Jason Hoang

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Education

- **Simon Fraser University -** Bachelor of Science, Major in Computing Science   August 2021

Experience

Junior Software Engineer – MDA Space   July 2022 – September 2022

- Developed and deployed real-time flight warning systems in C++, detecting obstacles within 5,000 feet with 100% accuracy, ensuring compliance with FAA safety regulations
- Refactored 3,000+ lines of legacy C++ code, optimizing performance by 20%, reducing memory usage, and improving execution time for flight procedures

Systems Test Engineer Intern – Ballard Power Systems   January 2019 – August 2019

- Tested and analyzed hydrogen fuel cell humidifiers using LabVIEW, SQL, and Python
- Presented data insights to engineering teams reducing procurement costs by $10,000+

Projects

Pacman Arcade Game – Unity, C#   December 2024

- Developed AI-driven ghost behaviours (chase, scatter, flee) for an interactive game environment
- Integrated 2D animations and physics-based collision detection for smooth gameplay
- Implemented complete audio systems, including music, sound effects and dynamic feedback

Donkey Kong Arcade Game – Unity, C#   November 2024

- Developed a physics-based player movement system, implementing realistic jump mechanics and collision detection
- Designed dynamic barrel spawning with randomized patterns and seamlessly integrated 3 unique levels

Minesweeper Puzzle Game – Depth First Search – Unity, C#   September 2024

- Developed a scalable Minesweeper Game with dynamic board resizing, randomized mine placement, and interactive user input handling
- Implemented a depth-first search (DFS) flood fill algorithm, effectively revealing adjacent empty tiles in $O(n*m)$ time complexity, improving game responsiveness

Tic Tac Toe Game – Monte Carlo Tree Search – Python   June 2024

- Implemented Monte Carlo Tree Search AI in Python, simulating 5,000+ games per turn to achieve 99.9% win rate, demonstrating advanced search algorithms used in real-world decision-making AI

Pong Arcade Game – Unity, C#   February 2024

- Developed an AI-driven difficultly scaling system with 3 levels (Easy, Medium, Impossible) that dynamically adjusts AI speed, reaction time, and tracking precision for adaptive gameplay
- Engineered a physics-based paddle and ball movement system using Unity's 2D Rigidbody Engine, ensuring accurate collision detection and realistic bounce mechanics

Snake Arcade Game – Unity, C#   December 2023

- Built a fully interactive Snake Game with smooth directional movement, real-time collision detection, and an expanding snake body mechanic

Technical Skills

- **Languages:** Python, C, C++, C#, SQL, HTML, CSS, JavaScript
- **Databases:** MongoDB, PostgreSQL
- **Framework/Tools:** Linux, VS Code, Unity, Git, Jira, Jenkins, NumPy, Pandas, Agile/Scrum, MATLAB, LabVIEW, React