

# RANDY ZHU

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## EDUCATION

### University of British Columbia

Bachelor of Science, Computer Science and Software Engineering

GPA: 88%

September 2023 – May 2028

## TECHNICAL SKILLS

**Languages:** Java, C#, Python, C, C++, TypeScript, Lisp (R6RS/Racket), SQL (some T-SQL)

**Developer Tools:** Git, Docker, VSCode, Visual Studio, IntelliJ, Azure, Linux

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

**Libraries:** pandas, Matplotlib, MongoDB, jQuery, React, Swing, Java AWT, Power Apps Component Framework, Unity Game Engine, Flask, Firebase, ASP.NET, Entity Framework, SQLAlchemy, CsvHelper, Dynamics CRM

**Developer Skills:** Agile Software Development, Unit Testing, Test-Driven Development

## WORK EXPERIENCE

### Research Assistant

May 2025 – September 2025

Software Practices Lab (UBC Department of Computer Science)

Vancouver, BC

- Collaboratively developed unit test generation tool with a fellow summer research intern.
- Designed and implemented static and dynamic program analysis techniques to extract program data to facilitate unit test creation.
- Created LLM-assisted intelligent detection of global state in Python functions, with both a static and a dynamic analysis pass to determine whether objects should be mocked.
- Using pytest, created high quality, repeated, and fast unit tests in an Assert-Act-Arrange style to detect bugs early on in the development lifecycle.

### Power Platform Developer

September 2024 – April 2025

Teck Resources

Vancouver, BC

- Created calendar Power App component used by teams across the organization for scheduling and resource management
- Developed React photo viewer plugin with Typescript and Power Apps Component Framework
- Performed automated testing of Power Apps UIs using Dataverse API and Puppeteer in C#
- Transitioned legacy Excel spreadsheets to Power App solutions using Pandas and Python, converting data and accelerating ETL pipelines for business analysis teams.
- Architected efficient relational database schemas in Microsoft Dataverse

### Undergraduate Teaching Assistant

July 2024 – Present

The University of British Columbia

Vancouver, BC

- Debugged and optimized students' event-driven Java Swing code in office hours and labs
- Led weekly labs with 90 students per week, achieving an average rating of 4.9/5 for student engagement, preparation, and fostering a positive learning environment
- Taught students low-level computer systems concepts such as basic computer architecture, assembly programming in a MIPS dialect, memory management in C, threading, and C++ vtables
- Advised students on debugging strategy for assignments involving complex memory allocation issues

## PROJECTS

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

September 2025

- ExploTest is a research prototype used to generate unit tests from system-level integration tests. It captures procedure calls during whole-program execution and creates individual unit tests for each procedure.

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

July 2023

- Achieved 95th percentile rated game quality, voted on by other contestants in the game jam
- Debugged and developed player and hostile entity player interaction scripts in C# for a smooth gameplay experience
- Optimized game logic to allow for over 10000 hostile entities

## AWARDS

Natural Sciences and Engineering Research Council of Canada Undergraduate Student Research Award

July 2025