Kh Mujahidul Islam

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Education

Bachelor of Science (B.Sc.)	**Feb 2025**
Department of Computer Science and Engineering,	**CGPA: 3.27 / 4**
Faculty of Engineering and Technology, Islamic University, Bangladesh.	Total Credit hours: **160**

Research Experience

Research Assistant   **Jan 2023 – Present**

CABAIR (Center for Advanced Bioinformatics and AI Research), Islamic University, Bangladesh.   Website

Single cell RNA sequencing project:

1. Cell-specific biomarker identification in intellectual disability (Published in Scientific Reports):

– Conducted single-cell RNA sequencing (scRNA-seq) analysis using Seurat (PCA, UMAP for dimensionality reduction and clustering).

– Built protein–protein interaction (PPI) networks to explore gene interactions and performed ROC analysis for biomarker diagnostic evaluation.

2. NK cell-based Biomarker Identification of Prostate Cancer (Manuscript in preparation):

– Conducted bulk RNA-seq and single-cell RNA-seq analyses to identify NK cell-specific biomarkers for prostate cancer, including cell clustering, differential expression, hub gene identification, pathway enrichment, and survival analysis.

– Performed virtual screening and molecular docking of hub genes.

Weighted Gene Co-expression Network Analysis (WGCNA) Project:

Identification of potential biomarkers of Kidney Renal Clear Cell Carcinoma (KIRC) using WGCNA and development of machine learning-based staging models (Manuscript in preparation) :

– Applied WGCNA on TCGA datasets to identify co-expression modules and develop machine learning-based staging models.

– Used Lasso regression for feature selection and validated model performance with classification metrics.

– Identified potential biomarkers for Kidney Renal Clear Cell Carcinoma (KIRC), integrating bioinformatics and ML approaches for translational research.

Supervised by: **Dr. Md Habibur Rahman**   (email: habib@iu.ac.bd)

Professional Experience

Intern Engineer - AI Agent Development   **Jul 2025 – Present**

Next Solution Lab, Mirpur DOHS, Dhaka.

– Contributed to the development of prototype AI agents and conversational pipelines with LangChain, LangGraph, Llama, and Ollama, enabling automated data retrieval and improved user engagement.

– Implemented model training and fine-tuning workflows; prepared datasets and evaluation scripts to measure model behaviour.

– Packaged prototypes as lightweight services (Flask/Streamlit) for internal demonstration and stakeholder review.

– Documented integration points and created demo notebooks to accelerate handover to engineering teams

Notable Publications

KM Islam, MH Rahman, MA Hossain, M Khan, MM Rahman, PS Apu, MI Hasan, SA Ansari, & M Humayoo.   **May 2025**
Identification of cell-specific biomarkers for intellectual disability via single-cell RNA sequencing and transcriptomic bioinformatics approaches.   Scientific Reports. DOI:10.1038/s41598-025-85162-4 **(IF:3.9)**

MM Rahman, MH Rahman, MA Hossain, **KM Islam**, PS Apu, M Khan, MG Kibria, SA Ansari, & M Humayoo.   **May 2025**
Uncovering dendritic cell-specific biomarkers for diagnosis and prognosis of cardiomyopathy using single-cell RNA sequencing and comprehensive bioinformatics analysis. Scientific Reports.
DOI:10.1038/s41598-024-78011-3 **(IF:3.9)**

MI Hasan, **KM Islam**, MN Hasan, MM Rahman, MH Rahman, S Moon, MN Park, HN Kang, & B Kim   .   **Mar 2025**
Exploring the therapeutic potential of Evodia rutaecarpa in early-onset pancreatic cancer: A network pharmacology and molecular docking approach . Current Pharmaceutical Design.
DOI: 10.2174/0113816128356225250305081937 **(IF 2.8)**

M Khan, MA Hossain, **KM Islam**, MM Rahman, PS Apu, IA Ansari, SA Ansari, & MH Rahman.   **Feb 2025**
Integrative analysis of single-cell and bulk RNA sequencing data reveals T-cell specific biomarkers for diagnosis and assessment of celiac disease: A comprehensive bioinformatics approach. Current Bioinformatics.
DOI:10.2174/0115748936353313250123071744 **(IF 2.9)**

Technical Skills

Programming and scripting	Python , R , C++, JavaScript.
ML / DL skills	Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, TensorFlow, Keras, PyTorch.
Dry Lab Skills	Microarray data analysis, scRNA sequencing data analysis, Weighted Gene Co-expression Network Analysis (WGCNA),Virtual Screening, Molecular Docking.
Tools and Software	Discovery Studio, PyMol, PyRx, AutoDock Vina, Cytoscape, DAVID, Network Analyst, BiocManager, Biopython, Mendeley, EndNote, LaTex
Databases	PostgreSQL, NCBI, Ensembl, UniProt, PDB, GEO, TCGA.

STANDARDIZED LANGUAGE TEST

International English Language Testing System (IELTS) Academic   TRF number: 25BD505875ISLK001A

Module	Listening	Reading	Speaking	Writing	Overall
Band Score	8.0	7.0	6.5	6.0	7.0

Additional Informations

Organizations :

Executive Member, IEEE Computer Society,IU SB, Islamic University, Bangladesh	*2022-2023*
Additional treasurer, Islamic University IT Society (IUITS), Islamic University, Bangladesh	*2021-2022*
Additional Secretary, Tangail Zilla Student Welfare Association, Islamic University,Bangladesh	*2023-2024*
Executive Member, Cancer Awareness Program (CAP), Islamic University,Bangladesh	**2019-2020**
Founding Member, Help For Distressed People, MSSHSS, Tangail, Bangladesh.	*2016-present*

References

1. **Dr. Md Habibur Rahman**

   Associate Professor,

   Department of Computer Science and Engineering,

   Islamic University, Bangladesh.

   Email: habib@iu.ac.bd

2. **Md. Ibrahim Abdullah**

   Professor,

   Department of Computer Science and Engineering,

   Islamic University, Bangladesh.

   Email: ibrahim@cse.iu.ac.bd

3. **Dr. Md. Robiul Hoque**

   Professor,

   Department of Computer Science and Engineering,

   Islamic University, Bangladesh.

   Email: robiul@cse.iu.ac.bd