Sean Wu

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Work Experience

Intel Corporation
FPGA IP Software Engineering Intern   May 2021—Aug 2022
- Developed an MxN AXI4 interconnect FPGA IP using **SystemVerilog** for increasing concurrent read throughput
- Designed a protocol agnostic performance monitor FPGA IP
- Optimized RTL designs by reducing area consumption and improving timing for faster execution

U of T Intelligent Sensory Microsystems Lab
Research Intern   May 2020—Aug 2020
- Developed new 3D computational imaging software to accurately detect and visualize nearby objects
- Applied classical computer vision and numerical computing techniques using **Python**, **NumPy**, and **OpenCV**

National University of Singapore
Student Researcher   May 2019—Aug 2019
- Developed mathematical simulations for environmentally friendly air conditioners to greatly reduce energy expenditure in tropical climates

Extracurriculars

U of T aUToronto self-driving car team
Traffic Light Handling Subteam Lead   Jul 2022—Present
- Built a traffic light handling pipeline using multi-threaded **C++** and **ROS 2**
- Designed pipeline to (a) process multiple out-of-order camera detection streams; (b) localize traffic light detections; and (c) perform traffic light state filtering to handle misdetections
- Researching an undergrad thesis on "Practical Traffic Light Localization and State Estimation for Autonomous Vehicles"

Trajectory Motion Planning Developer   Aug 2021—Present
- Member of onsite team that won **1st overall** in the 2022 SAE Autodrive Challenge II Year 1 competition sponsored by General Motors
- Developed HD semantic map **C++** interface and velocity planner

Personal Projects

FluidStride Computer Vision Running Gait Analysis
www.myfluidstride.com 🖥   Oct 2020—Apr 2021
- Creator and solo developer of computer vision software to analyze running form in 2D/3D
- Implemented human pose estimation and running biomechanics papers in a **Python** and **Tensorflow** prototype to accurately study running gait

Awards

Hack The 6ix Best use of Google Cloud Prize		2020
U of T Engineering Science Research Opportunity Fellowship		2019, 2020
3rd, UofT Engineering Competition Programming Challenge		2020
U of T Engineering Dean's Honours List		2018—2021
U of T Donald C. Leigh Memorial Scholarship		2018

Summary

Graduating computer engineering student with diverse experiences in industry and research. Worked on computer vision, hardware (FPGA), and robotics.

Education

BASc | Engineering Science ECE
University of Toronto | 2018—Present
- 4th year
- cGPA: 3.64

Skills

Software Development
Languages
Python • C++ • Bash

Libraries and Frameworks
NumPy • Matplotlib • OpenCV • Tensorflow 2.0 • ROS 2 • GoogleTest

Mobile and Web Development
Android • Jekyll • HTML • CSS

Development Tools
Git • Vim • Tmux

Hardware
FPGA Design
SystemVerilog • Quartus • VCS

Embedded Systems
Arduino • Raspberry Pi

General
Languages
English • Chinese • French

Soft Skills
Time Management • Collaboration • Adaptability • Problem-solving

Interests

Triathlon
Foreign languages
Travelling