FRANCISCO **FARINHA**

4th Year Engineering Physics
www.franciscofarinha.ca · franciscofarinha@alumni.ubc.ca · (778) 840-9541

SKILLS

- Python, C, Java
- Experience with Linux and Bash
- Machine Learning (CNNs, DNNs, Tensorflow/Keras, scikit-learn)
- NumPy, Pandas, OpenCV, Matplotlib
- Experience with ROS and Gazebo
- MATLAB/Octave, OnShape, Blender

TECHNICAL WORK EXPERIENCE

2020/07 – Present

MACHINE LEARNING INTERN, LONGERVISION TECHNOLOGY

- Cleaned, labelled, and augmented client image dataset. Trained YOLOv3 model with high accuracy for train platform passenger/uniformed worked detection. Implemented model in NVIDIA Jetson Nano, ensuring fast inference time.
- Participated in OpenCV's Spatial AI competition – proposed application of OpenCV and Intel's stereo camera with Neural Inference for low-cost speedometer and vehicle classifier.

2019/01 – 2019/04

COMPUTATIONAL PLASMA ENGINEER/PROGRAMMER, GENERAL FUSION

- Integrated Magnetohydrodynamics stability framework OMFIT into physics workflow.
- Developed additional functionality for OMFIT – visualization tools, PBS/Torque server compatibility, parallel job submission – which decreased timeline processing by over 100%.
- Presented DCON Stability Analysis reports to the MHD team weekly.

TECHNICAL PROJECT EXPERIENCE

2020

EECE 571T ADVANCED MACHINE LEARNING TOOLS, UBC

- Implementing ML algorithms including unsupervised (KMeans, GMMs), supervised (SVM, random forests, DNNs, CNNs) and reinforcement learning.
- Aiding BC Cancer Agency by implementing segmentation and classification techniques in biomarker scoring and classification, specifically detecting distributions and patterns of FOXP3+ T-Cells in follicular lymphomas.
- Developed pipeline for artifact removal of TMA core images using UNETs and OpenCV.

2019

ENPH 353 MACHINE LEARNING COMPETITION, UBC

- Developed algorithm in ROS to autonomously navigate a robot around a parking lot and collect license plate information, achieving the maximum score.
- Trained CNNs for numerical classification and used YOLOv3 for accurate and fast object detection and localization.
- Applied OpenCV algorithms for license plate and character segmentation.

2019

OPENROBOTICS SOFTWARE TEAM, UBC

- Currently developing software to allow a robot to perform a variety of complex tasks and compete in the 2020 RoboCup@Home Education competition.
- Experimenting with speech synthesis and recognition using CNNs, LSTMs and open-source APIs.
- Utilizing ROS and Gazebo to test and debug software.
- Developed facial detection and recognition algorithms using CNNs and facial feature encodings.

2019

ENPH 253 ROBOT COMPETITION, UBC

- Worked in a team to design and construct a robot to navigate a course and use fine motion to lift and deposit loads.
- Used Onshape to develop CAD model of the robot, as well as manufacturing equipment – 3D Printers, Laser Cutter, Waterjet Cutter – to build main arm.
- Implemented PID control to achieve precise line-following.

EDUCATION

2017/09 – 2022/05 (EXPECTED)

ENGINEERING PHYSICS, BASC, UNIVERSITY OF BRITISH COLUMBIA

- Dean's Honour List
- Cumulative Average 85%