Alan Yong

Computer Science Student
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EDUCATION

BSc Computer Science
University of Calgary — Expected Graduation: 2027
GPA: 3.51 / 4.00

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Distributed Systems, Artificial Intelligence, Software Engineering

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TECHNICAL SKILLS

Languages: Python, C#, Java, AutoHotkey
Technologies & Tools: Unity, GitHub, Simulation Systems, OCR, Real-time Systems, AI Coordination
Concepts: Object-Oriented Design, Distributed Systems, Game AI, Simulation, UI/Input Systems

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PROJECTS

TFT Matchup Predictor (2021)

AutoHotkey — Real-time Overlay & OCR Tool
GitHub: https://github.com/alanyongy/tft-matchup-predictor

- Built a real-time overlay tool that predicts upcoming opponents in **Teamfight Tactics** using only live screen data
- Implemented a **custom OCR system** using pixel-based image matching (ImageSearch) to identify and associate player names across multiple UI regions
- Designed robust screen-region calibration using static UI anchors for reliable detection across resolutions
- Reverse-engineered matchmaking rules and replicated the game's opponent-selection logic **before official support existed**

AEGIS Multi-Agent Rescue AI (2025)

Python — Multi-Agent Simulation & Coordination
GitHub: https://github.com/alanyongy/aegis-multiagent-rescue-ai

- Developed a multi-agent rescue AI coordinating autonomous robots under **1-turn communication delays**
- Implemented per-turn local simulation of all agents' future actions to maintain synchronized state despite communication delays
- Solved distributed coordination constraints through deterministic simulation rather than increased communication
- Led design and implementation of the core coordination strategy within a team environment
- Achieved **100% assignment score** and significantly reduced total rescue turns across varied test scenarios

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Scalable Skill System & Multi-Unit Control (2026)

C#, Unity — Systems Design & Input Handling
GitHub: https://github.com/alanyongy/game-systems-showcase

- Designed a **modular, extensible skill architecture** supporting rapid creation of diverse abilities through class hierarchies and inspector-driven configuration
- Implemented polished **real-time multi-unit selection and movement**, supporting click, drag, deselection, and continuous command updates
- Built a **priority-based skill queue system** enabling autonomous AI and player-controlled skill execution with dynamic condition checks
- Emphasized clean architecture, scalability, and maintainability for long-term project growth