UMMAY MAIMONA CHAMAN

+8801715003815 ⋄ Dhaka, Bangladesh
chamanmaimona@gmail.com ⋄linkedin.com/in/ummaymaimonachaman ⋄UmmayMaimonaChaman

OBJECTIVE

Dedicated and tech-savvy Computer Science Engineer with strong interests in web development, machine learning, and robotics. Seeking opportunities to apply technical expertise, creativity, and a continuous learning mindset to impactful real-world projects.

EXPERIENCE

Undergraduate Member, Biomedical Science and Engineering Research Center (BIOSE) 2024 – ongoing
BRAC University

- Conducting AI-driven biomedical research across bioinformatics, computational biology, imaging, disease diagnosis, and biomedical device development, contributing to projects on skin disease prediction and fall-detection datasets.

Director (Research & Development), BRAC University Research for Development Club (ReD) 2023 – 2026
BRAC University

- Led the club's research initiatives—advancing from general member to director—by mentoring students in research writing and methodology, organizing workshops and competitions, and fostering a strong research culture within the university.

Apprentice, BRAC University Robotics Club (ROBU) 2022 – 2023
BRAC University

- Gained practical experience in robotics through hands-on work with sensors, microcontrollers, and small engineering projects, strengthening foundational skills and improving academic performance in robotics courses.

EDUCATION

BRAC University 2022 – 2026
Bachelor of Science in Computer Science and Engineering
CGPA: (Ongoing)
Relevant Coursework: Machine Learning, Web Development, Microprocessors, Robotics, Data Science

Holy Cross College 2019 – 2021
HSC, Science
GPA: 5.00 / 5.00

Monipur High School and College 2017-2019
SSC, Science
GPA: 5.00 / 5.00

PROJECTS

Software Projects

- **SkillPocket (MERN)** — A full-stack skill-exchange platform with complete user management, built using a React frontend and Node.js MVC backend, enabling users to teach/learn skills, schedule sessions, share feedback, and manage requests efficiently.
- **CNN Vision (TensorFlow.js)** — A browser-based Deep Learning workbench powered by Convolutional Neural Networks, enabling real-time image classification and batch inference. Features custom training, Grad-CAM explainability, and privacy-first processing entirely within the browser.
- **Consumer Churn Prediction (Machine Learning)** — Developed classification models to predict consumer churn using engineered features, Logistic Regression, Random Forest, and Gradient Boosting, enabling data-driven retention strategies.

- **Pharmacy Management Website (HTML, CSS, JS, PHP)** — Designed an interactive, database-driven system for pharmacy inventory, billing, and administration using PHP-MySQL, with dynamic front-end components to streamline workflow and improve usability.
- **SkinGuard (PatchCore)** — Implemented PatchCore-based anomaly-detection pipelines for skin-disease identification, combining image embeddings, memory banks, and nearest-neighbor search for high-precision anomaly scoring.
- **CurveMaker (Flask + Python Visualization)** — Created a professional chart-building web application supporting real-time previews, multiple curve types, neon-themed UI, data validation, and PNG/SVG export, powered by Python, Flask, matplotlib, and SciPy.

Hardware Projects

- **Digital Judging Platform for Talent Competitions (Microcontroller)** — Built a role-based voting and scoring platform featuring weighted votes, single-vote validation, administrative monitoring, and automated winner calculation with detailed score breakdowns.
- **Smart Plant Watering System (Autonomous Robot)** — Developed an autonomous irrigation robot with plant detection, distance-based localization, rain sensing, temperature-dependent watering, reservoir monitoring, and return-to-base logic powered by a custom navigation algorithm.

PUBLICATIONS

- **Federated Learning in Healthcare: A Comprehensive Survey on Privacy, Scalability, and Clinical Applications** — Under review at ICT Express (Q2 journal); provides an in-depth survey of federated learning techniques and their applications in healthcare.
- **Smart Waste Solutions: Harnessing Technology for a Greener Future** — Published at ICEMSS-24 (Scopus indexed), focusing on innovative tech-driven waste management.
- **Fall Detection Dataset (Ongoing)** — Developing and analyzing datasets for ML-based fall detection systems.
- **Anomaly Detection (Ongoing)** — Researching machine learning approaches for anomaly detection.
- **HARE: Fall Dataset (Ongoing)** — Creating and evaluating a dataset for ML-based fall detection systems.
- **Turning the Tide: Rethinking Plastic Waste Management in Bangladesh** — In publication process at Bured Club Magazine (Reflection), exploring sustainable plastic management.
- **Pixel Prowess and Peril: Navigating Security Challenges in AI-Driven Editing** — In publication process at Bured Club Magazine (Reflection), discussing AI image editing security.
- **Ray Emission by the Interaction of Cold Atmospheric Plasma with High Beam Energy Electron-Positron** — Participation paper for Beamline for Schools 2021 (CERN), studying plasma-beam interactions.

SKILLS

Programming Languages	Python, JavaScript, C, C++, R
Web Development	MERN Stack, HTML5, CSS3, Bootstrap, REST API, PHP, Flask
Databases	MongoDB, MySQL, MariaDB, MYSQL
Machine Learning	TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy, SciPy
AI Expertise	Anomaly Detection (PatchCore), Federated Learning, ML/DL
Robotics & Embedded	Arduino, Raspberry Pi, Sensors, STM32, LTspice, PSpice, TinkerCAD
Tools & Platforms	Git, GitHub, Jupyter, Google Colab, VS Code
Graphics	Canva, Illustrator, Photoshop, Video Editing
Office Software	Word, Excel, PowerPoint, Access

TRAININGS & WORKSHOPS

Python Programming — Kaggle, HackerRank

JavaScript Foundations — Cisco Networking Academy

Machine Learning Fundamentals — SimpliLearn

Introduction to Artificial Intelligence — University of Helsinki

Cybersecurity Fundamentals — IBM P-Tech

Robotics Basics — BRACU Robotics Club

Digital Marketing Essentials — Google Digital Garage

HTML & Web Design — BUP IEEE WIE

Prompt Engineering Basics — Intellectium

EXTRA-CURRICULAR ACTIVITIES

- Participated in national and international Olympiads in **Math, Biology, Chemistry, Robotics, Budget**, along with global competitions including **ICSO (2022)**, **IYMC (2021)**, and **IAAC (2022)**.
- Competed in programming contests such as the **BRACU Programming Contest (2022)** and the **National High School Programming Contest (2021)**.
- Took part in research-focused competitions including **Beamline for Schools 2021 (CERN)** and the **Children's Science Congress 2021 (Bangladesh)**.
- Earned recognition in international writing events, including a **Bronze Award** in the **Queen's Commonwealth Essay Competition (2021)**, and participated in the **GOI Peace Foundation Essay Contest (2021)** and the **OSUN Global Commons Publication**.

AWARDS & ACHIEVEMENTS

Bronze Award — Duke of Edinburgh Award Program (2023)

Bronze Award — The Queen's Commonwealth Essay Competition (2021)

Pre-finalist — International Astronomy and Astrophysics Competition (2022)

Pre-finalist — International Youth Math Challenge (2021)

HackerRank — Silver Level Badge