ALAN ZHENG

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EDUCATION

University of British Columbia Vancouver, BC, Canada

Bachelor of Science in Computer Science | GPA: 3.7 *Sep. 2022 – May 2026 (Expected)*

- Awards: Dean's Honour List
- Coursework: Data Structures and Algorithms, Software Engineering, Machine Learning, Neural Networks, Computer Vision, Relational Database, Operating Systems, Computer Graphics, Computer Networks

TECHNICAL SKILLS

Languages: Java, Python, JavaScript/TypeScript, C/C++, SQL, R, HTML/CSS
Frameworks and Libraries: Vue, React, Express, NumPy, Hugging Face Transformers, PyTorch
Testing: JUnit, Vitest, Mocha, Chai
Tools: Git, GitHub, Node, Vite, Jupyter Notebook, Linux, Docker

PROJECTS

UBC Marketplace | *TypeScript, React, Express, MongoDB, Docker* May 2025 – Present

- Designed a full stack application collaboratively using a typical MERN setup, which allows UBC students and staff to trade second-hand items in a secured environment
- Implemented the backend as a REST API service to enable fast and secure communication
- Built the server in a separate Docker container, which simplified the configuration process on different systems and increased collaboration efficiency by 30%

Personal Website | *TypeScript, Vue.js, Tailwind, Vite, Vitest* Dec. 2024 – Present

- Implemented the website as a single-page application using Vue.js and TypeScript
- Used dynamic import, code splitting, and tree-shaking techniques to reduce the bundle size by 15%
- Performed automated CI/CD tasks such as testing and dependency updates through GitHub Actions, significantly improved software quality and developer experience

Insight UBC | *TypeScript, React, Yarn, Mocha, Chai* Sep. 2024 – Dec. 2024

- Implemented a full stack application collaboratively using TypeScript, which allows users to query UBC-related datasets for results
- Wrote extensive unit tests using Mocha and Chai to ensure the correctness of our implementation
- Exercised Agile/Scrum development methodologies, which greatly increased collaboration efficiency

LLM Finetuning | *Python, Hugging Face Transformers, Google Colab* Mar. 2024

- Finetuned a Llama-2-7b LLM to generate SQL queries from plain English input
- Utilized publicly available datasets through Hugging Face datasets API
- Used techniques like QLoRA for efficient finetuning on lower tier GPU with 95% reduction on VRAM usage
- Obtained metric scores for performance analysis of the model

Ecosystem Database | *Java, Maven, Oracle SQL* Jan. 2024 – Apr. 2024

- Designed and implemented the backend of an ecosystem database collaboratively using Java and JDBC
- Embedded the model-view-controller architecture to simplify the interaction between application and database
- Used Maven to manage dependencies and simplify build process
- Gained knowledge on essential web development design patterns and best practices

Call Graph Maker | *Java, Java Swing, JUnit, JaCoCo* Jan. 2023 – Apr. 2023

- Designed and built an application that allows users to build, save, and load call graphs stored in JSON format from either command line or graphical interface
- Used Java Swing library with third party look-and-feel to build the GUI of the application
- Wrote detailed unit tests using JUnit and tested coverage with JaCoCo