Tommy Lau

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EMPLOYMENT

Tesla, Software Engineer Intern **Aug 2018 – Present**

- Full-stack software development. Built web application features to improve ease-of-use for service engineers to remotely update and monitor data on the global fleet of over 50,000 Powerpacks/Powerwalls. (JavaScript, Python)
- Improved search filters for accurately querying properties from the fleet of Powerpacks/Powerwalls using Elasticsearch
- Developed an API in Python to speed up an alerting engine by distributing tasks using Apache Airflow/Celery.
- Automated front-end unit testing with Jest. Created containerized testing and development environments with Docker.

Tesla, Firmware Engineer Intern **May 2018 – Aug 2018**

- Developed real-time firmware for the Model 3 electric parking brake system in C, contributing to safety-critical functions.
- Created a feature to handle fault conditions and malfunctions caused by erroneously disconnecting the parking brake.
- Reduced false alarms across the Model 3 fleet of 80,000 cars, cutting down service costs for Tesla and customers.
- Designed unit and integration tests to validate system behavior using Cgreen, reducing review time.

University of British Columbia, Undergraduate Teaching Assistant **Sept 2015 – May 2018**

- Taught up to 30 students at a time in labs for multiple courses in Data Structures and Algorithms (CPSC259/CPSC221)
- Mentored students in topics for data structures, algorithms, memory management, and complexity using C/C++.

Arista Networks, Hardware Engineer Intern **Fall 2016 & Summer 2017**

- Developed a circuit breaker monitoring system on the Linux-based BeagleBone microcomputer in Python for monitoring fault conditions, enabling network access, and controlling power-supply ports.
- FPGA test bench development to simulate the start-up sequence of a Xilinx Spartan-6 using Verilog.

LMI Technologies, Hardware Engineer Co-op **Jan 2016 – Aug 2016**

- Designed electronics for a fan-adapter system to be sold as an attachment for cooling down existing 3D laser-scanners.
- Determined the performance of laser diodes for selection to be used in the next-generation 3D line-profile scanner.

PROJECTS

UBC Launchpad Student Team bumper.ubclaunchpad.com **Jan 2018 – Present**

- Created a multiplayer bumper-car and physics based browser game while on the UBC Launchpad student design team.
- Front-end interface developed in Javascript using React and HTML Canvas.
- Developed a game server using Go, connecting client-server communication using the WebSocket protocol
- Automated build, test, and deployment using Docker, Travis CI, and AWS EC2.

BestBuy Automated Price Match BizHacks 2018 **March 2018**

- Awarded 4th place prize overall in BestBuy's sponsored hackathon, each team member receiving 50$ gift cards
- Designed a web application to read URL's or flyers using optical character recognition and automatically match the lowest price-offering by comparing a product with BestBuy's competitor price database

Mazdis – Mobile Application Senior Year Capstone Project **Sept 2017 – April 2018**

- Collaborated with Mazdis Innovations to create a cross-platform mobile application (Android, iOS) for an automated bicycle parking system. The application communicates with secured parking structures to store and release bicycles
- Developed features such as bicycle parking search, account creation, login, payment, and a map interface.

EDUCATION

University of British Columbia – B.ASc. Electrical Engineering **Sept 2014 – May 2019**

SKILLS

Languages: Python, JavaScript, C, C++, Go, MySQL, Verilog
Frameworks: React, Jest, React Native, Flask, Pytest
Tools: Git, Firebase, Docker, Vagrant, Jenkins