Alan Cao

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EDUCATION

University of Utah | Bachelor of Science in *Software Development* Expected May 2027

TECHNICAL SKILLS

Languages: C#, C++, Python, TypeScript
Frameworks and Libraries: .NET MAUI, Qt, React, Ionic React, OpenCV, Ultralytics YOLO
Tools and Platforms: AFL++, CMake, Git, Arduino

SOFTWARE ENGINEERING EXPERIENCE

Intermountain Healthcare | *Software Engineer Intern | Salt Lake City, UT* May 2022 – August 2022

- Contributed to front-end and data-validation work for a caregiver application in an Ionic React / React / TypeScript environment.
- Wrote tests that helped reach and maintain approximately 90% test coverage.

PROJECTS

Fuzzing PCSX2 — The PlayStation 2 Emulator | C++ | AFL++ | CMake | *Software Security* 2026

- Developed stateful AFL++ harnesses for PCSX2's folder-based memory-card subsystem, modeling repeated saves, boundary-heavy writes, and flush/close/reopen behavior.
- Integrated CMake targets, prepared a seed corpus, wrote technical documentation, and contributed to the team presentation and final report.

YOLO Fishing Bot | Python | Ultralytics YOLO | OpenCV | *Computer Vision* 2024

- Manually labeled 3,350 game-interface images and trained a custom YOLO detector on my PC.
- Built a Python fishing bot that converts YOLO detections into automated game inputs.

Sprite Editor | C++ | Qt | *Desktop Application* Sep 2024 – Oct 2024

- Contributed pixel-data handling, preview-image functionality, and animated playback to a four-person C++/Qt sprite editor.

Multiplayer Snake | C# | .NET MAUI | *Client/Server* Nov 2023 – Dec 2023

- Implemented most client-side backend logic with Jared Hildt, including death, growth after eating, and world-edge wraparound.
- Built on course-provided networking and vector infrastructure for the shared client/server game world.