



Benjamin Hers

Email: bhers4@gmail.com

Phone: 604-710-1169

Location: Vancouver, BC, Canada



[bhers4](#)



[Benjamin Hers](#)



bhers4.github.io

About

Undergraduate student passionate about software development, robotics, and machine learning applications. Experience in research and development, robotics, and developing software tools for each.

Available to start an internship for 4 months in May 2019

Skills

Programming Languages

- Python
- C/C++
- SQL
- Matlab
- HTML/CSS
- Javascript

Frameworks

- NodeJS
- Linux
- MongoDB
- Tensorflow
- Pytorch

Engineering Design Teams



UBC Thunderbots Electrical Co-Lead
Autonomous Soccer Playing Robots

About:

UBC Thunderbots is a student design team that creates autonomous soccer-playing robots. The goal of the RoboCup organization is use the complex and publicly appealing platform of robotic soccer to promote research and advancement in the field of robotics and artificial intelligence (AI).

Projects:

PID Controller

Lead 2 students to create a PID controller for our robots. We created a model of the robot and then created a model in Simulink to simulate the robot in Matlab. We tuned our PID controller and then integrated it into our artificial intelligence in C++.

Firmware Development

Helped development for a variety of sensors and integrated it into our real time systems. Created abstraction levels for our artificial intelligence to give easy interfaces between the software and firmware.

Hardware Development

Improved and developed schematics for various motors and sensors and microcontrollers and then created a PCB in Altium for the robots.

Education



University of British Columbia
Electrical Engineering
Third Year
Graduation Spring 2020

Work Experience



Research Engineer Intern

Cadex Electronics Inc.

January 2018 - December 2018

- Developed and implemented machine learning algorithms using Python and interfaced with databases using SQL and libraries such as Django.
- Developed a Support Vector Machine (SVR) to determine a battery's state of health within 5% and integrated it into a product's firmware.
- Developed Firmware for DSP applications using an ARM Cortex M7. Developed code and interfaces for peripherals such as high frequency PWM generation, timers and ADCs/DACs using IAR.
- Programmed a GUI using Python and PyQt5 which integrated multi-threading for the control of different machines and developed an easy to use UI for other engineers to use.
- Using a given model developed a Kalman filter and Particle Swarm Optimization to give a Li-ion battery's state of health within 5% using a combination of MATLAB and Python.

Technical Projects

Artificial Neural Networks

- Given a dataset from a hypothetical bank with customer information and whether they left the bank, trained an ANN to be able to predict whether or not the customer will leave the bank using Python and Tensorflow.

Convolutional Neural Networks

- Given a dataset of 15,000 images. Trained a convolutional neural network to detect animals on 10,000 images and tested it on 5000 images using Python and Tensorflow.

Recurrent Neural Networks

- Using the stock price of Google from 2012-2016, looked at the opening stock price in 3 month intervals to predict the next days stock price using an LSTM in Python and Keras.

Restricted Boltzmann Machine(RBM)

- Given a dataset of user ratings for movies. Made a RBM that predicted whether or not a user will like a movie and predicted the rating the user will give using PyTorch.

OpenCV Facial Detection

- Using the Haar Cascade facial detection classifier, wrote a program in Python that identified faces in images using OpenCV in Python.

Interactive Escape Room Game

- Using C++ and the Unreal Engine, designed and programmed a game where users had to explore the environment to Escape the room.