

UMMAY MAIMONA CHAMAN

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OBJECTIVE

Computer Science undergraduate with hands-on experience in full-stack web development (MERN, Django, React), UI/UX design, and AI-powered tools including custom GPT integration and RAG systems. Passionate about building practical digital solutions across web, mobile, and AI platforms. Eager to contribute to real-world projects, bringing strong development skills, a fast-learning mindset, and a portfolio of deployed applications.

EDUCATION

BRAC University

Dhaka, Bangladesh

Bachelor of Science in Computer Science and Engineering

2022 – 2026 (Expected)

- **CGPA:** Ongoing
- **Relevant Coursework:** Machine Learning, Deep Learning, Neural Network, Computer Vision, Data Science, Algorithms and Data Structures, Microprocessors, Robotics, Web Development
- **Undergraduate Thesis:** *A twin-aware multimodal deep learning framework with optimized late fusion for early prediction of adolescent anxiety disorder. Under review at PLOS ONE.* Available as a preprint: medRxiv
- **Supervisor:** Dr. Md. Golam Rabiul Alam **Co-Supervisor:** Mr. Rafeed Rahman

Holy Cross College

Dhaka, Bangladesh

HSC, Science

2019 – 2021

- **GPA:** 5.00 / 5.00

Monipur High School and College

Dhaka, Bangladesh

SSC, Science

2017 – 2019

- **GPA:** 5.00 / 5.00

EXPERIENCE

Undergraduate Researcher

Jan 2024 – 2026

BIOSE, BRAC University

Dhaka, Bangladesh

- Conducting AI-driven biomedical research in medical imaging, bioinformatics, and disease prediction
- Utilizing tools such as IEEE Xplore, ACM DL, PubMed, Mendeley, and Zotero for literature analysis

Director

Sep 2023 – Feb 2026

BURed Club (Research & Development)

- Led undergraduate research initiatives and mentored students in academic writing and publication
- Organized workshops, seminars, and interdisciplinary research collaborations

TECHNICAL PROJECTS

DataFlow Studio | Django, React, TypeScript, Pandas, REST API, SQL, Docker |  [GitHub](#) | [Live Demo](#) **2026**

- Built a full-stack visual ETL pipeline builder using **Django** and **React** + **TypeScript**, enabling drag-and-drop construction of complex data transformation pipelines.
- Implemented an advanced transformation suite (Filter, Formula, Join, GroupBy, Cleaning) powered by **Pandas**, with live data preview at every pipeline node.

AgriNetwork | React, Node.js, Express, MongoDB, REST API, JWT, Vercel |  [GitHub](#) | [Live Demo](#) **2026**

- Developed a full-stack MERN agricultural networking platform with a **React** + **Vite** frontend and **Express/MongoDB** backend supporting community interactions.
- Designed RESTful APIs, documented endpoints using Postman, integrated GitHub Actions CI/CD, and deployed the application on Vercel.

FaceGuard | PyTorch, Deep Learning, MesoNet, Capsule Networks |  [GitHub](#) **2026**

- Built a multimodal deepfake detection system combining CNN-based MesoNet and Capsule Networks.
- Implemented an automated forensic reporting pipeline for media authenticity verification.
- Enhanced robustness against manipulated facial media through hybrid model fusion.

CurveMaker | Flask, Python, Matplotlib, SciPy |  [GitHub](#) | [Live Demo](#) **2024**

- Created a chart-building web application with real-time previews and multiple curve types.
- Implemented data validation and interpolation using SciPy.
- Enabled PNG/SVG export with high-quality rendering.

- CNN Image Classifier** | *TensorFlow.js, Deep Learning, JavaScript* |  [GitHub](#) | [Live Demo](#) **2025**
- Developed a browser-based deep learning workbench using TensorFlow.js for real-time image classification.
 - Implemented a CNN training pipeline with GradCAM explainability visualization.
 - Enabled privacy-first client-side inference, eliminating server dependency.
- SkillPocket** | *MERN Stack, React, Node.js, MongoDB* |  [GitHub](#) | [Live Demo](#) **2025**
- Architected a full-stack skill exchange platform with a React frontend and Node.js backend.
 - Implemented authentication, scheduling, and feedback systems for user interaction.
 - Designed RESTful APIs with MongoDB for scalable data management.
- Multilingual RAG Chatbot: Document Intelligence System** | *Python, FAISS, OCR* |  [GitHub](#) | [Live Demo](#) **2026**
- Building a multilingual (Bengali/Banglish & English) RAG system for contextual question answering over PDFs and images using OCR and semantic search.
 - Integrated Tesseract OCR, FAISS, and the local LLM `microsoft/phi-2` for privacy-preserving document intelligence.
 - Developed a FastAPI backend with a Streamlit frontend and deployed the application using Docker on Hugging Face Spaces.
- RxCare Pharmacy Management** | *PHP, MySQL, HTML/CSS/JS* |  [GitHub](#) **2024**
- Designed a full-featured pharmacy management system.
 - Built a dynamic frontend integrated with the backend.
 - Implemented role-based access control and automated alerts.

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, C, C++, SQL, PHP, R

Machine Learning & AI: PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, CNN, RNN, Transformers, Computer Vision, Multimodal Learning, Federated Learning, Explainable AI, Anomaly Detection (PatchCore)

Web Development: MERN Stack (MongoDB, Express.js, React, Node.js), Django, Flask, FastAPI, REST APIs, TensorFlow.js, HTML/CSS

Data Science & Analytics: Pandas, NumPy, SciPy, Matplotlib, Seaborn, Plotly, Data Preprocessing, Feature Engineering, Statistical Analysis

Databases: MongoDB, MySQL, MariaDB, SQLite

Development Tools & DevOps: Git, GitHub, Docker, GitHub Actions (CI/CD), Linux/Unix, VS Code, Postman, Jupyter Notebook, Google Colab, Vercel, Render

Research & Technical Skills: Model Evaluation, Experimental Design, Ablation Studies, Literature Review, Technical Writing, LaTeX

Design & Documentation: Figma, Adobe Photoshop, Illustrator, Canva, Microsoft Office Suite

PROFESSIONAL TRAINING & CERTIFICATIONS

- **Machine Learning and Data Science Fundamentals** — Simplilearn, DataCamp (Advanced ML code and Theory).
- **Introduction to Artificial Intelligence** — University of Helsinki (Comprehensive AI course).
- **Python Programming** — Kaggle, HackerRank (Advanced programming certifications).
- **JavaScript Foundations** — Cisco Networking Academy (Web development certification).
- **Prompt Engineering Basics** — Intellectium (AI interaction and optimization).
- **Digital Marketing Essentials** — Google Digital Garage (Marketing analytics).
- **HTML & Web Design** — BUP IEEE Women in Engineering (Frontend development).

PUBLICATIONS & MANUSCRIPTS

- Taosif, M., **Chaman, U. M.**, Prova, N. A., Taher, S. M., Alam, M. G. R., & Rahman, R. A twin-aware multimodal deep learning framework with optimized late fusion for early prediction of adolescent anxiety disorder. *medRxiv*. [Preprint] **(Under Review at PLOS ONE)**.
- Noor, A., **Chaman, U. M.**, & Kabir, M. S. Federated Learning in Healthcare: A Comprehensive Survey on Privacy, Scalability, and Clinical Applications. *ICT Express (Q1 Journal)*. [Preprint] **(Accepted)**.
- Kabir, M. S., Noor, A., **Chaman, U. M.**, & Mehreen, N. Robust Multi-Backbone Hybrid Fusion for Chest X-Ray Pneumonia Detection. *QPAIN 2026 Conference*. [Paper] **(Accepted)**.

HONORS & AWARDS

- **Bronze Award** — Duke of Edinburgh International Award Program (2023). Certificate
- **Bronze Award** — The Queen's Commonwealth Essay Competition, Senior Category (2021). Certificate
- **Pre-finalist** — International Astronomy and Astrophysics Competition (IAAC) (2022). Certificate
- **Pre-finalist** — International Youth Math Challenge (IYMC) (2021). Certificate
- **Silver Badge** — HackerRank