Yi Shen
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Education

M.Sci, Electrical Engineering 2017 – 2020
McGill University GPA: 3.31/4.0
- Relevant courses: Applied Machine Learning, Numerical methods, Optimization & Optimal Control

B.A.Sc. Electrical Engineering (Nano Option) 2013 – 2017
University of Alberta GPA: 3.5/4.0
- Awards: Dean's Research Award x2, Academic Excellence Scholarship, China First Year Excellence Scholarship, International Student Scholarship.

Working Experience

Teaching assistant and Grader TA: 2018 Winter Term
Employer: **McGill University** Grader: 2017 Fall Term
- [Java] Coached and taught Java robotic labs.
- Supervised student groups for project management.
- [Java] Reviewed and graded projects.

Skills Summary

ML/DL: h5py, Pandas, Matplotlib, SMOTE, scikit-learn, OpenCV, Pytorch, TensorFlow, BLAS.
Full-Stack: Flask, Django, MySQL, MongoDB, React, HTML/XML/CSS/JS, Cloud Platforms (AWS, GCP, Azure), Docker.
General: Python, MATLAB, Java, JavaScript, C/C++, Ngspice, ADS, Quartus, Simulink.

Highlighted Projects and Experiences

Voltage Emergency Prediction Master thesis project
- [C++] Analyzed and modified the source code of 3 C++ simulators (Gem5, McPAT, VoltSpot). New API are added to create an automatic simulation chain for generating TB size data set.
- [Python] Implemented interfaces and preprocessing scripts to pass and clean the data.
- [Python] Implemented group Lasso regression algorithm. It infers the voltage with RMSE < 0.001.
- [Python] Implemented a deep learning model with 95% prediction accuracy with high precision.

A Seizure Detection Helmet Undergraduate capstone project
- Communicated with the doctor in the clinic for data acquisition.
- [C++] Architected a communication network with three embedded systems and 1 PC.
- [C++] Implemented a communication protocol for sending 16-channel EEG signals.
- [MATLAB] Designed features based on faster Fourier transform.
- [MATLAB] Implemented a multilayer perceptron network for detecting seizures with ~ 80% accuracy.
- Designed and fabricated 3-D printed enclosures for embedded systems.

Linux Server Administrator for The Research Group Extra responsibility
- Migrated the server from Windows to Linux with data intact.
- Compiled build essentials for team to use.
- Tasks automation by bash scripts.
- Set up docker.
- Created Google cloud server for deep learning training.

Various ML Projects Course & Personal Projects
- [Python] Implemented various machine learning algorithms from scratch including decision tree, MLP and more.
- [Python] Implemented a web crawler for building a Chinese corpus.
- [Python] Implemented Fast R-CNN network for multi-object tracking.

Various Robotic and Control Projects Course Projects
- [Simulink] Implemented various problem models, PID controllers for stepper and servo motors.
- [Simulink] Implemented various state space controllers for balancing ball on a beam and more.
- [Simulink] Implemented systems for haptic feedback and cooperative manipulation control.
- [Java] Implemented controllers for ultrasonic, light sensors and motors.

Hobby

- Reading case briefing of Canadian courts.
- Studying international & US political dramas.