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B.Sc. - Computer Science and Engineering

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ABOUT ME

I am a passionate and curious learner. Beyond my academic pursuits, I have actively explored diverse areas of Computer Science, including competitive programming, hackathons, and deep learning competitions. I am eager to embrace opportunities that enable me to apply my problem-solving skills and curiosity to address real-world challenges while further expanding my expertise.

EDUCATION

- **Bangladesh University of Engineering & Technology (BUET)** *Feb 2020 - Feb 2025 (Expected)*
  B.Sc. in Computer Science and Engineering, Current CGPA: 3.9936 (2nd out of 120) Dhaka, Bangladesh

RESEARCH WORKS

- **Language Models for Phylogenetic Trees** *Ongoing*
  Undergraduate Thesis

  ○ Developing deep learning models for phylogeny and MSA datasets.
  ○ Investigating tree representation learning for bioinformatics applications.

- **OCT Image Analysis for Medical Imaging** *Ongoing*
  IEEE SPS VIP Cup 2024

  ○ Focused on image denoising, super-resolution, and classification tasks.
  ○ Fine-tuned state-of-the-art models ([Restormer](#), [SwinIR](#)).
  ○ Generated synthetic dataset for supervised training.

PROJECTS

- **Enhancing LLMs for Solving Graph Problems in Natural Language** *Ongoing*
  CSE472 - Machine Learning Project

  ○ Extended work on the [NeurIPS 2023 paper](#), improving benchmarks with advanced prompting techniques.
  ○ Applied prompt engineering and fine-tuned pretrained language models, achieved much superior results.

- **TaskFlow - AI Based Task Assistant | [Demo](#)** *Feb. 2024*
  CSE408 - Software Engineering Project [GitHub](#)

  ○ Comprehensive task planner, with an AI Assistant for content generation.
  ○ Track task progress and work in collaboration.
  ○ Implemented using SvelteKit, Express.js and PostgreSQL.

- **ExploreMate - Traveler Friendly App | [Demo](#)** *Oct. 2023*
  CSE326 - Information System Design Project [GitHub](#)

  ○ Designed a web app in phases and implemented partially in a 5-person group.
  ○ Planned BPMN, Entity Relationship, class, sequence, collaboration and state diagrams.
  ○ Implemented the travel plan suggestion module using SvelteKit, Express.js and relevant APIs.

- **Harmony - Social Media Platform for Students** *Sep. 2022*
  CSE216 - Database Sessional Project [GitHub](#)

  ○ Designed and implemented a full stack web application for real-time learning resource management and sharing in a 3-person team.
  ○ Implemented user login, news feed, chat, voting, file sharing, event management features.
  ○ Used Svelte/TailwindCSS stack for frontend development, and PL/pgSQL for database transactions.

- **Football Club Manager - Desktop App for Player Management | [Demo](#)** *July 2021*
  CSE108 - JavaFX Project [GitHub](#)

  ○ Built a UI application using JavaFX.
  ○ Used multithreaded socket programming in Java for server-client communication.
  ○ Scraped data of over 16,000 football players, implemented searchable database and real time player exchange.

- **Yet Another C Compiler** *March 2023*
  CSE310 - Compilers Sessional
  - Implemented a partial compiler for C language in C++.
  - Used flex and bison for frontend lexing and syntax analysis.
  - Wrote backend targeting the Intel 8086 platform assembly.

Skills & Activities

- **Programming Language**: C, C++, Java, Python, Bash, JavaScript, TypeScript, 8086 Assembly
- **Framework/Tool**: PyTorch, Scikit-learn, Transformers, vLLM, SvelteKit, Express.js, TailwindCSS, Git, Docker, TeX, Beamer, Wazuh, BeautifulSoup
- **Database**: PostgreSQL, Oracle, PL/pgSQL, Database Design
- **Co-curricular Activity**: Programming Contests, Competitive Programming, Technical Writing
- **Extra-curricular Activity**: Debating, Public Speaking

Achievements

•**Champion**, Hackathon (DevOps), BUET CSE Fest	*2023*
•**Finalist**, Robi Datathon 2024 (withdrew due to final exams)	*2024*
•**24th Place**, ICPC Asia Dhaka Regional Contest (310 teams)	*2024*
•**Dean's List Award**, Achieved in all levels	*2021-2023*
•**University Merit Scholarship**, Achieved in all terms	*2020-2023*
•**15th Place**, Inter University Programming Contest, BUET CSE Fest (105 teams)	*2023*
•**4th Place**, AI Contest, BUET CSE Fest	*2022*
•**2nd Runners Up**, Dhaka Region, NASA Space Apps Challenge	*2021*
•**2nd Runners Up**, National Television School Debate Competition	*2014*
•**Champion**, DMP National Essay Writing Competition	*2012*