Rifat Ahmed Khan

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Education

Ahsanullah University of Science and Technology   Dhaka, Bangladesh
B.Sc. in Computer Science and Engineering   2021 – 2025
- Undergraduate Thesis: *Sentinel Framework for Detecting and Preventing Adversarial Attacks on Large Language Models*
- Supervisor: Mr. Faisal Muhammad Shah, Associate Professor, Department of CSE, AUST
- CGPA: 3.486 / 4.00

Projects

AI-Powered Document Retrieval System (RAG)
- Built an intelligent RAG system to answer questions from uploaded PDFs using local vector embeddings and FAISS-based semantic search.
- Implemented automated PDF text extraction, chunking, embedding generation, and per-chunk summarization for retrieval.
- Developed document upload APIs, index rebuilding, chunk sanitization, and debugging endpoints for accurate and transparent query responses.
- **Tech Stack:** Python, FastAPI, FAISS, Sentence-Transformers, pdfplumber

Pharmacy Management System
- Developed a web application for customers, sellers, and admins to streamline online and in-store pharmacy operations.
- Implemented medicine browsing, cart/order management, customer registration, and automated receipt generation.
- Built an admin dashboard for inventory management, stock alerts, and sales reporting backed by an MS SQL Server data model.
- **Tech Stack:** C#, ASP.NET, MSSQL Server, HTML5, CSS3, Bootstrap, iTextSharp

Personal Finance Tracker
- Engineered a web platform for real-time management of income, expenses, and savings goals with user authentication and personalized dashboards.
- Implemented expense categorization, financial reporting, and visual analytics to surface spending patterns and financial health.
- Performed risk and feasibility analyses; applied encryption and performance considerations for scalability.
- **Tech Stack:** PHP, HTML5, CSS3, Bootstrap, JavaScript, MySQL

Freelancing Application (Android)
- Developed an Android platform to connect clients and freelancers with secure Firebase authentication and job posting application workflows.
- Integrated real-time chat and social features, including following systems and profile dashboards to enhance engagement.
- Implemented user popularity tracking and profile features to improve networking and discovery.
- **Tech Stack:** Android (Java), Firebase, XML

Bengali Music Genre Classification
- Built a deep learning system to classify Bengali music into 8 genres from 1,617 audio samples using MFCC preprocessing.
- Designed a hybrid CNN + Transformer model to capture spectral and long-term dependencies; reached 88.33% validation accuracy.
- Performed evaluation with precision, recall, and F1-score; analyzed genre overlaps and improvement areas.
- **Tech Stack:** PyTorch, Librosa, NumPy, Pandas, Matplotlib

Technical Skills

Programming Languages:	C, C++, C#, Java, PHP, Python, JavaScript
Web Development:	HTML5, CSS3
Frameworks & Libraries:	ASP.NET, Bootstrap, iGraphics, Tailwind
Database:	MySQL, MSSQL, Firebase
Deep Learning Frameworks:	PyTorch, TensorFlow
Tools:	VS Code, Google Colab, Visual Studio, Kaggle Notebooks, CodeBlocks, NetBeans, MATLAB
Others:	LaTeX, GitHub, GitHub Copilot

Achievements

- Tuition Fee Waiver for the Fall 2024 Semester.
- Tuition Fee Waiver for the Spring 2024 Semester.