Ben Zhou

ben.zhou@uwaterloo.ca | bzhou.ca | GitHub | LinkedIn

EDUCATION

University of Waterloo   Sep 2024 – Apr 2029
Candidate for BASc in Computer Engineering, Honours, Excellent Standing with Distinction   *Waterloo, Ontario*

EXPERIENCE

Software Engineering Intern   Jan 2025 – Apr 2025
Fuego.io   *San Francisco, California*
- Optimized core AI gen feature by developing custom architecture, accelerating response times to be **17.7x faster** (**15.4s → 0.87s avg**), reducing token usage and slashing costs by similar margins.
- Wrote **120 Jest/Vitest tests (100% branch cov.)** for timezone & metafield logic, eliminating recurring bugs.
- Implemented ESLint linting, resolving **200+** production warnings and errors to enhance code quality.
- Built **audience segmentation** features, enabling targeted messaging for brands reaching **millions** of users.
- Launched a production **Shopify Discount Extension** and managed metafields via **GraphQL** for discounts.

Firmware Team Member   Sep 2024 – Dec 2024
Midnight Sun   *Waterloo, Ontario*
- Developed ping testing functions in **Python** and **C** to verify connectivity across all devices on a CAN network.
- Wrote driver functions in **C** to read and convert temperature readings from raw voltage values.

Prototype Engineering Intern   Jul 2024 – Aug 2024
Averroes Technologies   *Toronto, Ontario*
- Developed 12 firmware prototypes using **C++** to iteratively validate, and **optimize** core product functionalities.
- Created an MQTT client-server broker in **Python** to handle API requests and store data in an **SQLite** database.

Software Developer Co-op Student   Feb 2024 – Jul 2024
SAP Toronto   *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 request worker.
- Wrote scripts in **Python** and **Node** to clean **248,000** records, updated schema to accelerate processing by **26%**.

FullStack Developer Lead   Nov 2023 – May 2024
EurekaHacks 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 2024 | GitHub | *Next.js, TypeScript, Mongo*
- Designed an API in **TypeScript** to classify and recognize Canadian geese with over **95%** accuracy.
- Integrated Google Maps API with **MongoDB** to store geolocational data for accurate real-time tracking.

bTagScript Playground | GitHub | *Flask, Python, HTML, CSS, JavaScript, MySQL*
- Designed a **Flask API** to serve program run requests while also logging runtime data through **MySQL**.
- Processed **15,000+ programs**, and recently migrated to a new host to ensure **99.97%** uptime for all users.

Spotify Macrokeyboard | GitHub | *C++, TypeScript*
- 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*
- Designed full website with **framer-motion** effects and flashcard set generation.
- Integrated OpenAI models with OCR technology for image-to-text conversion with API written in **TypeScript**.

UniPlanner - 1st Place @HDSBHacks 2023 | GitHub | *Next.js, Prisma, Tailwind, TypeScript, Mongo*
- 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, GraphQL
Technologies: Next.js, React, Vite, Flask, Mongo, Redis, Tailwind, SQLite, MySQL, Express, Sequelize
Development: Git, GCP, Oracle, Linux, Firebase, Vercel, Vitest, Jest, ESLint