

# Ben Zhou

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[bzhou.ca](http://bzhou.ca) | [GitHub](#) | [LinkedIn](#)

## EDUCATION

### University of Waterloo

Candidate for BAsC in Computer Engineering, Honours

Anticipated Sep 2024 – Apr 2029

Waterloo, Ontario

## EXPERIENCE

### Firmware Team Member

Midnight Sun

Sep 2024 – Present

Waterloo, Ontario

- Wrote driver functions in **C** to read and convert temperature readings into values between -2.048V to 2.048V.
- Configured ADS1115 Multi-Channel ADC by manipulating specific bit fields from datasheet.

### Prototype Engineering Intern

Averroes Technologies

Jul 2024 – Aug 2024

Toronto, Ontario

- Developed 12 firmware prototypes using **C++** to iteratively validate, and **optimize** core product functionalities.
- Created a MQTT client-server broker in **Python** to handle API requests and store data in an **SQLite** database.

### Software Developer Co-op Student

SAP Toronto

Feb 2024 – Jul 2024

Toronto, Ontario

- Created a worker to handle and sanitize **GPT-4o** requests using **TypeScript** reducing request errors by **23%**.
- Wrote comprehensive unit tests using Vitest to achieve **100% coverage** of worker.
- Wrote scripts in **Python** and **Node** to clean **248,000** records, updated schema to accelerate processing by **26%**.
- Integrated diagnosis tool with Firestore and Firebase Authentication for secure user access.

### FullStack Developer Lead

EurekaHacks 2024

Nov 2023 – May 2024

Oakville, Ontario

- Enhanced SEO strategies by optimizing metadata, improving page load times by **160%**, and reducing LCP, leading to a **3,800+ increase in impressions** and **1,100+ clicks**.
- Led a team to build a modern, responsive website using **Next.js**, secured a max event capacity of **300+ sign-ups**

## PROJECTS

### GooseontheLoose - Award Winner @HackTheNorth | [GitHub](#) | *Next.js, TypeScript, Mongo*

Sep 2024

- Designed an API in **TypeScript** to classify and recognize Canadian geese with over **95%** accuracy.
- Integrated Google Maps API with **MongoDB** to store geolocal data for accurate real-time tracking.

### bTagScript Playground | [Project](#) | *Flask, Python, HTML, CSS, JavaScript, MySQL*

Jan 2022 – May 2023

- Designed a **Flask API** to serve program run requests while also logging runtime data through **MySQL**.
- Processed **14,350+ programs**, and recently migrated to a new host to ensure **99.97%** uptime for all users.

### Spotify Macrokeyboard | [GitHub](#) | *C++, TypeScript*

Feb 2024 – Jun 2024

- Implemented an API in **TypeScript** to handle Spotify states and retrieve currently playing music.
- Rewrote at library in **C++** to accelerate up API requests and processing by over **750%**.

### FlashNotes - 3rd Place @HackTheRidge 2024 | [GitHub](#) | *TypeScript, Next.js, Tailwind*

Dec 2023

- Created webapp that converts images of notes into full manageable flashcard sets.
- Integrated OpenAI's Vision model with OCR technology for seamless image-to-text conversion.

### UniPlanner - 1st Place @HDSBHacks | [GitHub](#) | *Next.js, Prisma, Tailwind, TS, Mongo*

May 2023 – Present

- Implementing full authentication system third-party services, along with a secure payment system using JWT.
- Used **Prisma** to design efficient schemas, enhancing data integrity and improving query performance.

## TECHNICAL SKILLS

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

**Technologies:** Next.js, React, Flask, MongoDB, Redis, TailwindCSS, framer-motion, SQLite, MySQL

**Development:** Git, GCP, Oracle, Linux, Firebase, Vitest