David Wang

4th Year UBC Engineering Physics Student
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WORK EXPERIENCE

Junior Machine Learning Engineer
TRIUMF Particle Accelerator Centre
May. 2021 – Jan. 2022

- Established the first AI-driven interface for accelerator tuning at TRIUMF.
- Investigated state-of-the-art policy gradient reinforcement learning methods in PyTorch.
- Developed software architectures and GUIs using Python to train and deploy RL agent.
- Collaborated with operators to integrate the agent with real-world accelerator controls.
- Wrote paper "Accelerator Tuning with Deep Reinforcement Learning" for NeurIPS 2021.

AI Research Intern
Huawei Vancouver
Jan. 2020 – Apr. 2020

- Preprocessed large data-sets with custom Python and Bash scripts for use in object detection and classification research.
- Explored frameworks using TensorFlow and PyTorch to incorporate multi-GPU training compatibility for Huawei AI architectures.
- Configured custom environments on the cloud using Docker to provide the research team with improved access to GPU resources.

EDUCATION

The University of British Columbia
(Presidential Scholars Award Recipient)
Engineering Physics, BASc – 86% average

SKILLS

Python, Java, C/C++, C#, Bash, MATLAB, ROS, GIT, Linux, OpenCV, PyTorch, NumPy, TensorFlow, Scikit-Learn, Docker, Solidworks, Altium Designer, FPGA

HOBBIES

Cooking | Piano | Hiking | Photography

TECHNICAL PROJECTS

Navigation Systems Team Lead
UBC AgroBot Design Team
Sep. 2019 – present

- Implemented self-driving using PID control with data from IMU, lidar, and depth sensors for an autonomous agricultural robot.
- Used computer vision algorithms in OpenCV to process video on a Nvidia Jetson board.
- Built custom robotic simulations using ROS and Gazebo with AWS Robomaker to test controller and algorithms.
- Organized, coached, and led a sub-team of 10 members to meet team deadlines.

Bioprinter Robot Interface Capstone Project
Aspect Biosystems / UBC ENPH 459 course
Sep. 2020 – present

- Designed a full-scale robotic system for transportation of bio-printed tissue.
- Performed rapid prototyping using CAD, 3D-printing, and machining to determine optimal designs for a robotic end-effector.
- Built GUI and software controller using C# to control system with 3 axes of motion.

AI Robot Navigation and Plate Recognition
UBC ENPH 353 Project Course
Sep. 2020 – Dec. 2020
Teaching assistant Sep. 2021 – Dec. 2021

- Used ROS to operate an autonomous vehicle and utilized computer vision to navigate and avoid moving obstacles within simulated world.
- Generated custom datasets and trained multi-layer perceptron models to successfully classify license plate characters.
- Oversaw labs as a teaching assistant for a class of 3rd year students and provided guidance in troubleshooting and debugging.

OTHER EXPERIENCE

- UBC Formula Electric team member – PCB design for competition vehicle (2018-19)
- UBC PHAS 40 hour machine shop course (2019)