

# 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 – Jan 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, Celery, Node.js, React.js, PostgreSQL, MongoDB, Git, Docker, Microsoft Azure, Kubernetes, PyTorch, TensorFlow

## PROJECTS

### Learning Management System (LMS)

Ongoing

- Developing a scalable LMS for [Med-Sparkle](#), focusing on video-based courses, mock tests, and subscription services, and building a fully managed admin side for instructors.
- My role encompasses designing and building the backend using Django REST Framework, managing asynchronous tasks with Celery, and optimizing the PostgreSQL database for performance.
- I am also responsible for full deployment using Docker on DigitalOcean, configuring Nginx and Gunicorn for high-performance web serving, and integrating Vimeo for secure video hosting.

### Customizable Portfolio Site | [Link](#)

May 2024

- A responsive and customizable portfolio website with admin side, developed as a contractual paid project.
- Used Django, Django templates, MySQL, ORM, JavaScript, HTML, CSS, and Bootstrap.
- Deployed the project on a shared hosting environment using mod-wsgi and Apache server.

### 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.

## RESEARCHES

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### CRISPR Off Target Prediction(Thesis)

Ongoing

- CRISPR-Cas9 is a revolutionary gene-editing technology that enables precise modifications in DNA. However, it has off-target effects, where the Cas9 enzyme cuts unintended DNA sequences, pose significant challenges. Accurate off-target prediction is crucial to ensure the safety and efficacy of CRISPR-based applications.
- Our research leverages deep learning with a complex architecture integrating CNN, RNN, BERT, and feed-forward networks to enhance CRISPR-Cas9 off-target prediction. Our goal is to outperform state-of-the-art models in PRAUC, F1 score, and provide better interpretability of predictions.

## AWARDS & ACHIEVEMENTS

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**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

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**Data Structures and Algorithms** | [GitHub](#)

Nov 2021

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