Justin Welsh Tam

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Education

BASc Electrical Engineering, Honours BSc in Physics, *University of Ottawa* 09/2017 – 04/2024
- 9.06/10 CGPA (~A average)
- Graduated with highest distinction, *Summa Cum Laude*

Professional Experience

Software Engineer, *Full Time, Lendus* 09/2023 – 02/2024
- Responsible for web-application design, implementation, research, and testing in both the front and backend using Javascript, React, and Firebase.
- Implemented key features core to the application such as the availability database, item creation flow, search engine, and more.

Software Engineer, *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.
- Published extensive technical documents as the sole author.

Software Engineer, *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.

Robitcs Research Assistant, *NSERC Summer 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.

2-Wheel Robot with Computer Vision, 06/2019 – 08/2019
Python, TensorFlow, OpenCV2, a Thymio-2 Robot, Aseba, 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***.

Reinforcement Learning Launch Vehicle Attitude Controller Simulation, 01/2024 – 04/2024
MATLAB, Control Systems, IEEE Xplore, PID Control
- Simulated a ***launch vehicle attitude controller*** using reinforcement learning and the Twin-Delayed Deep Deterministic Policy Gradient (TD3) algorithm within ***MATLAB***.
- Researched and replicated complex reinforcement learning algorithms from recent studies.

Experience With

Python, C/C++, Javascript, React, MATLAB, Microsoft Office, Bash, Git/Github, Raspberry Pi, Arduino, Assembly Language, SQL, REST, Linux, HTML/CSS