2026 International Conference on Power, Electronics, Communications, Computing, and Intelligent Infrastructure (PECCII 2026)

Pabna, Bangladesh
17-18 June 2026

Pages 1–608

IEEE Catalog Number: CFP261CH-POD
ISBN: 979-8-3195-3396-8

IEEE Advancing Technology for Humanity

Copyright © 2026, 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:	CFP261CH-POD
ISBN (Print-On-Demand):	979-8-3195-3396-8
ISBN (Online):	979-8-3195-3395-1

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

CURRAN ASSOCIATES INC. proceedings .com

TABLE OF CONTENTS

Confidence-Aware Multi-Label Chest X-ray Screening: Temperature Scaling and Risk–Coverage Analysis on NIH14 1
Farjana Yasmin, Md. Siam Uddin Molla Antor, Siam Khan, Nitun Kumar Podder, Md. Shohan Biswas Shah Md. Aftab Uddin

Ensemble Based Classification for Lung Cancer Risk Analysis 7
Abrar Rakin, Md Istiak Ahamed, Md. Samiul Alom, Nazmul Hasan Shouvo, Md. Abdul Awal Ishtiak Al Mamoon

An Advanced Modulating Signal-Based PWM Strategy for Three-Phase Voltage Source Inverters with Scalar Control for Induction Motor Drives 13
Md. Sabbir Hasan Sohag, Niloy Das, Chitra Roy, Ahmed Al Mansur, M. Mahbubur Rahman A B M Shawkat Ali

A Comprehensive Study on Bangla Shorthand Handwritten Character Recognition using Siamese Network and Few-Shot Learning 19
Md. Momenul Haque, Md. Rabiul Islam, Md. Faysal Ahamed, Md. Fatin Nibbrash Nakib, Abdus Sobhan

Explainable Machine Learning for IoT Network Intrusion Detection Using Particle Swarm Optimization 25
Hirak Mondal, Tahsin Ahmed Chowdhury, Md. Abul Ala Walid, Mrinal Kanti Baowaly Anupam Kumar Bairagi

A DSO-Guided EVCS Aggregator Market For Voltage Unbalance and Loss Mitigation 31
Md Nayem Hossain, T. H. M. Sumon Rashid, Ramjan Ali, Md. Golam Kibria, Md. Lalon Hossain Kawsar Ahmed Refat, A. H. M. Iftekharul Ferdous

Multiclass Crime Classification: A Comparative Analysis of Keyframe Extraction and Stacking Ensemble Learning 36
Niloy Khastagir, Arifa Sultana

X-band MIMO Antenna with Arc-shaped Radiator and Plus-shaped Defective Ground Structure 42
Showrajit Saha, Joyotu Debnath, Humaira Samshad, Md. Motahar Hossain, Debprosad Das Md. Azad Hossain

Machine-Learning Based Evaluation of ICT Awareness among Rural Bangladeshi Primary Students with Policy Recommendations 48
Zannatul Ferdous, Md. Anwar Hossain, Md. Sarwar Hosain

Riverbank Erosion Analysis in Bangladesh Using Spatiotemporal Segmentation 54
M. Saifuzzaman Rafat, Akif Islam, Mohd Ruhul Ameen, Momen Khandoker Ope, Abu Saleh Musa Miah Jungpil Shin

Using ENSO Climate Anomalies and Socio-Economic Indicators to Predict Geopolitical Instability: A Comparative Machine Learning Method 60
Adullah Al Bassam, Md. Mahfujur Rahman, Abdullah Tamim, Md.Mahmuduzzaman Ikbal D.M. Asadujjaman

Post-Quantum Secure Physics-Informed Federated Learning for Adaptive Protection in Inverter-Dominated Grids 66
Nazmul Hossain Siam, Sadia Tasnim Shara, Md. Bayzid Rahaman, Md. Mahabubor Rahman Tareq Abir Tonmoy, Md. Mortuza Ahmmed

A Hybrid Multi-Band and Multi-Region Feature Framework for EEG-Based Emotion Classification 72
Rabita Hasan

Urban Infrastructure Resilience under Climate-Induced Migration Pressure: Behavioral Indicators for Smart City Planning 78
Khondoker Mahmud Parvez, Md. Shahjahan Ali

DFT-spread Affine Frequency Division Multiplexing for Transmission over Doubly Dispersive Channels 84
Sahal Hossain Siam, Mohammad Ismat Kadir

Validation-Oriented Flood Risk Estimation by Integrating Statistical Frequency Analysis and 2D Hydrodynamic Modeling in Bangladesh 90
Shahriar Mahmud Kabir, Md. Abdullah Al Oafi Himon, Md. Mohi Uddin Mohin, Md. Robiul Islam

Design and Numerical Analysis of an Optical Fiber - Based Solar Light Transmission System 95
Abu Talha Haque Miah, Md. Shezan Haque Shovo, Miss Al Ive, Ratin Islam, MD. Rasadul Islam Md. Sahed Sabbir, Nirjona Zaman

Road Accident Severity Prediction in Bangladesh Using Explainable LightGBM 101
Md. Nayem Hossain, Md Rifat Hossain, Nakib Aman, Arpita Saha Chaity, Md. Rashedul Haque Md Rakibul Islam Sabbir

Design and Performance Assessment of Off-Grid Hybrid Renewable Microgrids for Rural Electrification in Bangladesh 107
Taib Hasan, Prapti Das, Md. Feroz Ali, Md. Esmay Azam, Md Abdur Razzak, K. M. A. Salam

Hydrogen-Supported Hybrid Renewable Microgrid with Demand Response for Sustainable Campus Energy Systems 113
Md. Esmay Azam, Md. Feroz Ali, Md. Rahmot Ullah, Md. Galib Hasan, K.M.A Salam, Md Abdur Razzak

Design and Analysis of Solar–Biogas Hybrid Microgrid for Agro-Farm Applications 119
Md. Mahibullah, Shaikh Amir Faysal, Shah Mohazzem Hossain

Reinforcement Learning-Based Dynamic Client Selection for Communication-Efficient Federated Intrusion Detection Systems 125
Jannatul Ferdous, Sharmin Akter, Tawfiqur Rahman

EvoPricing: A Hybrid Genetic Algorithm-Backpropagation Neural Network Framework for Enhanced Option Pricing Accuracy 131
Md. Rakibul Hasan, Md. Abu Horaira Ansary Tanvir, Md. Shakil Ahmed, Kamrul Islam, Suvra Mazumdar Nihal Das Ankur, Arjina Nasrin Khan, Abdul Hasib

A Hybrid Ensemble Model for Smart Irrigation Management in Agriculture 137
Afzalul Abid Nazir, Islam Saiful, Md. Faruk Abdullah Al Sohan, Sifat Rahman Ahona

FireGuard-YOLOv11: Efficient Deep Vision Architecture for Early Indoor Fire Hazard Detection 143
Akash Roy, Shahnaj Parvin, Md. Mafiul Hasan Matin, Aminun Nahar, Md. Istiak Hasan

Power Systems Operation Resilience Against False Data Injection and Line Tripping 149
Nur Mohammad

A Comparative Analysis of Ensemble Machine Learning Algorithms for Predicting Diabetes Using Explainable AI 155
Md. Touhedour Rahman, Sabrina Ahmed

Emotion-Aware Semi-Supervised Framework for Cyberbullying and Emotion Detection in Low-Resource Bangla and Chittagonian Texts 161
Abdullah Al Noman, Taniya Sultana, Sadia Ahmed Arzoo, Sanjida Ahmed Anika, Anika Sabbir

CBAM-StrokeNet: Lightweight CBAM-MobileNet Family for Multi-Class Real-Time Brain Stroke Classification from CT Images 167
MD. Raisul Ahamed Reaz, Md. Mahabubur Rahman, Samiha Muntaha Mahin, Mehdi Hasan Khondoker

A Hybrid Human-in-the-Loop IoT System for Precision Irrigation with Real-Time Soil Health Monitoring 173
Mohammed Towhidul Islam, Tasnia Chowdhury, Kazi Md. Abrar Yeaser, Nazia Sultana Plabon

Revolutionizing Restaurant Operations: An IoT-Driven Touchscreen Food Ordering System for Enhanced Efficiency and Customer Experience 179
Md. Mofasser Rahman Feroz, Tama Fouzder, Sudipto Pramanik, Md. Maruf Hasan Bhuiyan Muhammad Moshiur Rahman Tarafder

Parameter-Efficient Fine-Tuning with Adapters for Sorghum Disease Classification 185
Sabib Ahmed, Jannatul Ferdus Aspia, MD Fardin Ahmed, Khalilur Rahman, Md Samir Murad

Block-Based Partitioning and Hybrid CNN-Transformer Network for Hyperspectral Image Classification 191
Md. Atikur Rahman, Boshir Ahmed

Design and Analysis of a Dual-Resonant Wideband Microstrip Patch Antenna for 5G mmWave Communication 197
Emdadul Haque Ishan

Age-Stratified Deep Learning Models for Pediatric Bone Age Assessment: A Comparative Analysis of Transfer Learning Approaches 203
Md. Bayzid Hossain, Md. Nazmul Haque Bhuiyan, Kashfi Shormita Kushal

Enhancing Security in Multicasting Using Zero-Forcing Filtering and Reconfigurable Intelligent Surface Through Rayleigh Fading Channels 208
Aafia Mehrin Raisa, M. Z. I. Sarkar, Sayeeda Reza, Mohan Sarker, Ahshan Habib

Vehicle-to-Grid Integration: A Strategic Study of Technical, Economic, and Policy Challenges 214
Md. Sharifur Rahman, Md. Imamul Islam, Md. Sabbir Alam, Jahidul Hasan Rony, Shahariar Ahmed Himo Niloy Das, Ahmed Al Mansur

A Multi-Sensor IoT Architecture for Resilient Flood Forecasting: Integrating Real-Time Data Fusion and Cloud-Based Alerting 220
Md. Al Amin, Md. Sharifur Rahman, Md. Imamul Islam, Md. Sabbir Alam, Jahidul Hasan Rony, Niloy Das Ahmed Al Mansur

Feasibility Assessment of Agriculture and Photovoltaic Power Generation in an Agrivoltaic Framework: A Case Study in Rangpur, Bangladesh 226
Md Zibon Ali, Md. Sabbir Alam, Jobayer Ahmed, Tariqul Islam Tushar, Mohammad Asif Ul Haq Ahmed Al Manusr

An Explainable and Uncertainty-Aware Machine Learning Framework for Automated Smoking Risk Assessment Using Clinical Health Indicators 232
Rafiul Rabbi Zahid, Abidul Islam Alif, Shahbaj Ahmed Sakib, Maria Akter Mim Md. Abu Horaira Ansary Tanvir, Abdul Hasib

Introducing and validating a pressure-based, physically interpretable, friction-sensitive hydraulic imbalance indicator for runner-blade actuation systems of Kaplan turbines 238
Mostafa Monowar, Shahad Bin Alamgir

Secrecy Capacity of Reconfigurable Intelligent Surface Enabled IoT Networks in the Composite Fading Channels with Shadowing 244
Maheeya Mahee, Md. Zahurul Islam Sarkar, Ahshan Habib, Zarin Anjum Hossain

Numerical Analysis of MoO_3-Integrated $RbGeI_3$ Perovskite Solar Cell 250
Md. Feroz Ali, Shanmim Karim Tonmoy, Imon Shahriar, Halima Khanam Rimu, Apurbo Sharma K. M. A. Salam, Md Abdur Razzak

Quantifying Affective Bias in Low-Resource Media: Large-Scale Emotion Profiling of Bengali Headlines 256
Mohd Ruhul Ameen, Akif Islam, Ayesha Siddiqua, Abu Saleh Musa Miah, Jungpil Shin

PermitGPT: A Unified Generative-AI Pipeline for Construction Hazard Forecasting, Permit Prediction, and Community Impact 262
Mohd Ruhul Ameen, Farjana Aktar, Akif Islam, Momen Khandoker Ope, Abu Saleh Musa Miah Jungpil Shin

Analysis of Electric Hybrid Trolleybus Systems Using SUMO Simulation: An Integrated Assessment 268
Pretom Sarkar, Mahbub Hassan, Amit Banwari Gupta, Md Maruf Hassan

Drone-Based Traffic Monitoring and Performance Analysis Using SUMO-TraCI Simulation 273
Saurav Barua, Turjoy Das Turjo, Mahbub Hassan, Amit Banwari Gupta, Md Maruf Hassan

Aircraft Accident Cause Classification and Temporal Clustering Analysis Using a CICTT-Aligned Multimodal Approach 279
Al Hossain Abid, Mirza Niaz Morshed, Md. Mamun Hossain

Intelligent Traffic Signal Control using Q-Learning with SUMO Simulation 285
Turjoy Das Turjo, Mahbub Hassan, Amit Banwari Gupta, Md Maruf Hassan

An Explainable Machine Learning Framework for Electric Vehicle Charging Demand Modeling 291
Turjoy Das Turjo, Pretom Sarkar, Anonika Bangali, Abdullah Al Nur Maruf, Dola Das, Arpita Saha Tithi

Superior Optoelectronic Performance and Mechanical Robustness of $BiFeO_3$: A Promising Candidate for Next-Generation Flexible Photovoltaics 297
Md. Fakhrul Islam Jishan, Md. Samiul Islam, Md. Ashraful Islam Shadin, Md. Shahriar Ahmed Ifti Md. Meganur Rhaman

An Interpretable Machine Learning Framework for Used Car Price Prediction Using Large Language Models 303
Fabliha Bushra, Mahbub Hassan, Amit Banwari Gupta, Md Maruf Hassan

Coronary Artery Disease Detection Using Deep Learning Imaging 309
Labone Sarker Ety, Tasfiah Rahman, Puja Dey

Transfer Learning for Network Intrusion Detection Using Machine Learning, Behavioral Fingerprints and SIEM-Oriented Multi-Source Risk Scoring 315
Nabila Junayed, Mohammad Jahangir Alam, Md Farhan Shahriyar

Resource-Efficient TinyML Framework for Real-Time Fault Diagnosis in Solar Charge Controllers using 8-bit Quantized Neural Networks 321
S M Shaif Mahamud Shemon, Tama Fouzder, Anopa Rani Ghosh, Farhan Shadik

Cross-Benchmark Evaluation of an Efficient CNN–Transformer Model for Brain Tumor Subregion Segmentation 327
Zishad Hossain Limon, Shakh Md Shakib Hasan, Mahbub Alam Khan, Erin Jahan Meem, Amira Hossain Katura Gania Khushbu, Fakir Mashuque Alamgir

Explainable HistoAttn-Net Ensemble for Multi-Class Lung and Colon Histopathology 333
Erin Jahan Meem, Md Ariful Islam, Jesika Debnath, Md Rashel Miah, Shakil Khan MD Nwoshad Alam Chowdhury, Fakir Mashuque Alamgir

Federated Deep Learning for Privacy-Preserving Brain Tumor Classification in Smart Healthcare Systems 339
Puja Dey, Swarup Dhar, Shuvo Dey, Shuvachcha Dey

BASFL-IDS: Bandwidth-Aware Federated Self-Supervised Learning for IoT Intrusion Detection 345
Shaikh Nahian, Mahfujur Rahman Faraji, Shahadat Molla, Shakh Md Shakib, Md Nazmul Houqe Nayem Mahammad Mahedi Hassan Ratul, Fakir Mashuque Alamgir

Multi-type Brain Tumor Classification and Localization Using a YOLOv8-based Deep Learning Approach on a Custom MRI Dataset 351
Sumit Sikder, Md Samsuzzaman

A Comparative Analysis of Deep Learning Models with Quantitative Validation of Explainable AI for Pneumonia Detection Utilising Chest X-ray Images 357
Ripa Akter, Md. Siam Hossain, Saiara Nawar Silika, Md. Samiul Alom, Ishtiak Al Mamoon, Md. Abdul Awal

Performance Comparison Between Best Relay Selection and Best RIS Selection in Enhancing the Security of Wireless Network 363
Mohan Sarker, Md. Zahurul Islam Sarkar

An Explainable Hybrid Deep Learning Framework for Fake News Detection Using SHAP and Generative AI 369
Soyad Adnan Hossain Pranto, Abdullahi Saylici Hussein, Anamika Rani Nath

Enhancing Bengali Document Layout Analysis Using Image Augmentation Techniques 375
Mehrin Nusrat Chowdhury, Md. Fahim Faisal, Sakib Imtiaz

Integrated Modeling of Degradation, Recovery, and Environmental Effects on Long-Term Performance of Photovoltaic Modules 381
Abul Kashem, Md. Mohi Uddin Mohin, Shahriar Mahmud Kabir, Md. Abdullah Al Oafi Himon Md. Istiac Ahmed, ASM Shihavuddin

Robust and Stable Multi-Label Chest X-ray Screening on NIH14: Corruption Sensitivity and Demographic Stratification with Explainability Validation 387
Israt Jahan, Tazkiwa Ahmed, Md. Siam Uddin Molla Antor, Habibur Rahman Hridoy, Nitun Kumar Podder Ishrat Khan

An Experimental Investigation of Binary Natural Ester Blends for Next Generation Biodegradable Transformer Oil 393
Md. Fardin Rahman, Md. Hasibul Islam, Md. Abdul Malek, Muhammad Abdul Goffar Khan

Scalable and Cost-Efficient TWDM-PON For NG-RAN Fronthaul in Multi-OLT High-Density Networks 398
Tawsif Kaisar, Monir Hossen, Md. Mashrafi Zaman

An Interpretable Deep Learning Framework for Lung Cancer Prediction using Swish-optimized Neural Networks and SHAP Explanations 404
Sharmin Akter, Era Aich, Fahima Hossain, Ananna Datta, Taslima Ferdous Supty

Dual-View Semi-Supervised Retinal Disease Recognition via Chromatic Structural Decomposition and Cross-View Contrastive Learning 410
Md Najmul Gony, Sd Maria Khatun Shuvra, Ramesh Poudel, Kailash Dhakal, Md Mostafizur Rahman Al Rafy, Md. Redwan Ahmed, Fakir Mashuque Alamgir

IntraDG-MoEFormer: Multi-Level Domain Adaptation with Prompts, Adapters, and Sparse Experts for Intraoral Imaging 416
Sd Maria Khatun Shuvra, Md Najmul Gony, Kailash Dhakal, Ramesh Poudel, Al Rafy, Rezaul Haque Fakir Mashuque Alamgir

Few-Shot Adaptive Segmentation and Curriculum Learning for Equitable Oral Cancer Screening 422
Nur Tarana Alam, Sadia Ahmed Shoshy, Daiyan Nizam, Koushik Kumar Guha, Hridya Sudeepon Roy Sazzad Hussain Farhaan

Isolation-Enhanced Compact Four-Element MIMO Antenna for 5G NR Millimeter-Wave and D2D Applications 428
Md. Najmul Hossain, Md. Sarowar Hossain, Sayed Shifat Ahmed, Tetsuya Shimamura

Performance Analysis of a Compact Slotted Microstrip Patch Antenna for X-Band Communication Applications 434
Sayed Shifat Ahmed, Md. Najmul Hossain, Md. Sarwar Hosain, Tetsuya Shimamura

Performance Analysis of an Eight-Element Triple-Band MIMO Antenna for 5G mmWave and Ka/Q-Band Satellite Communications 439
Md. Najmul Hossain, Md. Zakirul Islam, Sayed Shifat Ahmed, Tetsuya Shimamura

Machine Learning-Based Analysis of Seasonal Urban Heat Island and Land Use Transitions in Bangladesh 445
Kazi Tahmid Parveg, Jannatul Ferdous, Al Hossain Rafi, Mafrid Haydar

Advanced IoT-Enabled Smart Railway Crossing System with Bidirectional Train Detection, Automated Gate Control, and Real-Time Web-Based Monitoring 451
Abdul Hasib, Mohammad Abdul Hamid, Pallab Kumar, Arjina Nasrin Khan, S. M. Masudur Rahman Md. Abu Horaira Ansary Tanvir, Abidul Islam Alif, M.D. Habibullah

A Low-Cost IoT-Enabled Automatic Transfer Switch with Dual-Mode Control and Tri-Modal Remote Supervision 457
Abdul Hasib, Pallab Kumar, Mohammad Abdul Hamid, Abidul Islam Alif, Kamrul Islam Md. Abu Horaira Ansary Tanvir, M.D. Habibullah, Arjina Nasrin Khan

MedPro: A Low-Cost ESP32-Based Multimodal IoMT System for Real-Time Vital Sign Monitoring and Cloud-Integrated Alerting 463
Abdul Hasib, Mohammad Abdul Hamid, Pallab Kumar, Abidul Islam Alif, Arjina Nasrin Khan Md. Abu Horaira Ansary Tanvir, M.D. Habibullah, Kamrul Islam

Design Optimization and Performance Analysis of Cs_2SnI_6-Based Double Perovskite Solar Cell 469
Md. Sajjad Hossain, Md. Tawabur Rahman

Integrated Design and Machine Learning-Based Forecasting of an Off-Grid Solar PV System for Sustainable Aquaculture Applications 475
Roby Mohajon, Jihanul Haque Jihan, Md. Sajjad Hossain Akash, Ashfiqur Rahman Akash Md Ismail Bhuyan, MD.Shohanur Rahman, Md. Hasibul Islam

Integrating MRI and Clinical Features for Detection of Clinically Significant Prostate Cancer: A Multimodal AI Framework 481
Sifat Mohammad Karim, Ariful Islam, Md. Samiul Alam, Wafial Hasnat Laisa, Amrul Hasan Sakib Md. Abdul Awal, Ishtiak Al Mamoon

Attention-Augmented Hybrid CNN-BiLSTM Framework for High-Performance Bangla Handwritten Digit Recognition: An Empirical Study on NumtaDB 487
Osama Ahmed Ibrahim, Ratul Biswas, Md. Ahasanul Islam Nafim

Design and Experimental Evaluation of a Portable Embedded IEEE 802.11 Management Frame Auditing Platform 493
Iftekhar Ahmmed, Md Atiqul Islam, Md. Mahmudul Hasan Jony, Md. Roktim Raj, Md. Imran Hasan Emon Liton Islam

Secrecy Capacity of Reconfigurable Intelligent Surface Assisted Communication System with Direct Link Over $\kappa-\mu$ Shadowed Fading Channels 499
M. A. Chowdhury, M. Z. I. Sarkar, Ahshan Habib, M. J. Mitu

Design and Performance Evaluation of a Low Switch Nine-Level Inverter with Reduced THD for Single-Phase Induction Motor 504
Bivas Sarkar, Md. Sabbir Alam, Md. Mohi Uddin Mohin, Md. Naiemur Rahman, Md. Saklain Mostak Md. Ashraful Islam, Md Mainul Hasan Abir, Ahmed Al Mansur

A Regression Model-Based Approach to Identify Economic Determinants for Infant Mortality in Bangladesh 510
Mst. Irin Sultana, Md. Rabiul Islam, Md. Nazmus Salehin

Prediction and Analysis of Bangladesh's Recent Dengue Surge by Artificial Intelligence with LSTM Time Series Forecasting Method 516
Kanoge Roy, MD Ashikuzzaman, Shouharda Barman Niloy, Md. Eshak Khan, Zahirul Islam Fakhrul Haque Fahim, Md. Asaduzzaman Sarker, Prapti Das, Shamsul Abedin

Design and Performance Analysis of a Compact FR-4-Based Antipodal Vivaldi Antenna for Ultra-Wideband and mmWave Applications 522
Md. Zakirul Islam, Md. Najmul Hossain, Tetsuya Shimamura

Diabetic Retinopathy Grading and Referable Screening with EfficientNet-B3: External Validation and Leak-Free Operating Points 526
Rimo Bhuiyan, Md. Tanvir Ahmed Siddique, Kashfi Shormita Kushal

Compact Triple Band Dual Port MIMO Microstrip Antenna for V and E Band mmWave Applications 532
Rahul Barua, Sohanur Rahman Sohag, Fahim Shahriar, Iffat Mahmud, Md. Zuhayr Akhtab Umongthoai Marma

A Slot-Loaded Dual-Band Sub-THz Microstrip Antenna for Beyond 5G/6G Wireless and Sensing Applications 538
Sohanur Rahman Sohag, Chandan Saha, Rahul Barua, Fahim Shahriar, Md. Rakib Uddin Umongthoai Marma

HSAM: A Hierarchical Stacking Ensemble Model with Explainable AI for Employee Turnover Prediction 544
Md. Ariful Islam, Chanchol Kumar Modok, Mst. Tanbin Yasmin Tanny, Md. Emran Biswas Md. Delowar Hossain, Tangina Sultana

Uncertainty-Aware and Clinically Reliable CNNs for Low-Latency Lung Cancer CT Classification with Test-Time Augmentation and Grad-CAM Explainability 550
Md Ekram Chowdhury, Abdur Rahman, Nurjahan Rahim Maisha, Samiha Muntaha Mahin, Tahmina Hasan

Human Activity Recognition with Kinematic Trajectory 556
Md Kamruzzaman

Deep Spatio-Sequential Feature Fusion with Heterogeneous Ensemble Consensus for Robust Malware Family Classification 561
Riddy Mazumder, Biplob Das, Atahar Hossain, Md Junayed, Golam Ali Muhammad Minhazul Haque Bhuiyan

Secure Outage Performance Analysis of Reconfigurable Intelligent Surface-Aided Networks with Selection Combining Diversity Scheme 567
S. K. Safit, M. Z. I. Sarkar, Protoy Mahmud, Ahshan Habib, Adib Hassan

Optimization and Feasibility Analysis of a Grid-Connected Hybrid Renewable Microgrid for Cost and Emission Reduction in Bangladesh 573
Rasel Islam, Md Abu Yousuf, M Shaharyar Alam, MD. Asraful Mursalin Jesun, Md. Mehedi Hasan

Techno-Economic Optimization of a Grid-Connected PV–Wind–BESS Microgrid for Commercial Loads in Bangladesh 579
Pathon Chowdhury, Swopnil Das, Md Abu Yousuf, Md. Mehedi Hasan, Md. Feroz Ali

Computational Investigation of Variable-Sensitivity Force Sensors: A Comparison of Polyurethane-based Shape-Memory Polymers 585
Sourav Roy, Kazuto Takashima

A Gas-Optimized Blockchain Framework for Scalable Document Verification Using Dynamic Access Control and IPFS 591
Ratul Hasan, Samiha Farjana, Yousuf Oley, Md. Ohiduzaman Pranto, Md Arik Rayhan

Security in Reconfigurable Intelligent Surface Aided Generalized-Gamma Fading Channels 597
Subir Kumar Ghosh, M. Z. I. Sarkar, Ahshan Habib

Deep Learning-Based Multiclass Classification of Eye Diseases Using Retinal Fundus Images 603
Md. Mosharof Hosen Rokon, Md. Omar Faruk, Manik Kumar Saha, Md. Shakil Hossain Syed Shahanur Mahmud Pranto, Md. Mahamudul Hasan, Muntasir Mamun, Md. Rakibul Hasan

A Cost-Effective LoRa-Enabled Environment Monitoring System for Poultry Farms Using Distributed Multi-Sensor Nodes 609
Md. Abid Hasan Roni Bokshi, Kazi Mushfiqur Rahman Alvi, Md. Liakot Ali, Joydeb Kumar Sana

Explainable ordinal regression and ensemble learning for accurate diabetes risk prediction 615
Debabrata Mallick, Fatema Haque Joya, Mohammad Tahidul Kabir Tasin, Md. Junayed, Jakia Jannat Mohammad Zainal Abedin

Beyond Ray-Casting: Evaluating Controller, Free-Hand, and Virtual-Touch Modalities for Immersive Text Entry 621
Md. Tanvir Hossain, Mohd. Ruhul Ameen, Akif Islam, Md. Omar Faruqe, Mahboob Qaosar A. F. M. Mahbubur Rahman, Sanjoy Kumar Chakravarty, M. Khademul Islam Molla

A UWB Compact Dual-Band 8-Element High-Isolation MIMO Antenna for Wi-Fi (5/6 GHz) and 5G NR (n46/47/96) Applications 627
Sabina Khatun, Ajay Krishno Sarkar, Liton Chandra Paul

A Compact Eight-Element UWB MIMO Antenna for Radar Imaging and High-Speed Wireless Communications 633
Md. Abdul Awal, Md. Najmul Hossain, Sayed Shifat Ahmed, Tetsuya Shimamura

Machine Learning Approach for Fault Detection and Classification in Three-Phase Transmission Lines Using K-Nearest Neighbors 638
Md. Rakib Uddin, Md. Mehedi Hasan Tusar, Md. Mohaimanul Islam

Fairness-Aware Heart Disease Prediction Using Machine Learning: Binary and Severity Risk Analysis by Age and Sex 644
Fariha Alam Urbana, Nafisa Tabassum

Thyroid Disease Classification Using Ensemble Learning Techniques with XAI Interpretation 650
Md. Rabiul Islam, Amran Hossain

A Crescent-Shaped Patch Coaxially Fed MIMO Antenna for X-Band Remote Sensing and Communication Applications 656
Showrajit Saha, Joyotu Debnath, Md. Motahar Hossain, Debprosad Das, Md. Azad Hossain

Lightweight Kinematic Feature Representation for Word-Level Bangla Sign Language Recognition 662
Aseer Muntaqueem Ferdous Arko, Ishrat Shabnam, Kalyan Kumar Halder

HaorGNN: An Explainable Spatiotemporal Graph Attention Network for Multi-Horizon Flash Flood Forecasting 668
Pritom Ray Nobin, Shegupta Tasnim Anika, Imran Ahammad Rifat

Physics-Informed Bayesian Machine Learning Framework for Nuclear Energy Density Functional Optimization in Extreme Environments 674
Anit Barua, Ayesha Joha Purnota, Md. Ifthakhar Khan Sagor, Swaran Kumar Pal

ChatgaiyaIntentNet: Intent Classification for the Chittagonian Dialect Using Stacking Ensemble Learning 680
M. A. Chowdhury, Md. Sartaj Alam Pritom, Talukder Naemul Hasan Naem, K. A. Raha

Feasibility Assessment of On-Grid Rooftop Solar PV Systems for Educational Institutions in Bangladesh 686
Md. Sabbir Alam, Shah Mohazzem Hossain, Ahmed Al Mansur

Hardware-Aware Near-Field Hierarchical Beam Training for Holographic MIMO Systems with Reconfigurable Holographic Surfaces 692
Abdur Rahman, Md. Najmul Hossain, Md. Abdur Rahim, Tetsuya Shimamura

QuickTap: A Cost-Effective IoT-Based Anti-Proxy Attendance System with Real-Time Web Monitoring 698
Hasibur Rahman, Soyad Adnan Hossain Pranto, Md. Alomgir Hossain, Abdullahi Saylici Hussein Md. Taher Bin Omar Hijbullah

Few-Shot Adaptive Tiny Machine Learning for Edge-Based Traffic Flow Prediction 704
Mahbub Hassan, Sumon Chandra Ray, Amit Banwari Gupta, Md Maruf Hassan

MPSeg: A Microplastics Segmentation Framework in Sewage Environment with improved DeeplabV3+ and PointRend 710
Ankan Paul Turza, Arjun Kumar Bose Arnob, Zishan Ahmed Onik, Kamruddin Nur

Techno-Economic and Environmental Analysis and Optimization of Biogas-Solar Hybrid Energy System for Cox's Bazar Tourism 716
Abdulla Al Mamun, Md. Faysal Miah, Jahidul Hasan Rony, ASM Shihavuddin, M. M. Naushad Ali Md. Hasan Maruf, Molla Shahadat Hossain Lipu, Mohammad Rifat Ahmmad Rashid

Illusions of Robustness: Adaptive Evaluation of Quantization-Based Inference 722
Tanvir Islam Robin, Md. Mahbubur Rahman, Sadia Islam Shefa, Toukir Ahmed, Salauddin Ahammed Sumon Mahbub Hasan

MS-UA-Swin: An Uncertainty-Aware Multi-Scale Swin Transformer for Reliable Skin Cancer Detection 728
Salauddin Ahammed Sumon, Md. Mahbubur Rahman, Mahbub Hasan, Tanvir Islam Robin, Toukir Ahmed Md Atikqur Rahaman, Chinmay Bepery, Azrul Amaline, Maksudor Rahman

Explainable Breast Cancer Histopathology Classification Using Self-Supervised Vision Transformers and Attention-Based XAI 734
Toukir Ahmed, Md. Mahbubur Rahman, Tanvir Islam Robin, Mahbub Hasan, Salauddin Ahammed Sumon Md. Atikur Rahaman, Chinmay Bepery, Azrul Amaline, Maksudor Rahman, Md. Tanvir Hasan

A Hierarchical Deep Learning Framework with Explainable AI for Pneumonia Detection and Subtype Classification from Chest X-Ray Images 740
Mahbub Hasan, Md. Mahbubur Rahman, Salauddin Ahammed Sumon, Toukir Ahmed, Tanvir Islam Robin Md. Atikqur Rahaman, Chinmay Bepery, Md. Tanvir Hasan, Sayed Sajidur Rahman

Advancing Early Chronic Kidney Disease Prediction: An Optimized Machine Learning Framework 746
Samin Yeaser Rafid, Md. Rashedul Islam Jubayer, Nusrat Jahan Rimi, G.M.Millat Fatema Tuj Tarannom Esty

Lightning Hazard and Exposure Assessment of Bangladeshi Airports Using ENTLN Data 752
Mohammad Jahir Hasan, Md Golam Mostafa

A Hybrid CNN–Transformer Framework for Automated Poultry Disease Classification Using Fecal 758
Jakaria Habib, Mariam Lutfy, Md. Imran Hossain, Md. Taz Warul Mulk, Tapati Biswas Trapa Akifur Rahman

Hybrid Feature Representation and Deep Anomaly Detection for Jailbreak Prompt Defense 764
Md Abdul Awal, Mst. Nishita Aktar, Kh. Mustafizur Rahman, Afzal Hossain, Md.Nazmus Sakib

An Adaptive Sensor Fusion Framework for Resilient Intravenous Infusion Monitoring in Low-Resource Settings 769
Md Saqlain Mustak Saki, Md Shoab Khan, Hujaifa Ahmed Tanvir, Mohammad Riftat Ahmmad Rashid Md Hasan Maruf, ASM Shihavuddin

A Vision of Smart Bangladesh: IoT Based Smart Home Automation for Fire Safety Using ML 774
Mim Bin Hossain

HALT-RAG: Hallucination-Tolerant Retrieval-Augmented QA for Scientific Literature 780
Pronob Saha, Souhardyo Bhattacharjee, Anamika Rani Nath

A Lightweight and Efficient CNN for Bangladeshi Currency Recognition with Leakage-Aware Cross-Dataset Evaluation 786
Md. Fahim Bin Alam, Md. Nazmus Salehin, Mst. Irin Sultana

Hybrid Machine Learning and Deep Learning approaches for Multi Region rainfall prediction in Bangladesh 792
Mst.Habiba Khatun, Adiba Haque Mallick, Anamika Rani Nath, Souhardyo Bhattacharjee

EMG-Based An Intelligent Rehabilitation Gloves Designed for Stroke-Affected Hand 798
Anik Mondal, Sabbir Mahamud, Ayman Faiyaz, M.A. Rafi, Md. Faisal Mina

Smartphone-Integrated Optical System for Quantitative Assessment of Leaf Chlorophyll Level 804
Md. Sadik Al Rayhan, Md. Rafiqul Islam, Mohiminur Rahman Ifty, Protik Chandra Biswas

Quantized TabM: A Resource-Efficient Framework for Adverse Glycemic Event Forecasting 809
Talat Mahmud Lam, Imtiazur Rahman Shihab, Sayed Easin Arafat, Mohammad Samin Saqlain Fazlay Rabby

A Comprehensive Analysis of Entropy-based DDoS Detection and Alternative Methods 815
Md. Shojib Hossain, Md Nasim Adnan, Prakash Chandra Mondal, Arshad Pervez

A Lightweight Hybrid Cryptographic Architecture Using XChaCha20, Elliptic Curve Cryptography, and PNG-Based Steganography 821
Md. Sumon Ahmed Rubel, Farhana Tazmim Pinki, Kaniz Fatema

A DGS-Based Symmetrical Patch THz Antenna for IoT and Future 6G Applications 827
Sayed Shifat Ahmed, Shah Md Toufik Ahmed, Md. Mehedi Hassan, Md. Arafath Hossain Rafi, Tithi Rani Liton Chandra Paul

BirdNet-XAI: A Hybrid EfficientNetB0–ViT Model with Explainable AI for Fine-Grained Classification of Native Bangladeshi Birds 833
Siam Hossen, Md. Abu Raihan, Nitun Kumar Podder, Mst. Samia Islam Ridi, Most. Sadia Islam Bristi Subrota Sarker Rabin

Spinal Disease Detection via Deep Multimodal Fusion of X-ray Imagery and Demographic Features 839
Nidita Roy, Mohammad Ashfak Habib, Pritha Saha, Shuvodwip Saha

An Enhanced YOLOv8 Framework for Real-Time Weapon Detection and Threat Assessment in Nuclear Power Plant Perimeter Security 845
Md. Marufur Rahman Reyad, Samaila Islam, Noor Zahin, Md Tariqur Rahman Shaon, Kristy Gourab Sinha Md. Altab Hossain

Design and Analysis of an Off-Grid Non-conventional Hybrid Energy System at Patenga, Chattogram 851
Sourav Debnath, Md. Abdur Rahman, Jitu Prakash Dhar, Ahmed Al Mansur

Optimized Machine Learning-Based Survival Prediction in HCC: Addressing Data Imbalance and Feature Selection 856
Mohammad Sadiqur Rahman, Ashfaqul Islam, Md. Mehedi Hasan, Rakib Hossain Rabbi Md. Ferdous Bin Hafiz, Khandaker Mohammad Mohi Uddin

A Deep Learning Approach to Bangla License Plate Text Extraction using Easy OCR 862
Sharafat Karim, Md. Senarul Islam, Prosnejit Mondol, Md. Tanvir Islam, Golam Md. Muradul Bashir

A Metaheuristic Optimized XGBoost Model and SHAP Analysis for Heart Disease Prediction 868
Sumon Ray, Proloy Kumar Mondal, Md Kamran Hussin Chowdhury, Md. Shahrear Ahmed Shuvon Nayebul Jannath Chowdhury, Probir Kumar Mondal, Md. Mahbub Hossain, Md. Shahjahan Md. Amirul Islam

Soliton-Assisted Hollow-Core Photonic Crystal Fiber Sensor for Refractive Index Detection of Organic Solvents 874
Roaida Binta Ali, Taimur Rahman Dip, Prity Lata Paul, Md. Jahirul Islam

Coarse 3D Shape Estimation in A Visionless Soft Robotic Manipulator 880
Md Zunaid Hossen, Abrar Faiyaz Anan Chowdhury, Avik Md Emtiaz Arefin, Zinat Tasneem

MangoLeViT: Implementing Self-Supervised Vision Transformer for Classifying Mango Leaf Disease 886
Dipta Paul, Antar Chandra Das, Hrikesh Kumar Hazra, Md.Alamin Hossen, K. M. Safin Kamal Ahmed Wasif Reza

Attention-Enhanced BiLSTM Autoencoder for ECG Anomaly Detection 892
Abu Nayem MD Arman, Sheikh Syeed Ul Haque, Shammam Raiyan, Rifat Al Mamun Rudro, Kamruddin Nur

Explainable Ensemble Learning for Liver Disease Prediction with ENN Resampling and Cross-Validated Hyperparameter Optimization 898
Md Mehedi Hasan, Fahum Nufikha Jahan, Sabbir Sarder Munna, Mohammad Shahin Uddin Fariha Tabassum Prova, Most. Afroja Mahomuda, Md. Shakhauat Hossan Sumon

Edge-Enabled UAV Anomaly Detection Using Multimodal Sensor Fusion and Lightweight Embedded Machine Learning 904
Sumaiya Kabir Shashin, Khandokar Sakhawat Hossen, Tawfiq Mahmud Khan

Performance Evaluation of Ensemble Learning Models for Credit Card Fraud Detection on Balanced and Imbalanced Datasets 910
Mobassir Ahmmed, Md. Muktar Hossain, Mst. Sirazum Munira Mim, Tanver Ahmed, Md. Munem Shahriar Md. Mosiur Rahman Sweet

FPMAN: A Framework for Stable and Privacy-Preserving Federated Learning under Non-IID Data 916
Israt Tasnim Esha, Tasfia Tasnim, Dola Das

A Hybrid Framework for Detection of Autism Spectrum Disorder (ASD) Using Deep Learning Algorithms 922
Afia Binte Sarowar, Mirza Raquib, Md. Imam Uddin Forkan, Farida Siddiqi Prity, Md Jiabul Hoque Mohammad Amzad Hossain

Explainable Long-Document Resume Classification Through Overlapping Transformer Chunk Aggregation and LIME-based Interpretability 928
Mst. Bithi Akter Sarmin, Radha Rani Paul, Iffath Tanjim Moon, S. M Imran Reza

Cross-Domain Adversarial Robustness and Explainability Stability in Phishing Detection Systems 934
Md. Rifat Hassan, Jubair Ahmed Nabin, Toyeer-E-Ferdoush

HandNav: An IoT-Based Smart Navigation Glove for Visually Impaired People 940
Joya Rani Saha, Rawnak Mahzabin Jyoti, Takia Yasmin, Saurav Chandra Das, Md. Morshed Ali Md. Torikur Rahman

EcoBot-X: A Low-Cost IoT-Enabled Autonomous Robot for Smart Waste Management and Environmental Monitoring 946
Mst. Esat Jahan Akhi, Jannatul Ferdusi Ayesha, Mst. Fariha Akter, Md.Muniruzzaman Bony Saurav Chandra Das, Sharifur Rahman

A Cross-Attention–Based Probabilistic Graph and Bayesian Network Framework for Security Risk Assessment in Network Sessions 952
Naeem Al Koreshi, Md. Nasit Jakoan, Salaudden Usuf, Md. Tuhin Reza, Md Farukuzzaman Khan Md Habibur Rahman

UV-Annealed Ni-Doped ZnO Thin Films for Energy Storage Applications 958
Parvaj Rana, Shad Afif Sovon, Sulaiman Bin Helal, Abu Bakar Md. Ismail

MEFNet: A Lightweight MobileNetV3–EfficientNetB0 Fusion Network for Garbage Classification with Explainable AI 962
Md. Karimul Islam, Iftekhar Ahmmed, Md. Fatin Nibbrash Nakib, Fatin Ilham

Development of Predictive Models for Gallstone Disease Using Machine Learning Techniques 968
Md. Hashibul Hasan Nahin, Sourav Kumar Barman, Md. Goffar Hossain, Md. Maniruzzaman

First-Principles Investigation of Spin-Orbit Coupled Electronic Band Structure and Optical Properties of Monolayer Silicene 973
Md. Meftahul Haque, Md. Sadik Al Rayhan, Md. Kawser Ahmed Seyam, Mahbub Alam

ResoLink-THz: A Compact Dual-Band MIMO Antenna for 6G Terahertz Communication and Precision Sensing 978
Arafat Uddin, Sakhawat Hossen Sun, Akib Jayed Islam, Md. Ashadul Islam, Mirajul Islam Md. Mahabubur Rahaman, Imtiaz Uddin Faisal

DeepStrokeGuard: Explainable and Deployable Deep Learning for Brain Stroke Detection with Class Imbalance Handling 984
Sayed Al Mahmud, Md. Siam Ahmed, Md. Ferdous Jaman, Md. Ashikur Rahaman, Md Mobinul Islam Sk Fahim Sadik

Fine-Grained Cross-Script Sentiment Analysis of Bangla and Banglish Book Reviews Using Transformer and Classical Machine Learning Models 990
Rafsan Hasan Pronay, MD. Rahim, Shafiqur Rahman Shifat

RetinoNet: A Hybrid CNN with Ghost Blocks and Dual Attention for Accurate Multi-Class Diabetic Retinopathy Classification 996
Khalilur Rahman, Md Samir Murad, Md Nuruzzaman, Sabib Ahmed

Techno-economic analysis of a renewable hybrid system for ensuring power supply in Kutupalong Rohingya Camp 1002
Md. Tonmoy Islam, Md. Rafiqul Islam Sheikh, Md. Feroz Ali, Taib Hasan

Deep Learning Based Oral Cancer Risk Prediction: Integrating Image Processing with Explainable AI 1008
Arafat Helal, Muntasir Momtaz, Shehab Shahariar Asif, Aminun Nahar, Kamruddin Nur

A Deep Feature-Driven Explainable Machine Learning Model for Fruit and Vegetable Freshness Classification and Rotten Localization 1014
Mst. Jarin Tasnim Mim, Md. Ibne Shihab Shad, Taskin Noor Turna, Akif Mahdi, Faisal Iqbal Hiron Sultana Jahan Soheli

A Lightweight Framework for Multi-view Chest Radiograph Analysis using Augmented Metadata 1020
Sudipta Kumar Saha, Moutushe Basak Mimi, Abdullah All Ahhad, Md Khairul Islam

Multi-Source Bangla Violence Text Dataset and Transformer-Based Stacking Ensemble for Social Media Content Moderation 1026
Maliha Rahman Moon, Md. Siam, Asmita Hoque Pospita, Hrithik Majumdar Shibu

From Droop-Only to Advanced Control: Progressive Design of a Standalone Grid-Forming Inverter 1032
Md. Sabbir Hossain

Design and Analysis of a Compact Dual-Band Microstrip Antenna for WLAN Communication and X-Band Radar Applications 1038
Hossain Mohammad Maruf Rahman Shuvo, Md Hossam-E-Haider

FastMedBangla: A Multi-Task Deep Learning Framework for Bengali Medical Text Triage and Specialist Routing 1044
Syed Muntasin Fayaz, Md. Abu Raihan, F M Javed Mehedi Shamrat, MD. Asraf Ali, Nitun Kumar

Temporal Robustness of Thermal-Based Capsicum Detection in Greenhouse Using Random and Time-Aware Data Partitioning 1050
Md. Sakib Hassan Chowdhury, Zinat Tasneem, Koichi Oka

GR-ACE Net: A Hybrid Graph-Attentional Framework with Global Relational Reasoning for Deepfake Forensics 1056
Ariful Islam, Sadia Afroz Oishi, Md. Maksudul Hasan, Muntasir Mamun, Md. Anwar Hossain Moumita Haque Mohona, Md. Akash Miya, Sajeeb Kumar Ray

Real-Time Variability-Aware Adaptive Relay Protection in PV-Integrated Radial Distribution Networks 1062
Abida Sultana Sumona, Shah Mohazzem Hossain, Biplob Sarker

From Black-Box to Transparent DTA: Token-Level and Global Interpretable XAI Explanations for SMILES-Based Affinity Prediction 1068
Md. Siam Uddin Molla Antor, Nitun Kumar Podder, Imroz Khan

A Novel Attention-Enhanced Hybrid Deep Learning Model for GI Disease Classification 1074
Md. Maniruzzaman, Rejaul Islam Salman, Kazi Golam Tawhid, Bholanath Bala, Md. Mahbub Hossain Md. Shamim Ahsan

Design and Analysis of Blade Pitch Control for a Variable-Speed Wind Turbine 1080
Prangon Das, Joya Biswas

High-Gain H-Slot Microstrip Patch Array Antenna for 24-GHz 5G and Satellite Communication 1086
S.M.Shihab Sharar, Md. Rakib Hossain, Mahadi Hasan Shaisob, Farzana Akter

AI-vs-AI Cyber Defense: A Reinforcement Learning-Based Approach for Defending IoT Networks Against GAN-Generated Attacks 1092
Awise Tahmid

Robust, Explainable Cross-Dataset Deepfake Video Detection: Attention-Pooled Face Sequences with Compression-Aware UDA-DANN and Interactive GUI 1098
Md. Siam Uddin Molla Antor, Ittihad Hasnat Tayesh, Mohammad Ali Sakib, Nitun Kumar Podder Ishrat Khan

Numerical Modeling and Data-Driven Optimization of Rb_2SnBr_6-Based Perovskite Solar Cells Using SCAPS-1D 1104
Md. Sanwar Hossain, Md. Al Amin, Abdur Rahman, Md. Fozlul Haque, Md Arif Istiak, Urmila Deb Roy Sheikh Rashel Al Ahmed

Integrated SCAPS-1D and Machine Learning Approaches for Design Optimization of Cs_2SnI_6-Based Perovskite Solar Cells 1109
Md. Al Amin, Md. Sanwar Hossain, Md. Farhad Hossain, Md. Fozlul Haque, Abdur Rahman, Md Arif Istiak Urmila Deb Roy, Sheikh Rashel Al Ahmed, Md. Suruz Mian

Numerical Modeling and Data-Driven Optimization of Sr_3BiI_3-Based Perovskite Solar Cells Using SCAPS-1D and Machine Learning 1115
Md. Al Amin, Md. Sanwar Hossain, Md. Farhad Hossain, Abdur Rahman, Md. Fozlul Haque Urmila Deb Roy, Md Arif Istiak, Md. Suruz Mian, Sheikh Rashel Al Ahmed

A Deep Learning Approach to Silhouette-Based Gender Classification from Aerial Gait Videos 1121
Abdullah Al Mahim, Zareen Tasnim, Mohammad Ali Sakib, Nakib Aman, Shah Alom, Touhid Hossain

Explainable Ensemble Learning for Chronic Kidney Disease Prediction with RFECV-Based Feature Selection and Cross-Validated Hyperparameter Optimization 1127
Atkia Zaman Anika, Mohammad Shahin Uddin, Jeba Maliha, Farhana Yeasmin Munmun, Md. Jahid Anwar Md Mehedi Hasan, Md. Shakhauat Hossan Sumon, Md Rubel Rana

End-to-End Hybrid Quantum Convolutional Networks with 8-Qubit Bottlenecks for CIFAR-10 with Explainable Inference 1133
Md. Siam Uddin Molla Antor, Toufique Al Imran, Md Rifat Hossain, Nitun Kumar Podder, Ishrat Khan

Design and Experimental Validation of a High-Frequency Multi-Stage Inductive WPT System for AC-AC Regeneration 1139
Md Shife Salman Polok, Ahasan Habib Zinan, Imran Mahmud Roky, Mahafus Rahman Syeda Rukaiya Hossain, Rehan Parvez, Md Nihal Ahmmed

Design and Performance Analysis of a Compact Four-Element MIMO Antenna for Wi-Fi 6E, WLAN, and IoT Applications 1145
Md. Zakirul Islam, Md. Najmul Hossain, Tetsuya Shimamura

Attention-Guided Transfer Learning for Facial Emotion Recognition 1150
Lasker Ershad Ali, Md. Mehedi Hasan Tonmoy, Rakib Hossain, G. M. Mamun-Al-Imran, Md. Zahidul Islam

Explainable AI-Based Lightweight CNN for Joint Age–Gender Prediction from Iris Images under Strict Subject-Disjoint Evaluation 1156
Ezazul Hoque Hemal, Jannat Jarin, Md. Abu Johab, Nitun Kumar Podder

Design of Wide Tuning Range and Low Power Multiband CMOS Ring VCO for Wireless Personal Communication Systems 1162
Md. Mozahidul Islam, Md. Tawfiq Amin, Fariha Zaman

Design and Analysis of Hybrid Transmission Gate–MTCMOS 4:1 Multiplexer for Low-Power Nanoscale Circuits 1168
Mahfuzur Rahman Kabbo, Osama Ahmed Ibrahim, Md. Mozahidul Islam, Saquib Farhan, Sunjida Sultana Md. Tawfiq Amin

CSEQIntent: A Benchmark Dataset for Intent Detection in Undergraduate CSE Student Questions 1173
Md. Siam Uddin Molla Antor, Nitun Kumar Podder, Durjoy Ojha, Mohammad Ali Sakib, Md Rifat Hossain Ezazul Hoque Hemal, Toufique Al Imran

Configuration-Dependent Empirical Modeling of Power MOSFETs Threshold Voltage Degradation Under Lightning Stress 1179
Md Mahfuzur Rashid, M.G. Mostafa, Akm Ahsan

A Soliton-Driven Refractive Index Sensing Using Hollow-Core Photonic Crystal Fiber 1185
Kazi Rakiba Washim, Taimur Rahman Dip, Md. Jahirul Islam

An Efficient Approach to Detect Credit Card Frauds Using Boosting and Deep Learning Techniques: A Multi-Dataset Comparative Study 1191
Divyashree Dutta Nijhum, Md. Nazrul Islam Mondal

Quantum-Inspired Adaptive Filtering for EOG Artifact Suppression in EEG: Improved SNR, RMSE Reduction, Signal Preservation over Bandpass and Wavelet Baselines 1197
Tur Mohammad Mubtasim, Md. Siam Uddin Molla Antor, Sheikh Shifat

An Ensemble Transfer Learning Framework for Multi-class Retinal Fundus Disease Classification 1203
Md. Mahfujur Rahman, Julia Rahman

ViT and Bi-LSTM Framework for Nepali Image Captioning with Explainable AI Analysis 1209
Saugat Kafle, Mohan Bhandari

Optimized Photonic Band Gap-Based High-Efficiency Antenna for ISM Band Applications 1215
Sumaita Tasrin, Rayhanur Rahaman, Tofayel Karim, Mohammad Tariqul Islam, Mohammad Shuhrawardy Mohammad Abdul Alim

A Miniaturized Nested U-Shaped Complementary Split Ring Resonators-based ENG Metamaterial for 5G and Satellite Communication Applications 1221
Md. Naimur Mizan Khan, Md. Rashedul Islam, Mohammad Tariqul Islam, Norbahiah Misran Md. Moniruzzaman, Md. Sakib Hasan

Quantum-Classical Neural Networks: A Hybrid Approach to MNIST Classification 1227
Tur Mohammad Mubtasim, Md. Siam Uddin Molla Antor, Sheikh Shifat

Intelligent Power Management System with Remote Access and Energy-Efficient Control 1233
Sihab Mahmud, Md. Radowan Hossain, S. M. A. Jayed Bin Jabbar Sajib, Md. Shamim Uddin

Pioneering BdSL Interpretation: Designing an Advanced Sensor-Based Data Glove for Real-Time Bangla Language Interpretation 1239
Md. Rifat Hoshen, Md. Azizul Hakim Bappy, Md. Mujtuba Rafid, Md. Robaidul Islam Md. Mahabub Hossain

Machine Learning Enabled Framework on Li-Fi Networks for Ambient Light Resilient and Multi-User Optimized Optical Wireless Communication 1244
Subrota Sarker Rabin, Enamul Hasan Shagato, Mahmuda Islam, Md. Abu Raihan, Zafrin Choudhury

Performance Analysis of an Organic Solar Cell using P3HT:CPTH-D16:PCBM Blend Film as an Additive Absorber Layer 1250
Md Irfan Hussain Sikder, Nazmun Nahar Zarin, Emu Khatun, Md. Shamim Ahsan, Md. Mahbub Hossain Md. Maniruzzaman

Explainable Deep CNN Ensemble for Multi-Class Kidney Lesion Classification in CT Imaging 1256
Sabib Ahmed, Jannatul Ferdus Aspia, Jhumki Barmon, Md. Lysuzzaman

Deep Learning Framework for Brain Tumor Analysis: EfficientNet-B4 enhanced UNet++ for Tumor Region Segmentation 1262
Md Mahfuzur Rahman, Nowshin Fariha, Rukaiya Jahan Sajuti, Mirza Asif Mahmud, Kazi Tanvir Dipta Gomes, Mahfujur Rahman

Machine Learning Approaches for Evaluating Concrete Durability Under Tropical and Coastal Exposure in Bangladesh 1268
Proma Mondol, Samir Mazumder, Komol Bhowmik, Rifat Mehjabin Aury, Nikhil Ronjon Roy, Hillol Sarkar Md. Kawsar Akon

Design and Implementation of a Low-Cost Automated Smart Poultry Farm System 1274
Md Masud Rana, Md.Hasibul Hasan, Tania Akter Mim, Talha Zubair Riyad, Mahir Asef Chowdhury Tasnia Khan

Crime Report Analysis and Future Crime Forecasting Using Machine Learning: A Bangladesh Perspective 1280
Shahi Pervez Pulok, Sadiduzzaman Sium, Md Masud Rana, Md. Abu Hanif, Fakrul Islam

Daily Peak Demand Forecasting in Bangladesh: A Leakage-Aware Comparison of Machine Learning, Deep Learning, and a Hybrid RF–Naive Model 1286
Dipta Prattoy Karmakar, Ayon Kumar Bhowmick Ovi, Tasnim Bari Jenny, Mohammad Mahmudul Hasan

Motor Imagery Classification on the WBCIC-MI Dataset: A Comparative Study 1292
Nazifa Sultana Raisa, Mohammad Ashfak Habib

Emotion Detection from Text Messages and Feedback Using Transformer-based Deep Learning Models 1298
Fatema Binte Hafiz Torongo, Nusrat Jahan Shruti, Redoanul Haque, Alamin, Md. Anwar Hossain

Intelligent Waste Classification for Sustainable Urban Development: A MobileNetV3-Based Deep Learning Approach Using the BDWaste Dataset 1304
Al-Amin Hossain Nahid, Ferdus Hossain, Tariful Islam Fahim, Salman Zzoha

A Multi-Organ Single-Cell RNA Sequencing Study of Functional Specialization in Human Cardiac Macrophages 1310
Farjana Yasmin, Nitun Kumar Podder, Israt Jahan, Jakia Khandakar Mitu

Dissecting Innate and Adaptive Immune Imbalance in COVID-19 peripheral blood mononuclear cells using Single-Cell RNA Sequencing 1316
Israt Jahan, Nitun Kumar Podder, Farjana Yasmin, Jakia Khandakar Mitu

Coordinated Phase Rebalancing of Rooftop PV Systems for Voltage Imbalance Mitigation in LV Networks Without Curtailment 1322
Md. Mehedi Hasan, Ahsan Habib Shakil, N. K. Roy, Md Rabiul Islam

A Transformer-Based Hybrid Framework for Early Detection of Depression and Suicidal Risk from Social Media Data 1328
Md. Abdur Rahman, Md. Ferdaus Hossen, Hazrat Ali, Md. Solaiman Mia, Md. Shoab Alam

Design of a Wearable Conjugated PIFA Antenna for Military Applications 1334
Sharif

RipenessNet: A Lightweight Deep Learning Model Based on YOLOv11 for Automatic Banana Ripeness Detection 1340
Natiq-Ul-Haque Rohit, Afia Sarkar, Md. Abu Raihan, Aziza Haque, Fahima Tabassum, Md. Abdur Rahim

MQI-Sort:A Multi-Strategy Adaptive Hybrid Sorting Framework for Robust and Scalable Data Ordering 1346
Swapnomoy Biswas, Nitun Kumar Podder, Arpa Kar Puza, Abu Mohammad Noor, Sagor Kumar Pandit Md. Ashikuzz Zaman

Performance Evaluation of Steel Slag Aggregate with Kenaf Fiber for High Performance Rigid Pavement 1352
Md. Rashedul Haque, Opu Ahammad, Alamgir Hossen, Khaled Hasan, Md. Sabit As Sami

Wideband Characteristics of a Compact T-Shaped Printed Microstrip Monopole Antenna for Sub-6 GHz Communication Systems 1358
Debprio Saha, Argha Dhali, Sadman Shahriar Alam, Abu Shufian, Md. Shaoran Sayem Protik Parvez Sheikh

BanglaVoiceGuard: A Deep Spectral Feature Learning Architecture for Robust Bangla Deepfake Speech Detection 1364
Sudipto Pramanik, Shaon Mondal, Sudha Bhattacharjee, Tama Fouzder, Brishty Roy

Cross-Dataset EEG-EMG Fusion for Handwritten Signature Verification 1370
Md. Taisirul Muktadi, Md. Ashraful Alam Tamim, Tanvir Hossain Kanok, Nizam Uddin Babu Md. Nur Alam, Md. Fazlul Karim Khondakar

Design and Implementation of a Solar Energy-Powered Smart Street Lighting Control System for Sustainable Urban Development in Bangladesh 1376
Abu Taher, Sharmin Akter Liza, Niloy Saha, Sharmin Siddika, Samira Akter

A Lightweight Multi-Stage Framework for Real-Time Automated Exam Proctoring Using Posture and Yaw Verification 1382
Brishty Roy, Shaon Mondal, Tama Fouzder, Sudipto Paramanik, Abir Hosan Niloy, Rayhan Iqbal Roni

A Dual-Stream Multimodal Framework for Tomato Disease Detection in Unstructured Field Environments 1388
Shuvodwip Saha, Ahmed Wazih Talal, Pritha Saha, Diganta Das Droba, Shuhena Salam Aonty

ResNeXt50-Guided Hybrid CNN–Transformer Framework for Early Stroke Abnormality Detection: A Comparative Deep Learning Study 1394
Nishat Tasnim Susmi, Manob Chandra Chanda, Shubail Haque Turza, Afsana Ferdaush Md. Sarwar Hosain, Mohammad Shorif Uddin

Meander Line Loaded Circular Ring Resonator-Based Rotationally Symmetric Metamaterial Absorber for Multi-Band Applications 1400
Md. Sakib Hasan, Md. Rashedul Islam, Mohammad Tariqul Islam, Norbahiah Misran, Amran Hossain Md. Naimur Mizan Khan

Attention-Guided U-Net with DenseNet Encoder and Transformer Bottleneck for Multi-Label Chest X-Ray Segmentation 1406
Md. Ibne Shihab Shad, Sayeeda Khan, Md. Sarwar Hosain, Ohidujjaman, Md. Najmul Hossain Tetsuya Shimamura

A Comparative Study of CNN, Transformer, and Recurrent Models for Deepfake Detection on Degraded Images 1412
Sadia Afroz Oishi, Ariful Islam, Md. Akash Miya, Moumita Haque Mohona, Ohidujjaman Md Sarwar Hosain

A Li-Fi-Based Smart Traffic Management System for Real-Time Adaptive Signal Control 1418
Md. Najmul Hossain, Md. Taufiqur Rahman Abir, Md. Abdul Ahad, Md. Abdur Rahim, Md. Sarwar Hosain

An Advanced Modulation Technique to Improve the Performance and Reliability of Single-Phase Grid-Tied Inverter 1423
Md. Sabbir Bin Islam, Md. Kamal Hosain, Nazmul Islam Nahin, Farhan Labib Younus, Md. Borhan Uddin

A Multi-View Deep Learning Framework for Device-Free Human Gait Identification Using ESP32 WiFi CSI 1429
Nakib Aman, Md. Rabiul Islam, Durjoy Kumar Dutta, Al Arian Ahmad, Md. Abdul Wadud

Attention-Enhanced Multi-Scale DenseNet Framework for Multi-Class Rice Disease Classification 1435
Saiful Islam, Md. Nasim Akhtar, A.N.M. Rezaul Karim, Mohammad Mahadi Hassan, Aine Barua Abu Hanif Kazi Mohammad

Numerical Analysis of a Dual-Hollow-Core Fiber Fabry-Perot Pressure Sensor with FBG-Assisted Temperature Compensation 1441
Sinthia Islam, Md. Jahirul Islam

Simulation-Based Investigation of Lead-Free All-Perovskite Tandem Solar Cells 1447
Most. Marzia Khatun, Md Rasel Mia, Sweety Islam

Enhancing Security in Multicasting Using Reconfigurable Intelligent Surface and Maximal Ratio Combining Diversity Technique 1452
Muhtasib Farhan, Md. Zahurul Islam Sarkar, Shafi Abid, Ahshan Habib

Explainable Ensemble Machine Learning for Cardiovascular Disease Prediction Using Clinical and Biochemical Features 1458
Ekramul Hasib, Mohammed Jieaf, Rifah Tasnia Richi, Md.Mohaiminul Kabir, Zahid Hossain Md. Mortuza Ahmmed

DKGH-Summ: EasyOCR and BART-based Hybrid Text Summarization Pipeline for Noisy Image Documents 1464
Sinthia Afrin, Md. Abdul Masud, Maliha Afroj Orna

Generative Digital Twins for Adversarially Robust Beam Management in 6G mmWave Networks 1470
Mumtahina Mozumder, Mohammad Junaidul Hoque, Muhammad Anamur Rashid Istieaque Chowdhury Pretul, Ridwanul Shafi Chowdhury, Md. Sowkat Ali, Antu Chowdhury

Computational Study of $SrNbH_3$ and $BaTcH_3$ Perovskite Hydrides for Structural Stability and Hydrogen Storage Applications 1476
Simanto Saha, Md. Arif Almas Rahman, Md Tawabur Rahman

Candidate Biomarkers and Key Molecular Pathways in Anxiety Disorder and Parkinson's Disease Using Bioinformatics and Machine Learning 1482
Amina Khatun, Md. Faruk Hosen, Md. Suhag Ali, Tanvir Hasan, Md. Shakil Ahmed, Sazia Sharmin

DeepCNN–LSTM: A Hybrid Deep Learning Framework for Stress Detection Using Wearable Physiological Signals 1488
Gitisree Biswas, Yiwei Feng, Ahnaf Tahmid Jamee, Khadiza Islam Shuchona, Shaikh Mahmudul Islam Himadri Shekhar Mondal

Deep Learning-Based Automated Breast Cancer Detection from Histopathology Images: Benchmarking CNN and Transformer Architectures 1494
Sayeda Subha Ashrafi, Tushar Ahmed Shishir

An Anatomically Guided Framework for Early Lesion-Aware Screening and Severity Grading of Diabetic Retinopathy 1500
Faisal Iqbal Hiron, Jannatul Ferdous, Akif Mahdi, Mst. Jarin Tasnim Mim

Comparative Analysis of Normalization Techniques and Input Window Lengths for Short-Term Stock Trend Prediction Using Long Short-Term Memory Networks 1506
Md. Arif Anzum

Addressing Data Scarcity and Groundwater Level Declining Concerns in Bheramara, Kushtia Using EMD and CEEMDAN 1512
Usmi Akter, Md. Jobayer Parvez Ratul, Tajrian Mollick, Ahona Akter, Md. Ashraful Islam, Shahela Akter M. M. Naushad Ali

A Compact Wideband Eight-Port MIMO Antenna with Ultra-High Efficiency for 5G, Satellite, and IoT Communications 1518
Md. Najmul Hossain, Md. Zakirul Islam, Tetsuya Shimamura

Improving K-Means Clustering Initialization via Hybrid Adaptive Entropy-Based Crowding Distance (HAECD) 1523
Swarna Sen, Md. Abdul Masud, Chinmay Bepery, Sadia Zannat Reem

LLM-Based Annotation and Benchmarking for ABSA in Bengali-English Code-Mixed E-Commerce Reviews 1529
Israt Jahan Papri, Md. Forhad Hossain, Md Abdul Masud, Arjon Golder

A Cross-Modal Transformer with Explainable AI for Multimodal Breast Cancer Detection 1535
Rakib Ahammed Diptho, Pial Ghosh, Sarnali Basak

Character-Level Stylometry vs Transformer Embeddings: A Comparative Framework for Bengali Literary Authorship Attribution 1541
Eshita Akter, Turza Paul, Mithila Khatun, Nakib Aman

A Multi-Task CNN Framework for Simultaneous Gender Classification and Deepfake Voice Detection in Bangla Speech Under Channel- and Effect-Based Variations 1546
Nafisa Tasnim, Al Arian Ahmad, Nymur Rahaman Antor, Nakib Aman

Optimal Capacitor Placement and Sizing in Unbalanced Distribution Systems Using a Chaotic Iterative Local Search with Adaptive Descent Algorithm 1552
Md. Wajed Ali, Md. Mehedi Hasan, Md Abu Yousuf, Md. Imran Ahmad

Bilevel Optimization of EV Charging for Cost Minimization in a Benchmark Power System 1558
Adiba Mahmud, Saika Shuhada, Nur Mohammad

Direction-Aware Load-Balanced Potential-Game-Based Handover Scheme (DLPHS) for Mobility Management in Heterogeneous Wireless Networks 1564
Nayeema Islam, Mohammed Nasir Uddin

A Novel Bee Colony Footprint Edge Optimization Algorithm for Image Steganography 1570
A F M Zainul Abadin, Rossilawati Sulaiman, Mohammad Kamrul Hasan, Md. Sarwar Hosain, Sohag Sarker Ahmed Imtiaz

HazBin: IoT Based Smart Bin For Safe and Sustainable Waste Management 1576
Md. Shizan Sarkar, Silpan Barua, Md Khalid Hasan, Md. Nafiz Akondo

IoT Integrated Real-Time Approach for Water Quality Monitoring 1582
Anwar Islam Akash, Shajib Ahmed Turjo, Mostofa Shakil Rafi, Al Nimra Kabir

Advanced Detection of Credit Card Fraud Using Ensemble Methods on Skewed and Uniform Datasets 1587
Md. Munem Shahriar, Mst. Sirazum Munira Mim, Mobassir Ahmmed, Md. Muktar Hossain, Tanver Ahmed

TriFusionNet: A Hybrid CNN–Transformer Fusion Architecture for Solid Waste Classification 1593
Md. Abdus Salam, Md. Abu Raihan, Farhana Akter, F M Javed Mehedi Shamrat, Md. Abdur Rahim Md. Asraf Ali

Touchless IoT-Based Health Monitoring System for Elderly and Maternal Healthcare Applications with Real-Time Cloud Integration 1599
Md. Touhedun Nabi, Md. Naimul Hasan, Anika Tasnim Ritu, Jumana Jumana, Israt Zahan Netto

Evaluation of Segregation Behavior of Concrete Using Digital Image Processing 1605
Md. Abir Hasan, Md. Sabit As Sami, Jannatul Ferdous Mimu, Md. Swapon Talukdar

Optimized Design of a Double-Negative Metamaterial for Next-Generation Terahertz Communication Applications 1611
Md. Saad Babu, Md. Zakirul Islam, Most. Fatema Khatun, Md. Atiqur Rahman, Md. Kazi Rafiqul Islam

BioShield: Domain-Adaptive Backdoor Defence for Latent Diffusion Models in Clinical Medical Imaging 1617
Md Mynoddin, M Abdur Rabbi Tota, Nusrat Jahan

An Adaptive Neuro-Fuzzy Trust Evaluation Framework for Zero-Trust IoT Networks 1623
Shahadat Hosen Nishan, Md. Rajibul Palas, Asmaul Husna Supti, Sharifur Rahman, Tanpia Tasnim

A Single-Inductor Based Active Cell Balancing Circuit for Lithium-Ion Battery Packs in Electric Vehicles 1628
Shartho Chowdhury, AKM Ahasan Habib, Abdur Rashid, Parag Biswas, A. F. M. Zainul Abadin Liton Chandra Paul

ERD-ResNet: A Multi-Scale Deep Learning Framework for Wrist Fracture Classification from X-Ray Images 1634
Md Mokaddesh Ali, Sumya Akter, Masud Ibn Afjal, Mahmudul Hasan Moon

A Lightweight Autoregressive LSTM for Multi-Horizon Tropical Cyclone Track Forecasting in the North Indian Ocean Using IBTrACS Data 1640
Md. Mahbubur Rahman, Nisan Ray

Double Perovskite Layer Based Sustainable Solar Cell for Boosting Efficiency: A New Approach 1646
A B M Arafat Hossain, Abdul Khaleque, Uttam Paul, M Hasibul Galib

A YOLO-TrOCR Pipeline with Dictionary Refinement for Handwritten Medicine Name Extraction 1651
Anirban Roy, Dipto Saha, Sourav Debnath

Rice Nutrient Deficiency Detection Using Vision Transformer for Precision Agriculture 1657
Kamil Ahmad, Manob Chandra Chanda, Ariful Islam, Mst. Munni Khatun, Sheikh Rashel Al Ahmed Md. Sarwar Hosain

Humanoid Robot for Secure Access Control with Real-Time Face Detection and Voice Interaction 1663
Md Abu Ismail Siddique, Md. Makdum Masrafi, Md. Siyam Sade, Avijit Paul

A Deep Learning Framework for Skeleton-Based Gender Recognition from Drone Videos 1669
Mohammad Ali Sakib, Rafiu Mollick, Redwan Hussain, Zillur Rahaman, Abdullah Al Mahim, Nakib Aman

An Attention-based Bidirectional LSTM Model With Transformer Encoder for Emotion Detection from Textual Data 1675
Arafat Hossain, Mst. Tabassum Hafsa, Mohiuddin Ahmed

A Hybrid Machine Learning Analysis of Birth Order Interaction Effects on Malnutrition: SHAP-Based Insights from Bangladesh 1681
Md. Palash Bin Faruque, Saiful Islam, Most. Shabrina Afroz, Rezaul Islam, Tanjina Khan Md. Abdul Khalek, Md. Mostafizur Rahman, Md. Sarwar Hosain, Md. Kamruzzaman

Implementation of a QUIC Native Message Queue for Distributed Systems using Binary Protocol and LSM Tree Persistence 1687
M. Oly Mahmud, Meftahul Jannat Mila, Tarun Debnath

Prompt Firewalls for Securing Large Language Model Systems: Threats, Architectures, and Design Trade-offs 1692
Md. Shojib Hossain, Md Nasim Adnan, Mohammad Nowsin Amin Sheikh, Muhammad Towfiqur Rahman

BeanXNet: A Deep Hybrid CNN Approach for Bean Leaf Disease Classification with Explainable AI 1698
Shimanto Kumar, Neyamul Islam, Md. Abu Raihan, Krishna Kumar Karmoker, Anika Sarker Emo Subrota Sarker Rabin

Neuro-Symbolic Self-Evolving Software Architecture with Formal Verification for Trustworthy AI 1704
Tabassum Alam, Hussain Mohammad Ricon, Sazia Sharmin, Kamruddin Nur

TriGuard: LightGBM, XGBoost, and Random Forest Hybrid ensemble framework against intelligent malicious URL detection 1710
Tabassum Hafsa, Arafat Hossain, Sadia Zaman Mishu

A Dilated CNN-Based Framework for Banking Customer Behavior Prediction 1716
Arpita Chakraborty, Farjana Alam Tofa, Tanim Rahman

Detection of Paratuberculosis from Histopathological Images Using Deep Learning and Explainable AI 1722
Sagor Kumar Pandit, Al Arian Ahmad, Rotno Chandra Das, Swapnomoy Biswas, Nitun Kumar Podder Nakib Aman

IoT-Based Smart Gas Leakage Detection and Emergency Response System for Residential Safety 1728
Siam Hossain, Soyad Adnan Hossain Pranto, Md. Alomgir Hossain, Rubayeat Jamil Joy Takrim Uddin Ahmed Jengi, Abdullahi Saylici Hussein

Effective Feature Engineering with Stacking Ensemble for Heart Disease Prediction 1734
Jahedul Islam, Shah Muhammad Azmat Ullah

Investigating Frequency Security Challenge for Power Systems with Nuclear Plant 1740
Nur Mohammad

Integrated Network-Based and Machine Learning Framework for Prognostic Biomarker Discovery in Pancreatic Cancer 1746
Md. Mazharul Islam, Boshir Ahmed

Quantifying Local Temperature Sensitivity to Humidity Variations Using an Integrated Statistical Climate Modeling Framework 1752
Md Shohedozzaman Basunia, Md. Naimul Pathan, Md. Raihan Ali, Shaykh Yunus, Md. Rejuyanul Hasan Abdullah Al Rafi

Patent-Level Analysis of Structural Innovation Differences Between the US and China Using Grey Wolf Optimizer and Explainable AI 1758
Md. Abdullah, Sanjida Ahamed Anonna, Md. Ebrahim Hossain, Shahriar Siddique Ayon, Yunisha Basnet Abu Saleh Molla

Interpretable Short-Term Photovoltaic Power Forecasting Using Gradient Boosting with Cross-Year Temporal Generalization 1764
Nafis Sadiq, Ishtiak Ahmed Iftee, Rafi Ahmed, Md. Sabbir Siddique, Md. Nur-A-Alahi Risan

Cross-Lingual Font Recognition with Partial Unfreezing and Cosine Scheduling in Vision Transformers (ViT-B/16) 1770
Md. Roton Ahmed, Abdullah Al-Mamun, Md. Abdur Rahim, Abu Saleh Musa Miah

Focal-Attention Synergy: Cross-Attention Fusion of Vision Transformers and CNNs for Brain MRI-Based Neurological Disorder Detection 1776
Md. Shahid Ahammed Shakil, Md. Nazrul Islam Mondal

VGDNet : An Attention-Based Weighted Fusion Architecture for Automated Tomato Leaf Disease Detection with Explainable AI 1782
Shifat Islam, Faika Fairuj Preotee, Shuvashis Sarker, Mahbub Hasan, Mohammad Shohel Rana

A Two-Stage OTA-Based Analog Filter Chain for ECG Noise Suppression 1788
Md Ziaul Haque Bhuiyan, Fateha Samad

Token and Channel-Mixing for Time Series: An MLP-Mixer Approach to Bangladesh Power Demand Forecasting 1794
Sadman Shahriar Islam Thasin, Abdul Tauab Siam, Fariha Sultana Heya, Md Raihan Khan Ashraf Hossain Sanvi, Md. Fahad Mollik

Analyzing and Contrasting the Performance of Flat and Crescent-Shaped Solar Panels for Enhanced Photovoltaic Applications 1800
Shartho Chowdhury, Akm Ahasan Habib, A. F. M. Zainul Abadin, Liton Chandra Paul, Md. Omar Faruk Md. Imran Hossain

A Comparative Study of Multi-Criteria Decision-Making Methods for Selecting Sustainable Energy Projects in Rangamati, Bangladesh 1806
Ishtiaq Uddin, M. Aktaruzzaman Opu, Shahidul Islam, Tanjim Mahmud, Md Akash Rahman Abubokor Hanip, Mohammad Shahadat Hossain, Bekzod Madaminov, Barno Matchanova

3D MRI-Based Alzheimer's Disease Classification Using Multi-Modal 3D CNN with Leakage-Aware Subject-Level Evaluation 1812
Md Sifat, Sania Akter, Akif Islam, Md. Ekramul Hamid, Abu Saleh Musa Miah, Najmul Hassan Md Abdur Rahim, Jungpil Shin