Tanvir Hasan

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Research Interests

- Distributed Computing
- Machine Learning
- Cloud Computing
- Deep Learning
- Signal Processing
- Software Engineering

Education

B.Sc. in Computer Science & Engineering Feb 2017 - Oct 2022
Chittagong University of Engineering & Technology (CUET)
CGPA: 2.90/4.0
Academic Thesis: A Comparative Study of Machine Learning and Deep Learning Models for EEG-Based Seizure Detection.

- CNN, RNN, LSTM and ML classifiers were implemented and compared on EEG data, achieving high detection accuracy while analyzing performance-complexity trade-offs.

Standardized Tests

Test	Score	Date
GRE General Test	Q: 161 | V: 138 | AWA: 2.5	11 August 2025
IELTS Academic	Scheduled for late November 2025	—

Professional Experience

Telcobright Ltd. **Apr 2023 – Present**
Software Engineer

- Designed and developed a fault-tolerant **distributed stream processing system** from scratch, handling real-time data ingestion and processing at scale
- Built and maintained **microservices-based** backend systems using Java, Spring Boot, and Quarkus, implementing REST APIs, gRPC services, and JPA/Hibernate for data persistence
- Established security infrastructure with **Spring Security** and API Gateway, implementing authentication, authorization, and API routing patterns for secure inter-service communication
- Applied software design patterns and best practices to deliver scalable, maintainable, and production-ready systems across multiple projects
- Monitored and optimized system performance in production environments, identifying and resolving vulnerabilities to ensure high availability and reliability
- Designed and deployed cloud infrastructure using AWS EC2, Docker, database replication strategies, and automated CI/CD pipelines with Terraform and Ansible for continuous deployment

Technology Used: Java, Spring Boot, Quarkus, Kafka, Apache Flink, gRPC, Docker, JPA/Hibernate, AWS EC2, Terraform, Ansible, CI/CD

BJIT Ltd. **Jan 2022 – Mar 2022**
Software Engineering Intern

- Developed and integrated RESTful APIs using Spring Boot to handle HTTP requests and perform CRUD operations on backend databases
- Conducted comprehensive API testing using Postman to validate endpoint functionality, ensure data accuracy, and verify request-response cycles
- Built responsive front-end components to dynamically fetch and display data from backend services, delivering a seamless user experience

Relevant Coursework

Algorithm Design, Data Structures, Operating Systems, Compiler Design, Machine Learning, Software Engineering, Networking, Artificial Intelligence, Digital Signal Processing, Digital Systems Design

Projects

Real-Time Distributed Messaging System
Repository

- Built a high-performance server using **multithreading** and **WebSocket** for real-time messaging, streaming data into **Kafka** topics
- Implemented a fault-tolerant, **distributed messaging pipeline** with **Apache Flink**, achieving **exactly-once message delivery**
- Integrated **Kafka** for durability and persistence, ensuring no data loss during failures

FreeSWITCH Event Socket Integration (ESL Client)
Repository

- Developed a **Spring Boot** microservice integrating with **FreeSWITCH** via the **Event Socket Library (ESL)** for real-time call routing and monitoring
- Implemented logic for handling **inbound/outbound** calls, subscribing to call events, and processing call state changes asynchronously
- Enhanced system reliability with robust event handling, error recovery, and Docker-based deployment

Online Voting System for University Elections
Repository

- Built a secure online voting platform using **Spring Boot (Microservices)** and **MySQL**, ensuring one-vote-per-user integrity
- Developed a **React** frontend for voter authentication, candidate selection, and result display
- Focused on security, scalability, and transparency to support fair university elections

Achievements

Competitive Programming

- Pupil in Codeforces with a maximum rating of **1374 (Pupil)**. (CF handle: Veer)
- Solved over **1500+** problems across various online judges (Codeforces, LeetCode, etc.)

Machine Learning Specialization - Stanford University Online by Andrew Ng (Coursera)

- Gained hands-on experience in supervised/unsupervised learning and applied core ML concepts including linear regression, logistic regression, neural networks, and decision trees.

Computing Skills

- **Programming Language:** C/C++, Java, C#, Python
- **Databases & Messaging:** MySQL, MariaDB, Redis, Apache Kafka
- **Version Control:** Git
- **Cloud & Infrastructure:** AWS, Terraform, Jenkins (CI/CD).
- **Container Technologies:** Docker,LXD
- **Operating Systems:** Linux kernel-based distributions (Ubuntu, Debian, CentOS etc.), Windows

Activities

- **Finance Secretary** for the CUET CSE Fest organized by the CUET Computer Club, managing financial operations and ensuring the successful execution of the event
- **Volunteered** at the National Collegiate Programming Contest (NCPC) 2017, contributing to event organization and supporting participants in a high-stakes programming competition