

# RANDY ZHU

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## EDUCATION

### University of British Columbia

Bachelor of Science, Honours Computer Science, Option in Software Engineering

September 2023 – December 2027

GPA: 88%

## TECHNICAL SKILLS

**Languages:** Python, Java, C#, TypeScript, HTML/CSS, C++, C, SQL, MIPS Assembly

**Developer Tools:** Git, Docker, Linux

**Testing Frameworks:** JUnit, NUnit, PyTest, Playwright

**Technologies:** React.js, Google Maps API, Unity Game Engine, Express.js, Google Cloud Run, Power BI, SQL Server Management Studio (SSMS), pandas, pthreads

## WORK EXPERIENCE

### Research Assistant

May 2025 – September 2025

Software Practices Lab

Vancouver, BC

- Implemented **graph algorithms for static and dynamic program analysis in Python** for automated unit test generation
- Identified external dependencies to functions by extracting docstrings from objects for analysis with an open source LLM, **Gemma 3n on ollama**
- Developed the tool using Agile methodologies like **Kanban**; managed source code collaboration using **Git**
- Caught 76% of bugs and covered 85% of code base using test-driven-design by writing over 300 **unit tests in PyTest, mocking expensive API calls using pytest\_mock and monkeypatch**

### Software Developer Intern

September 2024 – April 2025

Teck Resources

Vancouver, BC

- Created calendar component used by **teams across the org** using the Power Apps Component API, React.js, TypeScript and the Microsoft Fluent UI React toolkit
- Tested web apps, catching 87% of bugs before reaching user acceptance tests using **Playwright** and **NUnit** and **C#**
- Saved over 100 hours for site engineering teams by creating a data ingest tool using the Microsoft Dataverse **REST API in C#**
- Presented **Power BI** dashboard of on-site safety events across business units by unifying data from legacy databases, using **SSMS, to wrangle data using SQL**, then finer transformations using **M, DAX** and **pandas** for the final dashboard

### Undergraduate Teaching Assistant

July 2024 – Present

The University of British Columbia

Vancouver, BC

- Achieved a 98% rating from students for **debugging their event-driven Swing code in Java**
- Lectured during seminars on low-level programming fundamentals like **MIPS Assembly, stack frames, and POSIX pthreads**
- Explained and solved parallel programming problems as a part of office hours using **spinlocks, mutexes, and threading**

## PROJECTS

**Campus Explorer** | TypeScript, React.js, express.js, Google Maps API, Docker, Google Cloud Run

2025

- Designed REST APIs and implemented them in express.js, writing middleware to route rooms using the Google Maps Routing API for cycling and walking paths
- Containerized the backend using **Docker and deployed the API to Google Cloud Run**
- Displayed and transformed embedded map using the Google Maps JavaScript API on React.js based frontend

**ExploTest** | Python, static and dynamic program analysis

2025

- Tool for automatically **generating regression test suites for code bases from integration tests**
- Created static abstract syntax tree analyses along with dynamic tracing of Python code at runtime to capture function inputs and outputs

**Collidy Road** | Unity, C#, .NET

2023

- Achieved **top 5% game quality** as rated by other players in the game jam
- In the Unity Game Engine, developed player interaction and hostile AI scripts using C#