

Md. Jubayer Hossain

Bioinformatics & Computational Biology · Prospective Ph.D. Student

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EDUCATION

Master of Science in Microbiology Jagannath University	2019 – 2020 Dhaka, Bangladesh
Bachelor of Science in Microbiology Jagannath University	2016 – 2019 Dhaka, Bangladesh

CERTIFICATIONS & HACKATHONS

scverse × Cell Painting Hackathon scverse Consortium	2026 Berlin, Germany
Interdisciplinary Computational Biology BRAC University	2026 Dhaka, Bangladesh
AI for Public Health Child Health Research Foundation (CHRF)	2023 Dhaka, Bangladesh
AI in Public Health DeepLearning.AI	2022 Online Specialization

TECHNICAL SKILLS

- **Programming Languages:** Python, R, Julia, SQL, Bash, JavaScript
- **Bioinformatics:** Bulk RNA-Seq (Salmon, DESeq2), Single-Cell (Seurat, Scanpy, CellChat, NicheNet, scvi-tools, rapid-singlecell), Spatial Transcriptomics (Squidpy), Multi-omics (Muon)
- **Workflow Management & Reproducibility:** Nextflow (DSL2), nf-core, Docker, Singularity, Git, GitHub
- **ML/DL in Biology:** GNN, Scikit-learn, PyTorch, RDkit, DeepChem
- **HPC & Cluster Computing:** SLURM (sbatch, sarray), Nextflow DSL2 with SLURM executor for scalable reusable pipelines
- **Cloud:** AWS S3, Google Cloud Storage for large genomic datasets

RESEARCH STATEMENT

Deciphering how spatial architecture within the tumor microenvironment drives therapeutic resistance by integrating single-cell multi-omics, spatial transcriptomics, and graph neural networks (GNNs).

TEACHING INTERESTS

- **Bioinformatics:** scalable, reproducible computational pipelines for single-cell, spatial, and bulk transcriptomics to elucidate complex disease biology.
- **Life Sciences AI:** Applying deep learning and foundation models to single-cell genomics data for high-accuracy predictive modeling.
- **Agentic AI in Biology:** Autonomous AI agents for hypothesis generation, multi-step workflow orchestration, and automated bioinformatics analysis.

RESEARCH EXPERIENCE

Founder & Executive Director CHIRAL Bangladesh (Institute for Volunteering Research)	Jun 2020 – Present Dhaka, Bangladesh
• Founded an independent voluntary research institute and established national and international research partnerships. • Instructed 3,000+ students in research methodology and bioinformatics through virtual training programs. • Managed 50+ volunteer undergraduate research assistants on active computational biology and public health projects. • Led collaborative teams to produce 20+ peer-reviewed publications with undergraduate co-authors.	

Visiting Scholar

Dept. of Public Health, Daffodil International University

Sep 2025 – Present

Dhaka, Bangladesh

- Developed strategic collaborative initiatives to expand public health research output.
- Planned and executed epidemiological workflows to investigate emerging community health challenges.
- Wrote 5 peer-reviewed collaborative articles published in Q1/Q2 international journals.

Research Collaborator

Kyung Hee University

Collaborator: Yeon Ju Kim, Ph.D.

Jul 2026 – Present

Seoul, South Korea

Project 1: Single-Cell Transcriptomic Identification of Alzheimer's Disease Associated Molecular Targets and CNS-Peripheral Immune Signatures for Experimental Validation and Therapeutic Intervention

Project 2: Single-Cell Multi-Organ Profiling to In Vivo Validation: Identification of Hyperglycemia-Associated Gene Signatures and Their Modulation by GV1 in ObT2D Mice

- Developed single-cell workflows to uncover cell-type-specific targets prioritized for wet-lab validation.
- Integrated bulk RNA-seq and machine learning models to characterize perturbed pathways and disease signatures.
- Taught single-cell bioinformatic workflows using Python and R to lab members of Professor Kim.

Research Collaborator

Lamar University

Collaborator: Iqbal Mahmud, Ph.D.

Jul 2026 – Present

Beaumont, TX, USA

Project 1: EWSAtlas: A Harmonized Single-Cell Transcriptomic Atlas of Ewing Sarcoma

Project 2: Unified Single-Cell Atlas of Diffuse Midline Glioma (DMG)

- Developed single-cell pipelines to harmonize multi-cohort transcriptomic atlases for Ewing sarcoma (EWSAtlas) and diffuse midline glioma (DMG).
- Characterized neurodevelopmental lineage stalling programs, malignant cell plasticity, and microenvironmental niches.
- Translated computational findings into oncogenic mechanisms and prioritized therapeutic targets.

Research Collaborator

One Health Lab, Jahangirnagar University

Collaborator: Md. Salekul Islam, Ph.D.

Jul 2026 – Present

Dhaka, Bangladesh

Project 1: Genomic Profiling of Extended-Spectrum Antimicrobial Resistance Genes (ARGs) and Mobilizable Resistance Determinants in Industrial Effluents

Project 2: One Health Assessment of Antimicrobial Usage, Microbial Dynamics, and Resistance Transmission Pathways Across Poultry Farm Environments and Farm Workers in Bangladesh

- Profiled whole-genome sequencing (WGS) and metagenomic assemblies to identify resistance genes in wastewater.
- Developed reproducible workflows for resistome profiling, quantifying horizontal gene transfer risks in effluents.
- Instructed lab members of Professor Islam in reproducible bioinformatics workflows and genomic data analysis.

Research Intern

International Center for Diarrhoeal Disease Research, Bangladesh

Advisor: Dr. Kamrun Nahar Koly

Feb 2022 – Jun 2022

Dhaka, Bangladesh

Project: Systematic Review and Evidence Synthesis in Intimate Partner Violence

- Formulated systematic review protocols following PRISMA guidelines to evaluate violence prevention interventions.
- Screened and cataloged over 8,000 publications across PubMed, Scopus, and Web of Science using structured criteria.
- Extracted quantitative and qualitative epidemiological indicators into standardized databases for synthesis.
- Assessed methodological quality and risk of bias across observational studies to ensure evidence synthesis rigor

Data Enumerator

School of Allied Health, Curtin University

Collaborator: Bau DA Madjid

Oct 2022 – Nov 2022

Australia

Project: Delphi Study on Patient Outcomes Measurement for Interprofessional Tuberculosis Care in Bangladesh

- Coordinated national-level execution of an international Delphi study evaluating interprofessional tuberculosis care in Bangladesh.
- Facilitated consensus gathering across iterative survey rounds, securing responses from 25 clinical specialists.

PROFESSIONAL EXPERIENCE

Founder & CEO

DeepBio Limited

Jan 2025 – Present

Dhaka, Bangladesh

- Founded and led DeepBio, applying foundational AI models to regional biological and healthcare challenges.
- Designed Project PROTIRODH to predict and rescue doomed beta-lactams against hospital-acquired infections.
- Established collaborations with Bangladeshi universities for experimental wet-lab validation.
- Launched "DeepBio Academy", upskilling 1,000+ undergraduates in bioinformatics and AI in life sciences.
- Launched "Agami AI", leading national AI literacy programs for 1,000+ school and college students.

PUBLICATIONS

Underline indicates mentee; *corresponding

Journal Articles

1. Islam, M. W., Rahman, M. M., Naznin, H., Hossain, M. S., Akter, T., Shatabde, Z. A., & ***Hossain, M. J.** (2026) "Integrative Bioinformatics Analysis Reveals COL13A1 and COL23A1 as Potential Diagnostic and Prognostic Biomarkers in Thyroid Cancer" *Health Science Reports*. DOI: [10.1002/hsr2.72617](https://doi.org/10.1002/hsr2.72617)
2. ***Hossain, M. J.**, Shahariar, M., Barsha, L.H.J. Shahjahan, M., Towhid, S.T., Sheikh, M.K., Hasan, M.M., Rahman, M.H., Sazid, M.S. (2026) "Lack of knowledge and training about antibiotic resistance among community pharmacists in Bangladesh: a cross-sectional study" *Health Science Reports*. DOI: [10.1002/hsr2.72866](https://doi.org/10.1002/hsr2.72866)
3. ***Hossain, M. J.**, Afrin Mim, N., Akter, N., Akter Sony, S., Haque Saikat, E., Al-Amin Hossain, M., Parvin, N., Evan, M. R., Jannat Juma, J., Parmita Roy, P., Islam Maruf, M. F., Islam, R., Labib, A., Akter Shatabde, Z., Das, M., & Amanulla, M. (2026) "Epidemiological Trends, Public Health Challenges, and Strategic Control Priorities of Dengue in Bangladesh (2000–2024): A Narrative Review" *Health Science Reports*. DOI: [10.1002/hsr2.72747](https://doi.org/10.1002/hsr2.72747)
4. Fariha, F. T. J., Fuad, M., Saha, C. S., Hossen, S., & ***Hossain, M. J.** (2025) "Comprehensive bioinformatics analysis reveals prognostic significance and immunological roles of WNT gene family in breast cancer" *Scientific Reports*. 15, 34490. DOI: [10.1038/s41598-025-13315-6](https://doi.org/10.1038/s41598-025-13315-6)
5. Ahmed, M. Z., Billah, M. M., Ferdous, J., & ***Hossain, M. J.** (2025) "Pan-cancer analysis reveals immunological and prognostic significance of CCT5 in human tumors" *Scientific Reports*. 15, 14405. DOI: [10.1038/s41598-025-88339-z](https://doi.org/10.1038/s41598-025-88339-z)
6. Bari, S. M., Fuad, M., **Hossain, M. J.**, Ahammad, I., Begum, M., & Helal, M. M. U. (2025) "A meta-analysis of public RNA-Seq data identifies conserved stress responses in rainbow trout" *BMC Genomics*. 26, 999. DOI: [10.1186/s12864-025-12127-2](https://doi.org/10.1186/s12864-025-12127-2)
7. ***Hossain, M. J.**, Das, M., Shahjahan, M., Islam, M. W., & Towhid, S. T. (2025) "Clinical and hematological manifestation of dengue patients in 2022 outbreak" *Health Science Reports*. 8, e70356. DOI: [10.1002/hsr2.70356](https://doi.org/10.1002/hsr2.70356)
8. Das, M., & **Hossain, M. J.** (2025) "Young stroke in Bangladesh: Addressing rare cases with diagnostic challenges" *Stroke and Vascular Neurology*. svn-2025-004178. DOI: [10.1136/svn-2025-004178](https://doi.org/10.1136/svn-2025-004178)
9. ***Hossain, M. J.**, Sony, S. A., Fariha, F. T. J., & Hossen, S. (2025) "Preventing the silent threat: A perspective on preparing Bangladesh for Human Metapneumovirus" *Health Science Reports*. 8, e71101. DOI: [10.1002/hsr2.71101](https://doi.org/10.1002/hsr2.71101)
10. Shanta, A. S., Islam, N., Al Asad, M., Akter, K., Habib, M. B., **Hossain, M. J.**, Nahar, S., Godman, B., & Islam, S. (2024) "Resistance and co-resistance of metallo-beta-lactamase genes in diarrheal and urinary-tract pathogens" *Microorganisms*. 12(8), 1589. DOI: [10.3390/microorganisms12081589](https://doi.org/10.3390/microorganisms12081589)
11. ***Hossain, M. J.**, Das, M., & Munni, U. R. (2024) "Urgent call for compulsory premarital screening for thalassemia prevention in Bangladesh" *Orphanet Journal of Rare Diseases*. 19, 326. DOI: [10.1186/s13023-024-03344-1](https://doi.org/10.1186/s13023-024-03344-1)
12. Islam, M. W., Shahjahan, M., Azad, A. K., & ***Hossain, M. J.** (2024) "Factors contributing to antibiotic misuse among parents in Dhaka City" *Scientific Reports*. 14, 2318. DOI: [10.1038/s41598-024-52313-y](https://doi.org/10.1038/s41598-024-52313-y)
13. ***Hossain, M. J.**, Das, M., Islam, M. W., Shahjahan, M., & Ferdous, J. (2024) "Community engagement and social participation in dengue prevention" *Health Science Reports*. 7, e2022. DOI: [10.1002/hsr2.2022](https://doi.org/10.1002/hsr2.2022)
14. ***Hossain, M. J.**, Azad, A. K., Shahid, M. S. B., Shahjahan, M., & Ferdous, J. (2024) "Prevalence, antibiotic resistance pattern for bacteriuria from patients with UTIs" *Health Science Reports*. 7, e2039. DOI: [10.1002/hsr2.2039](https://doi.org/10.1002/hsr2.2039)
15. Akter, M. M., & ***Hossain, M. J.** (2024) "Food consumption patterns and sedentary behaviors among university students" *Health Science Reports*. 7, e70259. DOI: [10.1002/hsr2.70259](https://doi.org/10.1002/hsr2.70259)
16. ***Hossain, M. J.**, Islam, M. W., Munni, U. R., Gulshan, R., Mukta, S. A., Miah, M. S., Sultana, S., Karmakar, M., Ferdous, J., & Islam, M. A. (2023) "Health-related quality of life among thalassemia patients in Bangladesh (SF-36)" *Scientific Reports*. 13(1). DOI: [10.1038/s41598-023-34205-9](https://doi.org/10.1038/s41598-023-34205-9)
17. Towhid, S.T., **Hossain, M. J.**, Sammo, M.A.S., & Akter, S. (2022) "Perception of Students on Antibiotic Resistance and Prevention" *Eur. J. Bio. Biotech*. 3(3). DOI: [10.24018/ejbio.2022.3.3.341](https://doi.org/10.24018/ejbio.2022.3.3.341)
18. **Hossain, M. J.**, Towhid, S.T., Sultana, S., Mukta, S.A., Gulshan, R., Miah, M.S. (2022) "Knowledge and Attitudes

towards Thalassemia among Public University Students” *Microbial Bioactives*. 5(2). DOI: [10.25163/microb-bioacts.526325](https://doi.org/10.25163/microb-bioacts.526325)

Papers Under Review

1. Kundu, P., Shahariar, M., Munny, F. A., Riya, A. T., Lota, H. B., Ahmed, M. Z., Meme, M. A., Kona, U. M. P., Mahmuda, F., Chowdhury, S. S., Sraboni, S. A., & ***Hossain, M. J.** (2026) “Computational identification of *Taxus baccata*-derived phytochemicals targeting EZH2 to overcome therapeutic resistance in melanoma” *Scientific Reports*. DOI: [10.21203/rs.3.rs-8494315/v1](https://doi.org/10.21203/rs.3.rs-8494315/v1)
2. Islam, M. W., Fariha, F. T. J., Ahmed, M. Z., Ferdous, J., Lota, H. B., Hossain, M. S., Kundu, P., Shahjahan, M., & ***Hossain, M. J.** (2025) “Bioinformatics-driven multi-omics profiling of CDK1 and CDK6 identifies prognostic and therapeutic roles in breast cancer” *Health Science Reports*.
3. Billah, M. M., Mabsurah, K., Ahammad, K., Yeana, I. J., Sumaiya, M., Islam, T., Bhattacharjee, A., Ferdous, J., & ***Hossain, M. J.** (2025) “Multi-omics pan-cancer analysis reveals an immunological role and prognostic potential of WDR76” *BMC Genomics*.
4. Sony, S. A., Kundu, L. R., Limon, M. H., Chowdhury, T. B. K., & & ***Hossain, M. J.** (2025) “Predicting early antenatal care initiation at the first trimester among reproductive women in Bangladesh using machine learning” *BMC Pregnancy and Childbirth*.

Preprints

1. **Hossain, M. J.** (2026) “metaXpress: An End-to-End Bioconductor Framework for Quality Control, Harmonization, and Multi-Cohort Bulk RNA-seq Meta-Analysis” *bioRxiv*. GitHub: github.com/hossainlab/metaXpress
2. **Hossain, M. J.** (2026) “Graph Neural Network for predicting immunosuppressive spatial niches in glioblastoma from 10x Visium spatial transcriptomics” *bioRxiv*. GitHub: github.com/hossainlab/deepgraph-gbm
3. **Hossain, M. J.** (2026) “Translating Perturb-seq Screens Across Cell Lines” *bioRxiv*. GitHub: github.com/hossainlab/perturb-bench
4. **Hossain, M. J.**, & Dev, P.C. (2026) “Evaluating the false-positive rate of single-cell copy-number and malignant-cell classifiers” *bioRxiv*. GitHub: github.com/hossainlab/scCNV-FP-Evaluation
5. **Hossain, M. J.**, Abhi, N. I., Islam, M. M., Das, S., Tasneem, E., & Tasnim, M. (2026) “Dosage-dependent disruption of corticofugal neuron development by *Fezf2* loss” *bioRxiv*. GitHub: github.com/hossainlab/fezf2-loss-multi-omics
6. **Hossain, M. J.**, Dev, P. C., Nawar, T., Arony, T. A., Hoque, M., Chowdhury, D., & Rahman, M. A. (2026) “A donor-level map of immune sex differences” *bioRxiv*. GitHub: github.com/hossainlab/pmc_immune_landscape
7. **Hossain, M. J.**, Iqbal, M. (2026) “EWSAtlas: A Harmonized Single-Cell Transcriptomic Atlas of Ewing Sarcoma” *Working paper*.
8. **Hossain, M. J.**, Iqbal, M. (2026) “Unified Single-Cell Atlas of Diffuse Midline Glioma (DMG)” *Working paper*.

PRESENTATIONS

Underline indicates mentee; *corresponding

Invited Speaker

1. **Hossain, M. J.** Computational Biology and Bioinformatics Research in Resource-Limited Settings: Strategies, Tools and Opportunities. Jagannath University Higher Study and Research Society, Dhaka, Bangladesh, June, 2025.
2. **Hossain, M. J.** Mastering Biomedical Data Management. IFMSA Bangladesh, Dhaka, Bangladesh, April, 2024.
3. **Hossain, M. J.** Undergraduate Research - Importance, Benefits, and Challenges. CHIRAL Bangladesh, Dhaka, Bangladesh, March, 2019.
4. **Hossain, M. J.** State the Art of Microbial Genome Analysis. Jagannath University, Dhaka, Bangladesh, May, 2018.

Conference Presentations

1. Rahman, M. A., Shahjahan, M. and ***Hossain, M. J.** EBV-antigen-specific T cell clonotype fate in nasopharyngeal carcinoma: A single-cell TCR analysis. Dhaka University Research Society (DURS), University of Dhaka, Bangladesh, December, 2026.
2. Chowdhury, D., Shahjahan, M. and ***Hossain, M. J.** Reassessing the chemotherapy–TIGIT association in pancreatic cancer through cross-cohort validation. Dhaka University Research Society (DURS), University of Dhaka, Bangladesh, December, 2026.
3. Hoque, M., Shahjahan, M. and ***Hossain, M. J.** Chemotherapy-induced tumor cell state dynamics in osteosarcoma: NMF-based decomposition and independent bulk validation. Dhaka University Research Society (DURS), University

of Dhaka, Bangladesh, December, 2026.

4. Arony, T. A., Shahjahan, M. and ***Hossain, M. J.** Spatial mapping of diffuse midline glioma cell states reveals conserved territorial architecture and a mesenchymal-like interface for tumor–microenvironment crosstalk. Dhaka University Research Society (DURS), University of Dhaka, Bangladesh, December, 2026.
5. Nawar, T., Shahjahan, M., ***Hossain, M. J.** Cross-Cohort Meta-Analysis of Acral Melanoma Immune Cell Quantity vs. Function With Three-Way Decomposition. Dhaka University Research Society (DURS), University of Dhaka, Bangladesh, December, 2026.
6. Islam Abhi, S. N., Meme, M. A., Shahariar, M., Barsha, L., ***Hossain, M. J.** Single-cell transcriptomic and network pharmacology insights into the therapeutic potential of Withania somnifera-derived phytochemicals against cisplatin-resistant ovarian cancer. BEICTCON2026, IEEE, IBUAT, Dhaka, Bangladesh, August, 2026.
7. Islam, M. M., ***Hossain, M. J.** Fezf2-Mediated Cortical Development: Multi-Omics Single-Cell Analysis. Network of Young Biotechnologists Bangladesh, Dhaka, Bangladesh, April, 2026.
8. **Hossain, M. J.**, Manisha Das Diagnostic and Electrophysiological Features of Hirayama Disease in Young Adult Male: A Case Report. Institute of Epidemiology, Disease Control and Research (IEDCR), Dhaka, Bangladesh, May, 2020.
9. Nayeem, M.U., Mrittika, M.A., Azad, A.K., Ferdous, J., Ahmed, S., Sanyal, S.K., Towhid, S.T. and **Hossain, M. J.** Quantitative Microbial Risk Assessment from Vancomycin Resistant Enterococcus faecalis and Enterococcus faecium from a Specific Neighborhood in Dhaka City, Bangladesh. Bangladesh Society of Microbiologists, Dhaka, Bangladesh, May, 2020.

Posters

1. Ahmad, F., Fuad, M., Shahjahan, M. and ***Hossain, M. J.** Identification of Subtype-Specific Prognostic Biomarkers in Esophageal Carcinoma through Integrated Bioinformatics Analysis. Bangladesh Society of Microbiologists, University of Dhaka, Bangladesh, December, 2025.
2. Aditee, L. M., Fuad, M., Shahjahan, M. and ***Hossain, M. J.** Network-Driven Bioinformatics Approach Uncovers Prognostic Signatures and Therapeutic Targets in Pancreatic Ductal Adenocarcinoma. Bangladesh Society of Microbiologists, University of Dhaka, Bangladesh, December, 2025.
3. Ahamed, M. S., Fuad, M., Shahjahan, M. and ***Hossain, M. J.** Bioinformatic Analysis of Transcriptomic Data Reveals Molecular Signatures Driving Colorectal Cancer. Bangladesh Society of Microbiologists, University of Dhaka, Bangladesh, December, 2025.
4. Tabassum, R., Fuad, M., Shahjahan, M. and ***Hossain, M. J.** Comparative Transcriptomic Meta-Analysis Reveals Shared and Distinct Transcriptional Networks and Pathway Crosstalk in Hepatocellular Carcinoma for Biomarker and Therapeutic Target Identification. Bangladesh Society of Microbiologists, University of Dhaka, Bangladesh, December, 2025.

TEACHING & MENTORING EXPERIENCE

Teaching & Training Roles

Faculty (Bioinformatics)

cBLAST, University of Dhaka

Aug 2023 – Present

Dhaka, Bangladesh

- Taught online workshops on biomedical machine learning with Python to 20+ participants.
- Developed self-paced courses on data science and machine learning for biologists on the cBLAST platform.
- Coordinated with Dr. Zeba Islam Seraj to advance accessible bioinformatics training initiatives.

Program Lead

GSA Bioinformatics Internship

Jul 2025 – Present

Dhaka, Bangladesh

- Designed the 6-month internship program and curriculum funded by ASI School of Life to train computational biologists.
- Mentored 10 interns across two cohorts in cancer genomics, bulk RNA-seq, and single-cell transcriptomics.
- Managed a multi-institutional team to mentor interns through independent research projects.

Curriculum Developer and Instructor

School of Bioinformatics

Jan 2024 – Present

Dhaka, Bangladesh

- Designed foundational bioinformatics curricula tailored for high school (grades 9–10) and college (grades 11–12) students.

- Taught introductory computational biology sessions across two student cohorts.
- Promoted early-stage bioinformatics literacy and scientific awareness among secondary and higher secondary students.

Teaching Assistant

Oct 2022 – Dec 2022

Department of Microbiology, Jagannath University

Dhaka, Bangladesh

- Delivered research methodology training to 40+ undergraduates and reviewed literature assessments.
- Reviewed and evaluated undergraduate research proposals, advising on study design.
- Guided undergraduate students data analysis practicals for the Public Health and Hygiene course

Courses Taught

DeepBio Academy

Next-Gen Drug Discovery with AI ↗	2026
No-Code & Agentic AI for Life Sciences ↗	2026
Reproducible Bioinformatics Workflows: Ideation to Execution ↗	2026
Bioinformatics Mentorship Program (3 cohorts running) ↗	2026
Single Cell Analysis with R: A Step-By-Step Guide ↗	2025

Invited Lectures & Workshops

Statistical Analysis with R for Research (Two Cohorts), <i>Research Help Bangladesh</i> ↗	2026
Statistical Analysis with R for Research, <i>Dept. of Pharmacy and CSE, Northern University Bangladesh</i>	2024
Statistical Analysis with R for Research, <i>Genetic Engineering Club, JnU</i> ↗	2024
Statistical Analysis with R for Research, <i>Public Health Forum, Jahangirnagar University</i>	2024

CHIRAL Bangladesh

Publication-ready Tables with R ↗	2025
Building Dashboard with R ↗	2025
Easystats for Biomedical Researchers ↗	2025
R for Bioinformatics ↗	2025
Data Analysis with R ↗	2025
R for Cancer Bioinformatics ↗	2025
R for Research ↗	2023
Machine Learning for Bioinformatics ↗	2023
RNA-Seq Analysis with R ↗	2023
AI for Drug Discovery ↗	2023
Cancer Bioinformatics ↗	2023
Python for Health Data Analytics ↗	2023
Statistical Analysis with R for Research (14 Cohorts) ↗	2020

MENTORING

1. **Dhruba Chowdhury** (2026), University of Dhaka: Cross-cohort validation of chemotherapy-induced TME remodeling
2. **Md. Aftabur Rahman** (2026), Jahangirnagar University: EBV-Antigen-Specific TCR Clonotype Fate in Nasopharyngeal Carcinoma
3. **Tahia Aswad Arony** (2026), North South University: Spatial Mapping of DMG Cell States onto Tissue Architecture
4. **Mahmuda Hoque** (2026), BRAC University: Chemotherapy-Induced Tumor Cell State Dynamics in Osteosarcoma
5. **Tasfia Nawar** (2026), BRAC University: Cross-Cohort Meta-Analysis of Acral Melanoma Immune Cell
6. **Md Shakil Ahamed** (2025), Mawlana Bhashani Science and Technology University: Bioinformatics Analysis of Transcriptomic Data Reveals Molecular Signatures Driving Colorectal Cancer
7. **Rahnuma Tabassum** (2025), Jagannath University: Integrated Transcriptomic Meta-Analysis Identifies Pathway Crosstalk and Therapeutic Targets in Hepatocellular Carcinoma
8. **Fayez Ahmad** (2025), Notre Dame College, Dhaka: Identification of Prognostic Biomarkers in Esophageal Carcinoma

through Integrated Bioinformatics Analysis

9. **Sabbir Khan** (2025), Gazipur Agricultural University: Multi-Omics Meta-Analysis Identifies a Mitotic Signature as a Prognostic and Therapeutic Target in KIRC
10. **Lamisa Manha Aditee** (2025), BRAC University: Network-Driven Bioinformatics Approach Uncovers Prognostic Signatures and Therapeutic Targets in Pancreatic Ductal Adenocarcinoma

AWARDS & FELLOWSHIPS

Open Bioinformatics Foundation Event Fellowship , <i>Open Bioinformatics Foundation</i>	2026
Travel Grant for scverse x cellpainting Hackathon , <i>scverse</i>	2026
Scholarship for AI in Public Health Workshop , <i>Bill and Melinda Gates Foundation</i>	2023
Dutch-Bangla Bank (DBBL) Merit Scholarship , <i>Dutch-Bangla Bank</i>	2013

COMMUNITY SERVICES

Life Member Global Network of Bangladeshi Biotechnologists (GNOBB)	Sep 2026 – Present Dhaka, Bangladesh
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- Promoted national and international biotechnology networking to foster scientific exchange and partnerships.
- Facilitated collaborative research initiatives connecting Bangladeshi biotechnologists worldwide.
- Provided computational biology mentorship and professional guidance to emerging life science researchers.

Member Bio-Bio-1: Bioinformatics Research Discussion Group	Jan 2017 – Dec 2019 Dhaka, Bangladesh
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- Delivered technical bioinformatics workshops for student and researcher discussion groups.
- Contributed to mathematical modeling of chikungunya transmission dynamics and epidemiological analysis.
- Engaged in regular scientific discussions and peer review of computational biology research topics.

Nextflow Ambassador Seqera	Jan 2025 – Present Barcelona, Spain
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- Advocated for scalable and reproducible bioinformatics workflows utilizing Nextflow and nf-core standards.
- Organized and delivered hands-on workflow engineering workshops for the Bangladeshi bioinformatics community.
- Mentored local researchers and students in adopting cloud computing and modern pipeline automation.

MEDIA COVERAGE

1. May 27, 2024, **The Business Standard**: Quoted in article [What the rise in self-medication tells us about the country's healthcare system](#).
2. Feb 08, 2024, **The Business Standard**: Study featured in article [“Parental lack of antibiotic knowledge imperils child health in Bangladesh: Study”](#).

REFERENCES

Dr. Syeda Tasneem Towhid
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Dr. Zeba Islam Seraj
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Dr. Yeon Ju Kim
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