

Anamul Hoque Emtiaj

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EDUCATION

Bangladesh University of Engineering and Technology (BUET)

Dhaka, Bangladesh

B.Sc. in Computer Science and Engineering; CGPA: 3.78/4.00

Feb 2020 – Feb 2025

Relevant coursework: Object-Oriented Programming (OOP), Data Structure and Algorithm, Database, Computer Architecture, Microprocessors and Microcontrollers, Compiler, Operating System, Computer Networking, Software Engineering, Information System Design, Computer Security, Computer Graphics, Bioinformatics, Fault Tolerant System, Simulation and Modeling, Machine Learning, Linear Algebra, Statistics and Probability.

Academic Achievements:

- * Dean's List Award recipient in 2nd year.
- * University Merit Scholarship recipient in 3rd and 4th semesters.

SKILLS

Languages: C/C++, Java, Python, JavaScript, Bash, SQL, HTML, CSS

Technologies: Django, Django REST Framework, Celery, Web socket, Next.js, PostgreSQL, MongoDB, Git/Github, Docker, Microsoft Azure, PyTorch

WEB PROJECTS

Learning Management System (LMS)

Ongoing

- Developing a scalable LMS for *Med-Sparkle*, focusing on video-based courses, mock tests, subscription services, real-time updates via WebSockets, and a fully managed admin interface for instructors.
- My role involves designing and building the backend using Django REST Framework and PostgreSQL, managing asynchronous tasks with Celery and Redis, and utilizing Vimeo and YouTube as video servers. Integrated backend-relevant frontend functionalities using Next.js, including WebSocket implementation, user authentication, and video API integrations.
- Responsible for full deployment using Docker on DigitalOcean, configuring Nginx and Gunicorn for optimized web performance.

Personal Websites | [Link1](#) | [Link2](#)

Jul 2024

- Developed two personal websites for clients as part of paid contractual projects.
- Utilized Django for the backend and MySQL as database.
- Deployed on shared hosting using cPanel, Apache, and mod-wsgi for efficient and cost-effective solutions.

Tensor Insight Training System | [GitHub](#)

Feb 2024

- A web application to facilitate learning and practicing tensor manipulation through engaging puzzle-solving exercises, developed as part of the CSE408: Software Development course.
- Implemented the frontend using React JS and Tailwind CSS, with a backend powered by Django Rest Framework and ORM, and Azure PostgreSQL for database management.
- Deployed the application using Azure Kubernetes Service (AKS), Azure Container Registry (ACR), and Azure Storage Account, and established a CI/CD pipeline with GitHub Actions.

Khabo | [GitHub](#)

Sep 2023

- A comprehensive culinary application, developed as part of the CSE 326: Information System Design course.
- Implemented key modules using Django Rest Framework for the backend and React JS with Tailwind CSS for the frontend.
- Designed and developed comprehensive system diagrams including BPMN, Mock UI, Class, ER, Sequence, Collaboration, and State diagrams.

Tontu | [GitHub](#) | [Site](#)

Jun 2023

- An E-Commerce site, developed as part of the Hult Prize 2023 competition.
- Utilized Django for the backend, employing Django Templates and ORM.
- Implemented frontend features using JavaScript, jQuery, HTML, CSS, and Bootstrap.

E-School | [GitHub](#)

Aug 2022

- An LMS similar to Udemy, developed as part of the Database course term project.
- Utilized Django with Django templates, HTML, CSS, JavaScript, Bootstrap, and Oracle as database.
- Focused on database-centric tasks, including writing complex triggers, PL/SQL scripts, and designing Entity-Relationship Diagrams (ERD).

Halkhata | [GitHub](#)

May 2021

- A personal money management web application, developed using the MERN stack, enabling users to track and manage their daily income and expenses.

ML PROJECTS

CRISPR Off Target Prediction — Thesis

Ongoing

- Researching CRISPR-Cas9 gene-editing technology, focusing on predicting off-target effects. This project utilizes a combination of advanced machine learning techniques, including Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN) with LSTM and GRU architectures, Self-Attention mechanisms, and BERT.
- Aimed to significantly improve the F1 score and PR-AUC while also developing an interpretable model, ensuring both safety and efficacy in CRISPR applications.

Protein-Protein Interaction Prediction — Term Project

Ongoing

- Developing a predictive model for Protein-Protein Interactions utilizing ProtBERT, joint embedding, cross-attention, and Multi-Layer Perceptron (MLP).
- Focused on achieving high-performance metrics while ensuring model interpretability.

AWARDS & ACHIEVEMENTS

Research Grant: Recipient of the 'Research and Innovation Center for Science and Engineering - RISE, BUET' Students' Research Grant, awarded to our thesis group in recognition of our research endeavors.

Hult Prize: Hult Prize 2023 On-Campus Champion and Regional Round Participant (Milan Summit).

Idea Contest: Achieved the 1st Runner-up position at the BUET Debating Club presented ScribeQuest, an idea contest for Augmedix Bangladesh, as part of Team Augmenta.

Term Project: Awarded 2nd place (Runner-up) among all groups in the CSE 316: Microcontroller and Microprocessor course for our project, Bi-axial Autonomous Robot with Obstacle Avoidance (BABO).

CERTIFICATIONS

Data Structures and Algorithms | [GitHub](#)

Nov 2021

Completed a paid course on Data Structures and Algorithms from Bohubrihi.