Mohammed Sharraf Uddin

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Education

Brac University　　　　　　　　　　　　　　　　　　　　　　　　Oct 2020 - May 2024
Bachelor of Science in Computer Science (CGPA: 3.76 / 4.00) High Distinction　　　*Dhaka, Bangladesh*
- *Relevant Courses: Advanced Algorithms and Data Structures on Python, Intro to ML, NLP-II, Data Science Computer Networks, Software Engineering, Database Systems, System Analysis*

Mastermind School - 'A' levels　　　　　　　　　　　　　　　　　Aug 2018 -June 2020
Maths — Physics — Economics　　　　　　　　　　　　　　　　　　　*Dhaka, Bangladesh*

Mastermind School - 'O' levels　　　　　　　　　　　　　　　　　Aug 2016 -June 2018
Maths — Physics — Chemistry — Biology — English — Bangla — Economics — Pure Maths　　*Dhaka, Bangladesh*
- *Recipient of Edexcel High Achiever's Award and Daily Star Award*

Research Interests

Software Engineer, Machine Learning, Deep Learning, Natural Language Processing, NLP for Software Engineering (Code Generation, Code Search), Applications of NLP, Multimodality in NLP, RAG.

Experience

Sazim　　　　　　　　　　　　　　　　　　　　　July 2024 – September 2024
Software Engineer Trainee　　　　　　　　　　　　　　　　　　　　*Dhaka, Bangladesh*
- Used project management tools like **Trello** for organizing the features of the **SuperTeacher** project.
- Followed Clean Code principles like **DRY** and **SOLID** in order to make the **SuperTeacher** project.
- Implemented user authentication using **JWT** to ensure secure access for multiple users.
- Integrated **AWS S3** for efficient file storage and management.
- Developed a real-time chat system using **Nest WebSocket** to facilitate seamless communication between teachers and students.
- Utilized **Mikro-ORM** for efficient database management and **PostgreSQL** as the database solution.
- Collaborated in building and maintaining a scalable and responsive UI using **Next.js** and **Tailwind CSS**.

Prosystem　　　　　　　　　　　　　　　　　　　　　　Oct 2023 – Dec 2023
Backend Developer Intern　　　　　　　　　　　　　　　　　　　　*Dhaka, Bangladesh*
- Spearheaded the development of backend systems for web applications using **Next.js, Node.js,** and **MongoDB.**
- Designed and implemented **RESTful APIs,** ensuring optimal performance and scalability.
- Optimized **MongoDB** database queries, reducing page load times by **15%** and enhancing overall application performance.
- Developed a close working relationship with **front-end developers** to seamlessly integrate server-side logic into the user interface.

Olevel and Alevel tutor　　　　　　　　　　　　　　　　　　Oct 2019 – Present
Part-time Tutor　　　　　　　　　　　　　　　　　　　　　　　*Dhaka, Bangladesh*
- Taught multiple students in O'levels and A'levels Maths, Physics, Chemistry, Biology, Economics and English
- Enhanced my interpersonal, communication and critical thinking skills to be more effective

Technical Skills

ML/DL/AI/LLM Application Development: TensorFlow, Keras, Scikit-learn, NLTK, PyTorch, LangChain, RAG
Data Analysis, Management and Visualization: Pandas, NumPy, Matplotlib, Seaborn
Languages: Python, Javascript, C
Database Management System and ORM: PostgresSQL, MySQL, MongoDB, Mongoose, Mikro-ORM
Backend Web Development: Node.js, Express.js, Nest.js, FASTApi
Frontend Web Development and Frameworks: React, Next.js, Redux, Shadcn UI, Material UI, Tailwind CSS, StreamlitUI
Software Architectures: MVC and Repository
Cloud: EC2, S3
Tools: Trello, Notion, Postman, Latex

Publications

Uddin, M. S., Knobo, K. Z. Q., Ferdoshi, J., Abdullah, S., & Azmain, Md. A. (2024). Enhancing Software Quality: Python Code Smell Detection Using Machine Learning Techniques and Refactoring Long Methods Using Extract Method Algorithm. In Proceedings of the 7th International Conference on Robotics and Artificial Intelligence (ICRAI 2024) (pp. xx-xx). [In-Progress].

Projects

Easy Doc For Docs   2025

Created an NLP-based system that organizes and summarizes EHR documents for patients and hospitals to provide concise insights into a patient's medical history. Leveraged **Retrieval-Augmented Generation** to provide human-readable summaries, integrating **hugging-face transformer** models for **vector embedding**.

Explainable Detection of Online Sexism   2024

Conducted **exploratory data analysis** to identify patterns in sexist text data, followed by text preprocessing steps like t**okenization, padding,** and **embedding** using **Word2Vec** and **TF-IDF**. Developed a model using **RNN** and **LSTM** to predict sexist content and assessed performance through various evaluation metrics.

Predicting Student Stress Level   2023

Cleaned and visualized a large dataset to identify key trends and patterns. Applied **Grid Search CV** for cross-validation on training data to optimize parameters and used the best parameters to evaluate model performance. Leveraged machine learning models like **Decision Trees, SVM,** and **Random Forest** to accurately predict student stress levels.

Mall Customer Segmentation Using Clustering   2023

Performed mall customer segmentation using unsupervised clustering algorithms, including **K-means, K-medoids, and Hierarchical Clustering**, based on **income** and **spending** data. This analysis grouped customers into distinct segments, enabling **targeted marketing strategies** by identifying spending patterns and income-based preferences.

Taste Tracker   2023

An application where users can browse their **favourite restaurants** and give **review**. **MVC** architecture and **MERN** stack was used to build this application.

Manzoku   2023

An **anime e-commerce** website where people can **purchase** their favourite anime related **products**.The Backend was built using **Express.js** and **MongoDB** while the Frontend was built using React based frameworks like **Mantine UI** and **Material UI.**

Hammer-Hit   2023

    This project was part of computer graphics course where we tried to **animate** the game of **high striker** using **OpenGL** library from python.

Awards & Achievements

- **Received 50% scholarship** *(worth approximately 360000 BDT)* for 9 straight semesters due to maintenance of high **CGPA.**

- Placed on **VC's list** for scoring **4.0/4.0** GPA.

- **4 times Dean's list** for excellent academic results.

- **Received Daily Start and Edexcel High Achiever's Award** for outstanding results during my O'Levels.

- **Received Datacamp certificate** for completeing a course on **Machine Learning with Tree-Based Models in Python**.

- **Received Datacamp certificate** for completeing a course on **Cleaning Data with Python**.

Extra Curricular Activities

- Achieved a **top 35** position among 200 participants in the Vivasoft AI Hackathon 2025.

- **Participated** in BRACU intra programming contest.

- **Participated** in Oddomo tech fest and reached till round of **32**.

- **Executive** at Brac University Computer's Club.

- **Received** best volunteer award for Mastermind Maths fest and Mastermind Debate Tournament.

- **2 times Basketball runners-up** in intra school tournament.

Languages

English: Full Working Proficiency

Bengali: Native

Hindi: Conversational

References

Dr. Golam Rabiul Alam, *Professor*, Department of Computer Science and Engineering, Brac University
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Dr. Farig Sadeque, *Associate Professor*, Department of Computer Science and Engineering, Brac University
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Md. Aquib Azmain, *Lecturer*, Department of Computer Science and Engineering, Brac University
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Md. Mahir Absar Bin Mohsin, *Software Engineer*, Sazim
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