BEN ZHOU

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EDUCATION

University of Waterloo   Waterloo, Ontario
BASc in Computer Engineering, Honours   *Sep 2024 – Apr 2029*

EXPERIENCE

Prototype Engineering Intern   Jul 2024 – Aug 2024
Averroes Technologies   *Toronto, Ontario*
- Designed diverse software and hardware prototypes, utilizing **C++** and **Python** to iteratively test, validate, and optimize core product functionalities.
- Engineered and soldered custom circuits on a perf board to successfully demonstrate proof of concept, ensuring the feasibility and reliability of key design elements.

Innovation Developer Co-op Student   Feb 2024 – Jul 2024
SAP Toronto   *Toronto, Ontario*
- Created a Cloudflare worker using **TypeScript** to handle and sanitize GPT-4o requests, also developed comprehensive tests, achieving **100% coverage**.
- Developed a personalized diagnosis tool using SAP Business Technology Platform (BTP) in conjunction with **Firestore** and **Firebase Authentication**.
- Wrote multiple scripts using **Python** and **Node.js** to parse and clean **248,000+** rows of data while benchmarking performance.

FullStack Development Lead   Nov 2023 – May 2024
EurekaHacks 2024   *Oakville, Ontario*
- Led a team of three in developing a modern, responsive website utilizing **Next.js**.
- Enhanced SEO strategies, resulting in a significant increase of **3,600+ impressions** and **1000+ clicks**.
- Integrated a form system with Tally, achieving a full capacity of **300 sign-ups** a month prior to the event.

Programming Instructor   Sep 2023 – Present
Triway Education   *Stouffville, Ontario*
- Taught a comprehensive curriculum of 18 lessons to enhance programming skills in **Java** and **Python**.
- Provided personalized tutoring to students preparing for the AP Computer Science A (AP CSA) exam.

PROJECTS

Spotify Macrokeyboard | GitHub | *C++, TypeScript, ESP32, PCB*   Feb 2024 – Jun 2024
- Created a custom macro keyboard with an OLED screen, keyboard switches, custom keycaps, and RGB lighting that controls, displays, and matches album colours from music.
- Designed a **PCB** and a **3D chassis** to house the project, integrating it with RGB lighting.
- Implemented an API in **TypeScript** to manage Spotify states, and rewrote an outdated library in **C++**.

UniPlanner - 1st Place @HDSBHacks | GitHub | *Next.js, Prisma, Tailwind, TS, Mongo*   May 2023 – Present
- Rewriting application to leverage server-side rendering and caching strategies in **Next.js**.
- Implementing full authentication system with JWT, third-party services, along with a secure payment system.
- Used **Prisma** to design new, efficient **MongoDB schemas**, enhancing data integrity and improving query performance.

FlashNotes - 3rd Place @HackTheRidge 2024 | GitHub | *TypeScript, Next.js, Tailwind*   Dec 2023
- Developed a website using **Next.js** that converts images of notes into studyable flashcard sets.
- Integrated OpenAI's vision model with OCR technology for seamless image-to-text conversion.

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 data through **MySQL**.
- Helped debug **14,350+ programs**, and recently migrated to a new host to ensure **99.95%** uptime for all users.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, HTML, CSS, C++, Python, Java, SQL (Sqlite, MySQL), Bash
Technologies: Next.js, React, Node, Flask, MongoDB, Redis, Tailwind, framer-motion, ESP32, Arduino, Raspberry Pi
Developer Tools/Skills: Git, GCP, Oracle, VSCode, Eclipse, Linux, Soldering, PCB Design, 3D Printing