Randy Zhu

604-704-9500 | randy@randyzhu.com | linkedin.com/in/rzhu08 | randyzhu.com | github.com/RandoNandoz

Education

University of British Columbia September 2023 – December 2027
Bachelor of Science, Honours Computer Science, Option in Software Engineering *GPA: 88%*

Technical Skills

Languages: C++, C, Swift, Python, Java, C#, TypeScript, HTML/CSS, SQL
Developer Tools: Git, Docker, Linux
Testing Frameworks: Playwright, JUnit, NUnit, Swift Testing, PyTest
Technologies: React.js, Unity Game Engine, Express.js, Google Cloud Run, Power BI

Work Experience

Software Developer Intern May 2025 – September 2025
University of British Columbia *Vancouver, BC*

- Secured a $6000 grant to develop and research a tool to create unit tests from integration tests.
- 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

Teaching Assistant July 2024 – Present
The University of British Columbia *Vancouver, BC*

- Achieved a 98% favourable 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

iSCSI Driver for macOS | *Swift, C++, DriverKit, Networking, iSCSI (RFC 7143)*

- iSCSI is a storage protocol similar to SMB or NFS, but at a lower level. This project aims to create an free and open-source alternative that uses the new DriverKit API instead of kernel modules.
- Working around limitations of DriverKit by implementing the networking client in user space with Swift
- Implemented SCSI device driver with ring buffers to improve performance using C++ without the STL

Lisp Compiler | *x86 assembly, Linux ABI, C, Lisp, gdb*

- Implemented instruction selection and register allocation using graph colouring algorithms to minimize expensive memory reads
- Working towards support for first class functions via closure conversion, and tail call optimization to enable efficient recursion
- This compiler implements the Epsilon Garbage Collection algorithm from Java

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

- 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