

# Bill Wang

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## Education

### University of Waterloo

Sept. 2022 – April 2027

Bachelor of Software Engineering

Waterloo, ON

- **Courses:** Software Engineering Principles, Statistics for Software Engineering, Intro to Database Management, Data Structures and Data Management, Foundations of Sequential Programs, Operating Systems, Algorithms I & II, User Interfaces, Software Testing and QA

## Experience

### Software Engineering Intern

Sept. 2024 – Present

AllMind AI

Toronto, ON (Hybrid)

- Engineered a **financial chatbot** by leveraging a **mixture of models architecture** with **RAG agents using Langchain**. The agents used function calls to reference finance-related API endpoints and generate queries for PostgreSQL tables
- **Improved generation time of training sets by 60%** by using Python's multi-threading library to concurrently scrape, clean, and extract data
- Increase user retention by developing a dynamic, mobile-first landing page and web-app with smooth animations by using React, Motion, TailwindCSS, and Next.js
- Developed a secure data-viewing interface with Next.js's server-side fetching, concealing API calls to the company's private servers and ensuring sensitive endpoints remain hidden from the client

### Engineering Intern

Feb. 2024 – May 2024

Huawei Technologies

Vancouver, BC

- Enhanced reliability of release packages by extending the Jenkins pipeline to check for dependencies and submit Slurm jobs for testing
- **Optimized system performance by removing 25 inefficient nodes** by using Python and shell scripts to analyze and record data
- **Accelerated compilation speed of C++ SDK by 30%** through implementing the plmpl design patterns to reduce header exposure
- Enhanced a C++ polynomial solver by integrating the command design pattern, enabling advanced features such as sequential queues, a comprehensive command history, and seamless undo/redo functionality to improve usability and flexibility

### Software Developer

May 2023 – Aug. 2023

AdaptivePulse

Waterloo, ON (Remote)

- Engineered a **full-stack SaaS application** with an **AI chatbot** to facilitate Canadian bids and tenders, using **React** for the frontend, **Amazon Redshift** for the database, **FastAPI** for the backend, and **Docker** for deployment
- Automated the acquisition and storage of 20K+ documents from request-for-proposal platforms using Python with Selenium and Requests, storing into an AWS S3 container

## Projects

### Rust Vector Database | Rust

- Creating an efficient vector database library (FAISS clone) on Rust using the HNSW data structure

### JeARVIS - Hack The North | ElectronJS, Groq, Node.js, Python, Unity, Voiceflow, WebGL

- Developed an interactive desktop agent using Electron.js for the frontend and Python for the WebSocket server, integrating Voiceflow and Groq for real-time data inferencing
- **Processed desktop images** for context understanding and data extraction **using Groq's LLaVA model**
- Utilized **Voiceflow to set up multiple models** to process voice and image data, evaluating productivity levels and **generating natural-language responses**

### Club Connect | Next.js, Tailwind CSS, TypeScript, Prisma, PostgreSQL, Docker

- **Centralized 200+ university clubs and events** by developing a social media platform with **Next.js for both frontend and backend**, streamlining the process for students to discover and participate in club activities
- Utilized Docker to manage the PostgreSQL database and Prisma ORM for database interactions, ensuring efficient data management and scalable deployment

## Technical Skills

**Languages:** Java, Python, C/C++, SQL, JavaScript, TypeScript, HTML/CSS, Assembly, Rust

**Frameworks:** React, Next.js, Electron.js, TailwindCSS, FastAPI, LangChain, Streamlit

**Other:** Git, RDBS, Docker, AWS, GCP, Linux, Vim, Jenkins, BeautifulSoup, Auth0, Pinecone, Prisma, Kubernetes