Md Asif Shahriar Arpon</i>	

Integrating Spatial-Channel Mixing and Attention Gating for Fine-Grained WBC Boundary Segmentation in Microscopic Hematological Scans	741
<i>Md Emamul Hossen, S M Mahim, Tareq Aziz, Minhajul Alam Tuta, Faisal Ahmmed, Md Alamin Md. Khairul Islam</i>	
Microfluidic Simulation Framework for Point-of-Care Diagnostics: Modeling Advection-Diffusion-Reaction Transport in Lab-on-Chip Systems	747
<i>Tashdid Ahmed Shitab, Anika Ibnat Oni, Md. Emam Hossain Emon, Razin Rayan Rahat, Anjuman Ara Mim Prima Fariya Auishe</i>	
Bio-Robotics and Rehabilitation Engineering: A Reproducible Framework for EMG-Driven Prosthetic Control	752
<i>Tashdid Ahmed Shitab, Md. Emam Hossain Emon, Anika Ibnat Oni, Anjuman Ara Mim Prima Fariya Auishe</i>	
Development of a PPG-based Low-cost Cuffless Continuous Blood Pressure Monitoring with Vital Sign Detection System	758
<i>Md. Sayzar Rahman Akash, Md Robiul Islam Roman, Iftekhar Alam, Abrar Asif, M. Farhad Mohammad Hasan Imam</i>	
AI-Driven Lung Cancer Detection Using Based on RF Optimization	764
<i>Nusrat Jahan, Al-Amain, Mirza Nadim Saad, Istiack Amin, Shifat Ahmed</i>	
GN2T: A Hybrid Graph Neural and Tree-Structured Architecture for ECG-Based Arrhythmia Recognition	770
<i>Ashraful Goni, Rubiat Jahan Momtahina</i>	
SkinViT-EfficientX: A Hybrid Vision Transformer Model with Token Pruning and Explainable AI for Multiclass Skin Cancer Diagnosis	776
<i>Mostafizur Rahman Shakil, Mahfuzur Rahman, Erin Jahan Meem, Md Imranul Hoque Bhuiyan Sanjida Akter, Arafath Bin Mohiuddin, Shafiur Rahman, Istiak Kabir</i>	
Robust Dual-Site Cancer Screening via Multi-Scale Vision Transformer and Rapid Recognition Pipeline	782
<i>Istiaq Kabir, Fahim Ahamed, Kamrun Nahar Bristy, Md Imranul Hoque Bhuiyan, Mostafizur Rahman Shakil Erin Jahan Meem, Md. Nwoshad Alam Chowdhury, Shafiur Rahman</i>	
StrokeXNet: A Novel CNN–Transformer Fusion with Interpretable Attention for Robust Brain MRI Stroke Detection	788
<i>Noshin Un Noor, Mohammad Anwar Hossain, Md. Shahariar Sarkar, Fariha Zaman Nishat Shamsun Nahar, Kh. Mustafizur Rahman</i>	
Occlusion-Resilient Surgical Instrument Detection Using Self-Supervised Learning and YOLO Models	794
<i>Auparajita Roy, Akhiba Akhter, Shawchol Chandro Ghosh, Dipti Banik, Karib Shams, Ahmed Wasif Reza Shamim H Ripon, Mohammad Rifat Ahmmad Rashid, Raihan Ul Islam</i>	
Interpretable Machine Learning for Early Diabetes Prediction with Statistical Validation and Explainable AI	800
<i>Fathhur Rahaman Sams, Sanjana Kazi Supti, Md. Junaeid Ali, Faisal Ahmed, Mahir Faysal Haque Dipto Raiyan Gani, Monisha Bani Nibedita Shuci, Mohammad Rifat Ahmmad Rashid, Shamim H Ripon</i>	
HDENet: Merging EfficientNet and DenseNet for Explainable Cotton Disease Classification	806
<i>Montakir Emtiaz Ahmed Rafid, Shaikh Ahmed Fayaz</i>	

Advancing Tabular Stroke Modelling Through a Novel Hybrid Architecture and Feature-Selection Synergy	812
<i>Yousuf Islam, Md. Jalal Uddin Chowdhury, Sumon Chandra Das, Tajwar Elahi Choudhury, Suhrath Tahra Rukaiya Akther Sharmin</i>	
Semi-Supervised Deep Learning for Early Detection of Bone Metastases in Adult Breast Cancer Patients	818
<i>Dipti Banik, Akhiba Akhter, Auparajita Roy, Shawchol Chandro Ghosh, Karib Shams Mohammad Rifat Ahmmad Rashid, Shamim H Ripon, Ahmed Wasif Reza, Raihan Ul Islam</i>	
Hybrid CNN-RF Dual-Branch Feature Fusion Architecture for ECG Arrhythmia Classification	824
<i>Ashraful Goni, Rubiat Jahan Momtahina</i>	
Dual-Band Implantable Antenna for MICS and 5G NR C-Band Biomedical Applications	830
<i>Mohammed Nazmus Shakib, Zubair Uddin Raqeeb, Md. Sazzad Hossain</i>	
Annotation-Efficient Lung Cancer Classification: A Comparative Study of Supervised, Self-Supervised, and Semi-Supervised Learning	835
<i>Bashirul Islam, Shekh Maruf, Tawhidur Rahman, Hafsa Rezwona, Raiyan Gani Mohammad Rifat Ahmmad Rashid, Raihan Ul Islam, Ahmed Wasif Reza, Shamim H Ripon</i>	