

Abdullah Nayem Wasi Emran

Computer Science PhD (Fall 2026) Applicant
Lecturer, Brac University (CSE)
BSc. Graduate of 2025,
Department of Computer Science and Engineering (CSE),
Bangladesh University of Engineering and Technology (BUET)

Phone: +880-1859369669
Email: abdullahnayem9274@gmail.com
Website: nayem9274.github.io
github.com/Nayem9274
linkedin.com/in/abdullahnayem

RESEARCH INTEREST

AI/ML for Health, Causal & Fair ML, Data Mining, Health/Medical Informatics

EDUCATION

- **Bangladesh University of Engineering and Technology (BUET)** Feb 2020 - Mar 2025
BSc. (Engg.) in Computer Science and Engineering Dhaka, Bangladesh
 - **CGPA:** 3.82/4.00 [Final year: 3.98/4.00]
 - **Honors:** Dean's list award and university merit scholarship recipient in four out of eight semesters
 - **Relevant Coursework:** Machine Learning, Computer Security, Introduction to Bioinformatics, Computer Networks, Data Structures and Algorithms, Database, Linear Algebra, Software Engineering

TEACHING EXPERIENCE

- **BRAC University** June 2025 - Present
Lecturer, Department of Computer Science and Engineering Dhaka, Bangladesh
 - **Teaching:** Discrete Mathematics, Compiler Design, Computer Networks

PUBLICATIONS

- **Abdullah Nayem Wasi Emran**, Tanveer Rahman, "SCOPEs: Stability-Aware Cross-Platform Feature Selection for Matched TCGA Gene Expression and RNA-Seq Data," AAAI 2026 Workshop on AI to Accelerate Science and Engineering (AI2ASE), 2026.
- **Abdullah Nayem Wasi Emran**, A. B. M. Alim Al Islam, "Mental Health Across Contexts: A Cross-Dataset Study Covering Medical Students, Quarantined Individuals, and Psychiatric-Disordered Subjects," *Humanities & Social Sciences Communications (Nature Portfolio)*, 2025. DOI: 10.1057/s41599-025-05053-x

MANUSCRIPTS UNDER REVIEW OR IN PREPARATION

- **Abdullah Nayem Wasi Emran**, Majisha Jahan Disha, Rezwana Reaz, "Fusing Exploration and Exploitation: Hybrid Fireworks-Whale Optimization for Multi-Objective Independent Task Scheduling in Cloud Environments," *under review at Cluster Computing (Springer)*, 2025. Preprint: 10.21203/rs.3.rs-6807131/v1

RESEARCH EXPERIENCE

- **Efficient RNA-Protein Interaction Prediction with Foundation-Model Embeddings** May 2025 – Present
Supervised by [Dr. Mohammad Saifur Rahman](#)
(Bioinformatics, Deep Learning)
 - Curating human RBP/non-RBP datasets (EuRBPDB, UniProt) and building a reproducible sequence-first pre-processing pipeline (SeqKit, MMseqs2); extensions to structural/network features planned.
 - Prototyping scalable models with pre-trained embeddings (ESM-2, ProtBERT) and lightweight classifiers for RBP identification, designed to run on modest compute.
- **Domain-Adaptive Causal Uplift Modeling across Heterogeneous Mental-Health Cohorts** Apr 2025 – Present
Supervised by [Dr. A. B. M. Alim Al Islam](#)
(Causal Inference, Machine Learning)

- Harmonizing heterogeneous cohort data (students, quarantined, clinical) into a comparable schema.
- Training a domain-adversarial uplift model with fairness-aware regularization and evaluating with leave-one-cohort-out AUUC.
- Studying cohort-specific calibration to handle inverted or unstable treatment effects.

• **Hybrid Fireworks–Whale Optimization for Multi-Objective Cloud Task Scheduling** Nov 2023 – Mar 2025

Supervised by [Dr. Rezwana Reaz](#)

(Cloud Computing, Optimization)

- Designing hybrid meta-heuristics that fuse exploration (FWA) with exploitation (WOA) for cloud task scheduling.
- Benchmarking methods and analyzing trade-offs in makespan, monetary cost, and CPU/RAM/bandwidth usage.

• **Mental Health Across Contexts: A Cross-Dataset Study** Jul 2024 – Jan 2025

Supervised by [Dr. A. B. M. Alim Al Islam](#)

(Data Mining, Network Analysis)

- Analyzing mental-health outcomes across medical students, quarantined individuals, and psychiatric-patient cohorts.
- Applying statistical modeling, network analysis, and causal methods to uncover robust cross-dataset trends.

• **Large-Language-Model-Enhanced IoT Threat Detection** Nov 2024 – Present

Supervised by [Dr. A. B. M. Alim Al Islam](#)

(IoT Security, Explainable ML)

- Exploratory analysis and baseline modeling on NF-ToN-IoT-v2 with attention to minority-class recall and class imbalance.
- Integrating lightweight LLM-based features to improve cross-dataset robustness and interpretability.

ACADEMIC PROJECTS

• **SCOPES: Cross-Platform Gene Signature Selection**

Bioinformatics Course Project [\[repo\]](#)

- Built a leak-free, multi-objective pipeline (AUC, Kuncheva stability, MMD) to select platform-invariant gene subsets on Agilent that transfer to RNA-Seq without retraining.
- On TCGA-BRCA (505 tumor / 25 normal), achieved $AUC_{\text{Agilent}}=0.69$, $AUC_{\text{RNA-Seq}}=0.61$ ($\Delta AUC=-0.08$) with a 1-gene model; contrasted with a 30-gene model (near-perfect source AUC, poor transfer).
- **Tools & Technology:** Python (scikit-learn, pymoo), NSGA-II, MAD filter, AUC/MMD/Kuncheva

• **Lightweight Deep Learning Models for Histopathological Cancer Cell Classification**

Machine Learning Course Project [\[repo\]](#)

- Designed and implemented lightweight models using EfficientNet-B0 to classify histopathological cancer cells.
- Integrated attention mechanisms like SEBlock, MSFF, and CBAM to enhance feature recalibration and spatial learning.
- Used transfer learning (PathMNIST) and augmentations, achieving 98% accuracy on CRC-VAL-HE-7K dataset.
- **Tools & Technology:** Python (PyTorch), SEBlock, CBAM, EfficientNet-B0, Matplotlib

• **Ray-Tracing Pipeline**

Computer Graphics Sessional [\[repo\]](#)

- Developed a raster-based graphics pipeline and implemented ray tracing using C++ and OpenGL.
- Applied Phong Lighting model (ambient, diffuse, specular, recursive reflection) to render realistic shapes.
- **Tools & Technology:** C++, OpenGL

• **RecipeShare**

Software Development Project [\[repo\]](#)

- Developed a recipe-sharing web application with features for upload, editing, blog posts, and meal planning.
- Implemented recipe generation from images of ingredients using backend processing.
- **Tools & Technology:** Next.js, Django, PostgreSQL

• **Building a Subset C Compiler**

Compiler Sessional [\[repo\]](#)

- Developed a compiler from scratch in C++ using Bison and Flex.

- Implemented symbol table, lexical analyzer, semantic analyzer, and three-address code generation.
- **Tools & Technology:** C++, Bison, Flex

- **BookExchange**

Database Course Project [\[repo\]](#)

- Built a platform for users to sell, borrow, rent, or exchange books with reviews and search functionality.
- **Tools & Technology:** Next.js, Django, PostgreSQL

- **Network Simulations & TCP Adaptive Reno**

Networking Sessional [\[repo\]](#)

- Implemented socket programming in Java for inter-system communication.
- Simulated network architectures with NS-3 and explored TCP Adaptive Reno congestion control.
- **Tools & Technology:** Java, NS-3

SKILLS

- **Programming Languages:** Python, C/C++, Java, JavaScript, Bash, MySQL, HTML/CSS
- **Tools & Frameworks:** NS-3, Next.js, Django, Oracle DBMS, Git, LaTeX, Autopsy
- **Libraries:** OpenGL, Scikit-learn, Pandas, Matplotlib, Seaborn
- **Software:** Navicat, Wireshark, MS Office, Adobe Photoshop

REFERENCES

- **Dr. Rezwana Reaz**

Associate Professor, Department of CSE, BUET [Thesis Supervisor]

Email: rimpi@cse.buet.ac.bd

- **Dr. A. B. M. Alim Al Islam**

Professor, Department of CSE, BUET [Research Supervisor]

Email: alim_razi@cse.buet.ac.bd