Pijush Kanti Roy Partho

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Research Interests

Machine Learning and Deep Learning for Healthcare and Biological Systems; Explainable Artificial Intelligence (XAI); Clinical Decision Support Systems; Medical Image Analysis; Interpretable Predictive Modeling.

Education

Hajee Mohammad Danesh Science and Technology University, Bangladesh
B.Sc. (Engineering) in Electronics and Communication Engineering
CGPA: **3.71 / 4.00** (after 4 semesters) Expected Graduation: 2027

Honors and Academic Awards

Dean's Award for Academic Excellence, Level–2, Department of Electronics and Communication Engineering

Publications (Peer-Reviewed)

1. P. K. R. Partho, M. A. H. Rafi, and P. Bhowmik, "Plant Leaf Disease Detection Incorporating IoT and XAI-Enhanced Deep Learning," *Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT)*, Cox's Bazar, Bangladesh, 2024, pp. 2552–2557. DOI: 10.1109/ICCIT64611.2024.11021966.

2. P. K. Roy Partho, P. Bhowmik, and M. K. Nasir, "An Interpretable Ensemble Framework Towards Efficient Hypertension Risk Assessment," *Proceedings of the 2nd International Conference on Next-Generation Computing, IoT and Machine Learning (NCIM)*, Gazipur, Bangladesh, 2025, pp. 1–6. DOI: 10.1109/NCIM65934.2025.11159863.

Accepted Conference Papers (To Appear)

1. P. K. Roy Partho et al., "XAI-Enhanced Hybrid Models for Effective Chronic Kidney Disease Prediction," accepted at *11th IEEE International Conference on Sustainable Technology and Engineering (i-COSTE 2025)*, Washington, USA.

2. T. Emran et al., "XAI-Driven Robustness in Dermatology: Towards Effective Skin Disease Diagnosis in Bangladeshi Clinical Contexts," accepted at *28th International Conference on Computer and Information Technology (ICCIT 2025)*.

Book Chapters (In Press)

1. P. K. Roy Partho et al., "Ensemble Learning-Based Real-Time Dengue Prediction from Hematological Features with XAI," in *Lecture Notes in Networks and Systems*, Springer, accepted for BIM 2025.
2. P. K. Roy Partho et al., "Bridging Interpretability and Predictive Power: An Explainable AI Approach for Maternal Health Risk in Bangladesh," in *Lecture Notes in Networks and Systems*, Springer, accepted for BIM 2025.
3. A. H. Rafi, P. K. Roy Partho et al., "Discriminative-Encoder GAN and Lightweight CNN for Interpretable Plant Disease Detection," in *Data Mining: Foundational Concepts and Cutting-Edge Advancements*, IntechOpen, ISBN: 978-1-83634-269-4.

Journal Manuscripts Under Review

1. P. K. Roy Partho and P. Bhowmik, "HypeXAI: An Interpretable Decision Support System for Hypertension Risk Assessment Using Bangladeshi Clinical Records," under review at *PLOS ONE* (Q1).
2. P. K. Roy Partho et al., "LCC-Net: A Lightweight Attention-Based CNN for Multi-Organ Cancer Detection with Explainability," under review at *Computational Biology and Chemistry*, Elsevier (Q2).
3. P. K. Roy Partho et al., "ADV-SVM: An Adaptive Density–Variance Kernel Based Support Vector Machine for Heterogeneous Clinical Records," under review at *Expert Systems with Applications*, Elsevier (Q1).
4. M. A. H. Rafi et al., "Enhanced GRU-Based Rice Pest Classification with IoT-Enabled Decision Support," under review at *Smart Agricultural Technology*, Elsevier (Q1).

National Honors and Leadership Awards

President's Scout Award — Highest national scouting honor, conferred by the President of the People's Republic of Bangladesh.
Community Development Award (Scouts) — National-level award conferred by the Prime Minister of Bangladesh for leadership and community service.

Technical Skills

Programming: Python, C++, Java
Machine Learning: Classical ML, CNNs, Ensemble Learning, Explainable AI (SHAP, Grad-CAM)
Frameworks & Tools: PyTorch, TensorFlow, Scikit-learn, Docker, Git, Google Colab

Academic Service and Activities

National Champion, National Child and Youth Programming Contest (2018)
Trainer, Microsoft Learn Student Ambassadors Bangladesh (Git, GitHub, VS Code)