# Alan Zhou

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## EDUCATION

- **University of British Columbia** — Vancouver, BC
  *Major in Computer Science; GPA: 4.10/4.33* — *Sep 2023 - Jun 2027*
  - **Courses**: Software Construction, Models of Computation, Data Structures & Algorithms
  - **Activities**: Competitive Programming Team (ACM ICPC); Film Society; Intramurals

## SKILLS

- **Languages**: C++, Golang, JavaScript, TypeScript, Python, Kotlin, Java, OCaml, HTML/CSS
- **Frameworks and Tools**: Node.js, GraphQL, Express.js, React, PostgreSQL, Git, AWS, Docker, Kubernetes

## EXPERIENCE

- **Littledrop** ↗ — Vancouver, BC
  *Software Developer* — *May 2023 - Jan 2024*
  - Utilized **Node.js and TypeScript** to develop scalable backend APIs for multiple web projects, leveraging **JWT and OAuth2** for authentication and **Redis** for session management/caching
  - Enhanced performance of the client management portal by reducing database query latencies by over **200%** through indexing essential items in the existing **PostgreSQL database**.

- **Mozilla Foundation** ↗ — San Francisco, CA
  *Open Source Developer* — *Jan 2024 - Present*
  - Worked on **Firefox browser toolkits** in JavaScript and C++. Improved reader mode functionality by rolling out a **custom themes menu** and adding **accessibility features**, leveraging **Mercurial** for version control and **Phabricator** for collaboration.
  - Developed custom **unit and integration tests** using **Mocha** to validate new features and code changes. Utilized in-house CI/CD tools to automate the testing process.

## PROJECTS

- **CHIP-8 Emulator** ⬡ — *Jun 2024*
  - Wrote a CHIP-8 emulator in C, utilizing **SDL2** for graphics rendering, input handling, and audio output.
  - Implemented the complete set of **35 CHIP-8 opcodes** to ensure seamless compatibility with classic CHIP-8 programs. Featured a customizable 64x32 monochrome display and supported cross-platform execution on Windows, macOS, and Linux environments.

- **UBC Talks** ⬡ ↗ — *Apr 2024*
  - Developed a course-specific discussion platform using **Typescript**, with a **Next.js frontend and serverless backend**, aimed at facilitating communication and collaboration among UBC students
  - Implemented **OAuth2.0 flow** for authorization, streamlined deployment to Google Cloud Run using **Docker images**

- **PrettyGrader** ⬡ — *Sep 2023*
  - Developed a **Chrome extension** using HTML, CSS, and JavaScript that revamped the default UI of the autograder for my CPSC 110 class, used by over **800 students**
  - Improved readability by implementing a **clean design**, and added extra features such as **syntax highlighting** and improved dashboard navigation