Alan Tam

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Education

University of Waterloo — Candidate for Bachelor of Computer Science, Co-op 2019 – 2024

- **Major GPA**: 3.97
- **Activities:** Animusic Ensemble guitarist, Effective Altruism, Watonomous (self-driving car team) developer

Work Experience

Sunnybrook Research Institute — Toronto, ON

Software Developer Intern May – Aug 2020

- Revamped multithreaded peak detection algorithm using CUDA Driver API, resulting in **120x speedups**
- Developed communication protocol to reduce memory transfer requirements between firmware devices
- Revised build infrastructure for internal tools to exploit modern CMake concepts and standards
- **Technologies: C++, CMake, Boost, GoogleTest, CUDA**

Software Developer Intern Jul – Aug 2019

- Enhanced collision detection algorithm to detect invalid sensor configurations
- Refined treatment volume renderings to simulate MRI targeted locales
- Developed envelope detection algorithm to process ultrasound signals
- **Technologies: C++, CMake, Python, MATLAB, VTK, FFTW**

University of Waterloo Computer Graphics Club — Waterloo, ON Sept – Dec 2019

Vice President

- Organized events showcasing popular guest speakers from the computer graphics industry
- Negotiated with industry leaders for event sponsorship and attendance

Projects

Babble /Babble

- A cross-platform desktop messaging application which supports group chats
- Incorporated **TCP/IP protocol** with **Boost.Asio** to establish secure communication channels between clients and the server
- **Technologies: C++, CMake, Boost, Qt**

Wave /Wave Demo

- A **Python** script allowing users to control their cursor using hand gestures and video
- Leveraged **real-time image processing** techniques with **OpenCV** and **NumPy** to detect and recognize hand movements
- **Technologies: Python, OpenCV, NumPy, virtualenv**

Skills

- Languages: C++, C, Python, Bash, HTML, CSS, JavaScript, MATLAB
- Tools: Git, Linux, CMake, Boost, GoogleTest, Qt, OpenCV, NumPy, CUDA

Interests

- Percussive Fingerstyle Guitar, History, Soccer, Anime