RANDY ZHU

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EDUCATION

University of British Columbia   September 2023 – December 2027
Bachelor of Science, Honours Computer Science and Software Engineering   *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**

Power Platform Developer   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#