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Demra, Dhaka, Bangladesh

EDUCATION

- **Bangladesh University of Engineering & Technology** March 2025
B.Sc. in Computer Science and Engineering, CGPA: 3.99, 2nd out of 120 students Dhaka, Bangladesh
- **Notre Dame College** June 2019
Higher Secondary Certificate; GPA: 5.00 Dhaka, Bangladesh
- **Shamsul Hoque Khan School & College** June 2017
Secondary School Certificate; GPA: 5.00 Dhaka, Bangladesh

RESEARCH WORKS

- **From MSA Transformer to Graph Neural Network: A Deep Learning Approach to Phylogenetics** Ongoing
Undergraduate Thesis
 - Designed deep learning methods to capture phylogenetic information.
 - Leveraged MSA transformer and Graph Neural Network to reconstruct phylogenetic trees.
- **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 superior results.
- **Expanded Strategy Space Improves Nash Solution by Increased Degrees of Freedom** Ongoing
Algorithm Engineering Project
 - Work on algorithmic performances for the Nash Equilibrium problem.
 - Focuses on approximation algorithm and meta-heuristic algorithm like replicator dynamics.
- **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

- **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 with TailwindCSS for frontend development, and PL/pgSQL for database transactions.

•Wazuh Exploration Project | [Demo](#)

Feb 2022

CSE322 - Computer Security Project

- Open source XDR (Extended Detection and Response) and SIEM (Security Information and Event Management).
- Explored various features extensively in a 3-person group, including Malware Detection, File Integrity Module etc.

•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

[GitHub](#)

- 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.

•DxBall Remake

March 2020

CSE102 - iGraphics Project

[GitHub](#)

- Built a remake of the classic DxBall game in C.
- Used OpenGL based iGraphics library.

SKILLS & ACTIVITIES

- **Programming Language:** C, C++, Java, Python, Bash, JavaScript, TypeScript, 8086 Assembly
- **Frameworks & Tools:** 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

ORGANIZATIONAL EXPERIENCE

•Core Organizer, BUET CSE Fest 2024

Nov. 2024 - Dec. 2024

- BCF2024 Inter University Programming Contest
- BCF2024 Poster Presentation
- BCF2024 Hackathon
- BCF2024 DL Sprint 3.0

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**, Received in all three academic years 2021-2023
- University Merit Scholarship**, Achieved in all seven terms attended 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 2014