Justin Welsh Tam

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Education

Georgia Institute of Technology, *Masters of Computer Science* 09/2024 – present

University of Ottawa, *BASc Electrical Engineering and Honours BSc in Physics* 09/2017 – 04/2024
- 9.06 CGPA ~ A average
- Summa Cum Laude

Professional Experience

Web Development - Full Stack, *Internship, Lendus* 09/2023 – 02/2024
- Responsible for web-application design, implementation, research, and testing in both the front and backend.
- Implemented key features core to the application such as the availability database, item creation flow, search engine, and more.

Software Developer, *Co-op Student, Department of National Defence* 06/2023 – 08/2023
- Improved upon an existing discrete event simulation tool, FEAST, to aid in ammunitions management using Python.
- Created extensive technical documents regarding FEAST (publication pending).

Wed Development - Quality Assurance, *Co-op Student, Jumping Elephants* 01/2021 – 04/2021
- Designed and wrote automated test scripts for regression and performance testing using the testing platform Subject 7, and Python.
- Worked independently on a strategy to conduct performance testing using Subject 7, and developing any necessary automation to aid the performance tests.

Computer Science Research Assistant, *NSERC Student Award, Dalhousie University* 05/2019 – 08/2019
- Researched papers on neural network techniques and applications.
- Worked on group projects involving a ROS based RC car to gather data for a neural-network-based stereo vision system.
- Independently developed a machine-learning based PD controller for a 2-wheel robot to follow a race track, involving Python, Aseba, and a Rasberry Pi.

Projects

Quantum Key Distribution (QKD) Simulation, *Python, Physics Honours Project* 09/2022 – 04/2023
- Simulated a quantum key exchange between two parties, examining the success rate between two separate choices of basis.

6-axis Robotic Arm, *MATLAB, computer vision, and technical design* 09/2020 – 12/2020
- Theoretical modeling of individual axis (motor).
- Calculating the required angle of each motor for a given position in 3-dimensional space.
- Developed a vision-based shape detector to move standard shapes (square, cicle, etc.) to specified positions using ***MATLAB***.

2-Wheel Robot with Computer Vision, 06/2019 – 08/2019
Python, TensorFlow, OpenCV2, a Thymio-2 Robot, Aseba, and a Raspberry Pi
- Developed a 2-wheel robot that could perform various computer vision tasks using a toy robot and a Raspberry Pi.
- Replaced the line following algorithm with a ***convolutional neural network*** trained on data collected by the original algorithm, using ***TensorFlow***.

Proficient With

Python, C++, TypeScript, SQL, MATLAB, HTML/CSS, React, Tailwind, Microsoft Office, Bash, Git/Github