Patrick Zhou

3rd Year BSc. Computer Science at University of British Columbia
(672) 338-7965 | patrickzhou45@gmail.com | linkedin.com/in/patrickzhou04 | github.com/chiefpat450119

Education

University of British Columbia — Expected May 2027
Bachelor of Science, Major in Computer Science — *Vancouver, BC*
GPA: 96.7% (4.33)

Experience

Software Engineer Intern, Security Engineering — May 2026 – Present
Shopify — *Toronto, ON*

Software Engineer Intern, Infotainment Applications — Jan. 2025 – Aug. 2025
Rivian & VW Group Technologies — *Vancouver, BC*

- Worked as a **full-stack Android developer** on the Infotainment Media App, completing 3 major features, fixing 20+ bugs, and integrating 30+ 3rd-party APKs.
- Implemented a new responsive, animated UI for the Media Source Selector, integrating a **MVC** architecture with a state machine to achieve a single source of truth for UI state.
- Redesigned source selector back-end data flow based on MVI architecture, serializing data with **protobuf**, to decouple UI logic from business logic.
- Leveraged **Kotlin** null-safety, SOLID design principles, dependency injection, and observer patterns to keep code reliable, modular, and testable.
- Identified and fixed performance issues using **coroutines** and Android's strict mode.
- Developed new features for Apple Music, contributing to a **5% increase** in its usage to 50k+ active users.

Projects

Project Starhaven | UBC Game Dev Club - Team Lead | *Godot, C#, .NET, GLSL* — Oct. 2025 – Present

- Led and coordinated a 12-member interdisciplinary game development team to create an **isometric space colony city-builder** in the Godot engine with C# and .NET.
- Architected and enforced (through code review and project management) modular, data-driven code structure to ensure extensibility for future gameplay additions.
- Applied a **composite pattern** to propagate tile effects through arbitrary building sub-components, enabling extensible building behaviours (power, storage, wellbeing, etc.) without rewriting grid logic.
- Designed a **tile-metadata resource pipeline** where building states are determined by tile data (e.g. wellbeing/power) and update via events, enabling real-time environmental effects.
- Implemented **population simulation**, leveraging composition with event-driven wellbeing updates and resource consumption to keep resident lifecycle logic isolated from UI and placement systems.

ThirdEye | Hack The North 2025 | *Raspberry Pi, Python, DynamoDB, AWS Lambda, OpenSearch* — Sep. 2025

- Orchestrated development and assembly of a **voice-activated portable smart camera** built on a **Raspberry Pi 5** to assist visually impaired individuals with navigation, perception, and recall.
- Implemented **image capture and processing** with Raspberry Pi camera and Cohere's AyaVision model.
- Integrated audiovisual I/O with **DynamoDB** streams connected to a **OpenSearch vector database** using AWS Lambda, to store and subsequently query embeddings of previously captured scenes.
- Harnessed and configured **speech recognition** and text-to-speech libraries in Python to create a reliable natural language audio interface with total round-trip latency of under **1000ms**.

Fighting My Demons | **Winning Submission, HackCamp 2023** | *Python, PyGame, Figma* — Nov. 2023

- Led a team and spearheaded development to **win 1st place** out of 250+ participants at HackCamp 2023.
- Built a unique puzzle-solving alarm game in **PyGame**, intended to prevent you from hitting the snooze button.
- Developed game UI, alarm system, card-matching gameplay, music and animations within a 12-hour deadline.

Technical Skills

Languages: C#, Python, Kotlin, TypeScript/JavaScript, Java, HTML/CSS, GLSL, SQL, R, C++
Frameworks and Libraries: Godot, .NET, Android, React, Unity, Flask, Oracle DB, REST APIs
Tools: Git, GitHub, GitHub Actions, Linux, Jupyter, Docker