

TAMANNA KAWSER CHOWDHURY

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EDUCATION

Premier University, Chattogram, Bangladesh

2020 – 2024

Bachelor of Science (Engineering) in Computer Science and Engineering

- **CGPA:** 3.66 / 4.00
- **Thesis:** “Deepfake Image Detection Using CNN” — Built two custom CNN architectures from scratch to detect real and StyleGAN-generated fake images, achieving 94% and 92% accuracy for the high-capacity and lightweight models, respectively; fine-tuned ResNet50 and MobileNetV1 as benchmarks to evaluate performance. (Supervisor: Asst. Prof. Tanni Dhoom)
- **Relevant Coursework:** Machine Learning, Artificial Intelligence, Software Development, Database Management System

PROFESSIONAL EXPERIENCE

SQA and Documentation Trainee

December 2025 – Present

Premier University, Chattogram, Bangladesh

- Performed functional and API testing for an ongoing software development project of the university
- Tested frontend workflows and verified UI data against backend API responses
- Reported and tracked defects using ClickUp, collaborating with developers for resolution
- Created step-by-step tutorial videos to guide users in using newly deployed institutional digital services

RESEARCH INTERESTS

- Artificial Intelligence for Accessibility & Inclusive HCI
- Natural Language Processing & Conversational AI
- Efficient / Lightweight Machine Learning for Mobile Devices
- Multimodal AI (Vision + Language)

SKILLS SUMMARY

- **Programming Languages:** Python, C
- **Machine Learning & Computer Vision:** CNNs, transfer learning, hyperparameter tuning, model training (checkpointing)
- **Data Pipelines & Augmentation:** Image preprocessing, on-the-fly augmentation, data optimization, pipeline engineering
- **Evaluation & Analysis:** Accuracy, F1-score, Precision, Recall, ROC-AUC, confusion matrix, learning curves
- **Frameworks & Libraries:** TensorFlow, Keras, scikit-learn, OpenCV, NumPy, Matplotlib, Seaborn
- **Tools & Platforms:** Google Colab (GPU), Git & GitHub, LaTeX
- **Software Testing (familiar):** Manual & API testing (Postman, Newman), Jira, Scrum
- **Software Development (familiar):** Node.js, React, HTML, CSS, JavaScript, MySQL, SQL
- **Soft Skills:** Strong written & verbal communication; collaborative team contributor
- **Language Skills:** English (IELTS Academic 6.5), Bengali (native)

ACADEMIC PROJECTS

Undergraduate Thesis | Deepfake Image Detection Using CNN | [THESIS LINK](#)

Supervised by: Asst. Prof. Tanni Dhoom, Dept. of CSE, Premier University

- Designed and implemented reliable deepfake (StyleGAN) detectors to generalize under real-world variation, optimizing for limited computational resources on **Google Colab**
- Developed two custom **CNN** architectures ($\approx 39M$ and $\approx 7M$ parameters) and **fine-tuned a ResNet50 model**, building a full resource-aware training pipeline including **image preprocessing** (256×256 resize, normalization), **on-the-fly augmentation** (flips, rotations, crops, Sobel edges), and **data optimizations** (caching, shuffling, prefetching)
- Achieved test **accuracies** of 94.07% (CNN-1), 91.75% (CNN-2), and 95.91% (ResNet50) on a balanced test set of $\approx 2,500$ images, sampled from a total subset of $\approx 15,000$ images from the 140k Real & Fake Faces dataset
- Delivered 4 runnable Colab notebooks, thesis report, and presentation slides; **prepared a manuscript currently under internal review**
- Collaboration: **Solely developed the CNN-1, CNN-2, and ResNet50 pipelines; collaborated with a peer who implemented a MobileNetV1 model for comparative analysis and ran the StyleGAN psi cross-validation**

Deep Learning Project | Handwritten Digit Recognition Using CNN (MNIST) | [CODE LINK](#)

- Built and adapted a digit recognition system for both MNIST and noisy real-world digit photos
- Designed and trained a Sequential **CNN** (Conv2D → Conv2D → Flatten → Dense), used a 10% validation split, and implemented a **preprocessing** pipeline for real images (grayscale, thresholding, Canny, contour extraction, resize & pad)
- Training **acc** 99.75%, Validation **acc** 98.17%, Test **acc** 97.65%; Mean **F1-score** 97.65%
- Model outputs confidence scores and generalizes effectively to real-world digit images

Full-Stack Project | Student Enrollment Management System | [CODE LINK](#) | [OUTPUT LINK](#)

- Built a web-based enrollment system with separate admin and student panels
- Designed a relational database by writing **SQL** queries to create tables for students, admins, courses, sessions, and requests, ensuring data integrity and preventing duplication
- Implemented course/session management, role-based login, and enrollment approval workflows
- Successfully managed multiple users and course enrollments in a test environment, demonstrating full workflow functionality and reliability

PERSONAL PROJECTS

Artificial Intelligence Project | Voice-to-Braille Conversion System | [PROJECT LINK](#)

- Built an end-to-end system that converts spoken audio into Grade-2 Braille to simplify Braille creation for visually impaired users
- Transcribed real audio files using OpenAI Whisper for speech-to-text conversion
- Applied a Large Language Model (LLM) to correct grammar and resolve explicit self-corrections
- Converted corrected English text into Grade-2 ASCII Braille using Liblouis
- Transformed ASCII Braille into Unicode Braille dots to visualize the resulting Braille pattern

API Testing | API Testing with Postman & Newman | [PROJECT LINK](#) | [API DOCUMENTATION LINK](#)

- Designed and implemented comprehensive API test cases for a mock student enrollment management system using **Postman**, performing CRUD operations with detailed assertions (status codes, headers, response time, schema)
- Utilized data-driven testing via CSV input and dynamic environment variables to chain requests (create → update → delete)

- Automated test runs using **Newman** CLI, generated HTML reports, and published interactive API documentation via Postman's Documenter
- Set up and managed a mock REST API using json-server

Manual Testing | Student Enrollment System | [PROJECT LINK](#) | [CODE LINK](#) | [OUTPUT LINK](#)

- Created test scenarios for both Admin and Student panels, covering all the functionalities of the Student Enrollment Management System
- Developed detailed test cases, RTM, test execution results, and bug reports for the registration functionality of the admin panel
- Familiar with FRS documents and test plan documents

Scrum Workflow Implementation Using Jira | [VIDEO LINK](#)

- Performed Agile **Scrum** activities using **Jira**
- Created a project in Jira, added users, and managed backlog by defining epics and user stories with assigned story points
- Managed sprints: added user stories, started the sprint, and created sub-tasks
- Demonstrated the sprint lifecycle by moving stories through Scrum board states: To Do, In Progress, and Done

Full-Stack Project | Store Report Generator App | [LINK](#)

- Developed a full-stack application using **HTML**, **CSS**, **JavaScript**, **React**, **Node.js**, and **MySQL**
- Utilized an API to fetch data and store it in a **MySQL** database
- Implemented a feature to generate reports listing top purchasers by total amount spent

Portfolio Website | [LINK](#)

- Developed a fully responsive portfolio website showcasing frontend development skills in **HTML**, **CSS**, and **Bootstrap**
- Designed and implemented key pages: home, about, projects, and contact
- Demonstrated the ability to create functional and visually appealing user interfaces

EXTRACURRICULAR ACTIVITIES

HackerRank — Problem Solving | [LINK](#)

2020 – Present

- Rating: 5★ (879.33 pts)

Ada Lovelace NGPC 2022 | [LINK](#)

2022

- Participant (Team: PUC_Bipolar)

ICPC Asia Dhaka Regional Site Online Preliminary Contest | [LINK](#)

2021

- Participant (Team: PUC_Bipolar)