

SAMIN RAHMAN KHAN

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EDUCATION

- Bachelor of Science** in Computer Science and Engineering 2017-2022
Bangladesh University of Engineering Technology (BUET), Dhaka
CGPA: 3.92 out of 4.00 (8th out of 127 students)
- Higher Secondary School Certificate** in Science 2015-2016
Notre Dame College, Dhaka
GPA: 5.00 out of 5.00 (20th out of 1508 students)

RESEARCH EXPERIENCE

- Graduate Student** with Dr. M. Sohel Rahman and Dr. Md. Abul Hassan Samee 2023-Present
Department of Computer Science and Engineering, BUET, Dhaka
- Developed a statistical pipeline to identify and score pathological shifts from a reference in single-cell transcriptomics data.
 - Used cell-level pathological score aggregation to predict individual-level conditions.
 - Compared our method with a state-of-the-art contrastive variational inference model, modified for shift scores.
- Undergraduate Student** with Dr. M. Sohel Rahman and Dr. Md. Abul Hassan Samee 2021-2022
Department of Computer Science and Engineering, BUET, Dhaka
- Built an *interpretable deep-learning model* for predicting DNA sequence bendability.
 - Identified novel and confirmatory motifs and their relative arrangements influential for DNA bendability.
 - Found the presence of bendability motifs in regions important to DNA conformation.
- Undergraduate Student** with Dr. Md Shohrab Hossain and Dr. Ying-Dar Lin 2021-2022
Department of Computer Science and Engineering, BUET, Dhaka
- Designed and developed an authentication and state transfer protocol for federated edge-edge systems.
 - Built a simulated 4G LTE network and federated testbed for benchmarking developed protocol.

PUBLICATIONS

1. **Samin Rahman Khan**, M. Sohel Rahman, and Md Abul Hassan Samee. "Quantifying Pathological Progression from Single-Cell Data" (*In Submission*)
2. **Samin Rahman Khan**, Sadman Sakib, M. Sohel Rahman, and Md Abul Hassan Samee. "DeepBend: an interpretable model of DNA bendability." *Iscience* 26, no. 2 (2023). DOI: [10.1016/j.isci.2023.105945](https://doi.org/10.1016/j.isci.2023.105945)
3. Asad Ali, **Samin Rahman Khan***, Sadman Sakib, Md Shohrab Hossain, and Ying-Dar Lin. "Federated 3GPP Mobile Edge Computing systems: a transparent proxy for third party authentication with application mobility support." *IEEE Access* 10 (2022): 35106-35119. DOI: [10.1109/ACCESS.2022.3162851](https://doi.org/10.1109/ACCESS.2022.3162851) (* *Corresponding Author*)

PRESENTATION

Gave a poster presentation on “A deep learning model reveals sequence signatures associated with DNA bendability and links bendability-altering mutations with aberrant chromosomal” at the Cold Spring Harbor Laboratory Conference Genome Informatics (Virtual) on November 3-5, 2021

TEACHING EXPERIENCE

Lecturer, Institute of Information and Communication Technology (IICT), 2023-Present
Bangladesh University of Engineering and Technology (BUET)

- Designed and delivered lectures for post-graduate diploma-level courses on *Data Structures and Algorithms, Database Design and Management, Computer Networks, Operating System Concepts, Visual Programming and Software Engineering and Application Development.*

Lecturer (Part-Time), Department of Computer Science and Engineering (CSE), 2023-2024
Bangladesh University of Engineering and Technology (BUET)

- Delivered lectures for an undergraduate-level course on *Computer Programming.*
- Designed problems and gave hands-on training in undergraduate sessional *Computer Programming and Data Structures and Algorithms* courses.

Instructor, Department of Information and Communication Technology (DoICT), 2024
Bangladesh Govt.

- Developed and provided two day-long training sessions on *Cybersecurity* to IT professionals in government services.

Instructor, Huawei-BUET ICT Academy, Bangladesh University of Engineering and Technology 2023

- Gave six lectures and hands-on training on *Cloud Computing and Storage Systems.*

INDUSTRIAL EXPERIENCE & TECHNICAL SERVICES

Core Member, Consultation on Upgradation of Karnaphuli Gas Distribution Company Ltd. (KGDCL) Marketing & Engineering Services Nov 2023 - Present

- Fixed deployment issues, and built two-factor authentication, security and other features on the Enterprise Resource Planning (ERP) and billing system.
- Supervised a team of engineers that set up automatic deployment, built the Management Information System (MIS) module and redesigned the User Interface (UI) of the customer portal.

Core Member, Forensic Data Analysis of Discrepant Results for Board of Technical Education Bangladesh (BTEB) Aug 2024 - Nov 2024

- Analysed database records for reporting anomalies in board examination results of BTEB.

Core Member, Preparation of Admission Results for Technical Colleges, Board of Technical Education Bangladesh (BTEB) June 2024 - Aug 2024

- Prepared and ran a program to rank students according to their board examination results and allocate seats to them according to their rank and quotas.

Core Member, Consultation on Recruitment Examinations for Department of Primary Education (DPE), Bangladesh Govt. Dec 2023 - Mar 2024

- Configured and optimised image-processing-based Optical Mark Recognition (OMR) system to evaluate recruitment examination answer scripts.

Software Engineer I, Newscred d/b/a Optimizely Inc. Jan 2023 - April 2023

- Contributed to the experimentation management feature, which integrates two products namely Experimentation and Content Management Platform (CMP).

Software Engineering Intern, Newscred d/b/a Optimizely Inc. June 2022 - Dec 2022

- Improved database update logic and deployment process of our internal engineering Grafana dashboard.
- Added many metrics to this dashboard and integrated with Okta for user authentication.

Software Engineering Intern (Part-Time), Cricwhiz 2021

- Designed Extract, Transform and Load (ETL) data pipelines to synchronize data from AWS Dynamodb to Google BigQuery to show AARRR funnel dashboards using Google Datastudio and get user acquisition insights. Saved \$100/month by not using 3rd party solutions for syncing databases

AWARDS & HONOURS

- **Spot Award** for excellent performance at Optimizely Inc.
- **Dean's List Award** for academic excellence at *all* levels, BUET
- **University Merit Scholarship** for academic excellence at *all* terms, BUET.

SUPERVISORY & MENTORING EXPERIENCE

Supervised and mentored ten post-graduate diploma students on their final projects on topics like Computer Vision, Mobile and Web Application Development, Retrieval Augmented Generator (RAG) Applications

ACADEMIC SERVICE

Member, Research and Academic Committee (RAC), Institute of Information and Communication Technology (IICT), BUET

- Provided feedback on the final projects of post-graduate diploma students

Website Committee Lead, 2024 2nd International Conference on Information and Communication Technology (ICICT)

- Designed and maintained the conference website, including integration with the payment gateway
- Managed the Conference Management Tool (CMT) during reviews, aggregated review scores for final decision-making and prepared the proceedings of the conference

Member Secretary, Committee for BUET Institutional Information System (BIIS) Update for providing transcripts and certificates for old batches

- Formulated a plan of action to adapt the institutional system to provide transcripts of students whose information is not currently on the system database

TECHNICAL SKILLS

- **Programming Languages:** Python, C, Java, C++, Bash, SQL, JavaScript
- **Machine Learning:** Tensorflow, PyTorch, Scikit-learn

LANGUAGES

- Bangla - Native Language
- English - TOEFL iBT Score: 109 (Reading: 30, Listening: 29, Speaking: 23, Writing: 27)

REFERENCES

1. Dr. M. Sohel Rahman (Undergraduate Thesis Supervisor)
Professor, Department of Computer Science and Engineering (CSE)
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
Email: sohel.kcl@gmail.com, msrahman@cse.buet.ac.bd
Mobile: +880 1552-389480
2. Dr. Md. Abul Hassan Samee (Undergraduate Thesis Co-Supervisor)
Assistant Professor, Department of Integrative Physiology
Baylor College of Medicine (BCM), Houston, Texas, USA
Email: Md.AbulHassan.Samee@bcm.edu, samee@bcm.edu
Mobile: +1 (217) 721-2694
3. Dr. Hossen Asiful Mustafa
Professor and Director, Institute of Information and Communication and Technology (IICT)
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
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