Jihan Chowdhury

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Summary of Qualifications

- Computer Engineering student (Software Option) with a **3.8 GPA** and strong foundations in algorithms, data structures, and digital systems.
- Experienced in building **full-stack and embedded systems**, integrating backend logic, sensor data, and user-facing interfaces.
- Applied **machine learning and cloud technologies** in hands-on projects and hackathons, delivering data-driven insights and scalable applications.

Education

Toronto Metropolitan University Toronto, ON

*Bachelor of Engineering in Computer Engineering (Software Option), GPA: **3.8*** *Expected Apr. 2027*

- Completed coursework in programming fundamentals, data structures, object-oriented design, and digital systems.
- Applied analytical reasoning and problem-solving in software and hardware integration projects.

Technical Skills

Languages & Frameworks: Python, Java, C, C++, MATLAB, JavaScript (ES6+), TypeScript, React, Next.js, Drizzle ORM, JUnit
Databases & Backend: PostgreSQL, Oracle SQL, MongoDB, Appwrite
DevOps & Cloud: Git, GitHub, GitHub Actions (CI/CD), Azure, AWS (basic), Netlify, Render
UI/Design Tools: Tailwind CSS, ShadCN/UI, AutoCAD, Figma (basic)
Concepts: Object-Oriented Programming, Data Structures & Algorithms, Design Patterns (State Pattern), Data Analysis

Projects

E-Library Platform | *Next.js 15, TypeScript, PostgreSQL, Drizzle ORM, NextAuth.js, Tailwind CSS* Oct. 2025

- Built a full-stack library management system featuring **role-based dashboards, real-time borrowing**, and due-date tracking.
- Implemented secure authentication and CRUD book management with NextAuth.js and Drizzle ORM.
- Optimized client performance with **debounced filtering (300ms delay)** reducing redundant searches by 75%, and **HTTP caching (5–10 min)** cutting repeat DB hits by 60%.
- Configured CI/CD pipelines via GitHub Actions and deployed on Vercel for **continuous delivery and scalability**.

AWS Rift Rewind Hackathon (In Progress) | *Python, Flask, Next.js, AWS Bedrock, Riot Games API* Nov. 2025

- Developing an AI-powered recap agent using AWS Bedrock and Riot Games API to generate personalized insights for League of Legends players.
- Building Flask backend and Next.js interface to visualize player stats, playstyle trends, and improvement summaries.

Library / Bookstore Management App | *Java, OOP, State Pattern, Console App* Apr. 2025

- Developed a modular Java console application supporting customer and owner roles for browsing, borrowing, and managing inventory.
- Applied the **State Design Pattern** to simulate Silver/Gold memberships with dynamic rewards and discounts.
- Practiced key OOP principles such as encapsulation, inheritance, and polymorphism across multiple reusable classes.

E-Commerce DBMS | *Oracle SQL, ER Modeling, Schema Design, Data Queries* Sep. 2025

- Designed and implemented a relational database for an online marketplace to manage customers, orders, and product inventory.
- Created an **ER diagram** and converted it into a **normalized schema**, enforcing referential integrity with primary/foreign keys.
- Built **views and advanced SQL reports** to evaluate product trends and supplier performance.
- Executed Oracle SQL commands through **Unix Shell scripts** for database interaction and query visualization.

Human-Following Robot | *Arduino, C++* Jun. 2023

- Built a mobile Arduino-based robot capable of following a person using ultrasonic and IR distance sensors.
- Integrated sensor readings with motor control logic to maintain proximity and direction to a moving target.

Climate Data Analyzer | *C, GNUPlot* Apr. 2024

- Developed a C program to parse global temperature datasets (1750–2015) and compute averages, extremes, and trends.
- Used GNUPlot to visualize **long-term climate changes and correlations** across multiple centuries.