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SKILLS	FPGA Design/Programming Ethernet IP Networking Technical Communication Fire Suppression (Firefighting) First Aid (Level 1) MS Excel and Office (DM12) CAN BUS/DeviceNet	Solidworks CAD Breadboard Prototyping (+Soldering) Arduino, Raspberry Pi, & Linux Prototyping GitHub 3D Printing Machine Learning in Python	Allen Bradley PLC Bandsaw, Grinder, Handsaw (Shop Tools) Python, C, HTML/CSS, Node, JavaScript Verilog, 8051 Assembly KUKA and FANUC Automation Robotics	Learning/Interests: Artificial Intelligence Mechanical Design CFD Aero/Thermo. Efficient Manufacturing Systems
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TECHNICAL EXPERIENCE CO-OP: CONTROLS INTERN, BIW EQUIPMENT SUSTAINING ENGINEERING – TESLA, FREMONT, CA

May 2017 – Dec. 2017 - Internship focusing on Assembly Line Debugging and New Function Integration.

- I learned the **systems' integration** alongside Engineers, Production Managers, and Maintenance Technicians to integrate robot and PLC programs. Involved a lot of cross-team communication, **coordination** and execution.
- Debugging provided a **first principles approach** in a new environment where I learned to resume downed equipment as efficiently as possible.
- PLC Projects include integrating **Vision Systems and HMs, wiring/diagramming** for controls cabinets, to learning Style Selection Algorithms for S and X models.
- Hands on **Robotic debugging**, program creation, and **crash zones verifications** using KUKA KRC2 and KRC4. Also adept with Fanuc Robotics.
- Data aggregation and asset analysis using **Excel** and **Python Scripting**.

CLUB: ELECTRICAL LEAD - UBC THUNDER BIKES, VANCOUVER, BC

Sept. 2018 – Present - Battery Design and Management: Started a new Engineering Design Team with my friend and colleague, overcoming funding applications and initial hurdles to build an E-Bike Conversion, and then plans to build a super-sport electric motorcycle in the coming year. Currently in the drafting stages of Battery and BMS Design.

CLUB: SAFETY OFFICER & TEAM MEMBER, LOW VOLTAGE SYS. - UBC FORMULA ELECTRIC, VANCOUVER, BC

Feb. 2017 – Mar. 2017 - **PCB Design:** for Current Sensor Adaptor Board (CSAB2017): Learned how to use Altium Designer to create a connecting and mounting board. Introduction to best practices in PCB schematic and layout design.

Oct. 2016 – Apr. 2017 - **Experimental Analysis:** I set up an experiment using an oscilloscope and spliced cables measure CAN signals from a RaceCapture Pro, an OTS component. Using Lua on the RaceCapture Pro and Excel scripting we analyzed data and were able to analyze test data and debug connecting the RaceCapture with our inhouse boards

Oct. 2016 – Apr. 2017 - **APSC 3D Printing Representative:** to use APSC Department 3D Printing resources, I took on the responsibility for our team's printing. I learned basics of Printing and I would be responsible for access and maintenance of the shared printer.

Sept. 2015 – Oct. 2015 - Using **Solidworks CAD**, I redesigned a body panel to adjust for a new placement of suspension complete with dimensions to be cut using a **Water Jet Cutter** through the ECE Machine Shop (E-Racing vehicle).

CLUB: SERVER ADMINISTRATION – UBC IT/UBC FORMULA ELECTRIC, VANCOUVER, BC

Oct. 2016 – Mar. 2018 - Coordinated, organized, and administered a locally hosted UBC VM server to run FE's Confluence site and SOLIDWORKS Product Delivery Management (PDM). Involved learning server structures and organization, databasing, Windows Server, and SQL. Originally a Formula Electric Project, I worked with UBC IT **on my own to expand the service** with other teams that were interested.

PERSPECTIVE Generally, if I have an idea or am interested in a certain subject I'm going to be resourceful and research online to learn more. I'm a firm believer that education isn't limited to the classroom and that pursuing passions is the key to ambition and desire to succeed. In Elon Musk's words: "There's got to be more [to life] than just solving problems."

ACADEMICS **B.A.SC. ELECTRICAL ENGINEERING - UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER CANADA**

Dec. 2015 – Present - Academics: 4 of 8 academic terms completed, Anticipated Graduation May 2021.
CLUBS: UBC Turing Club, UBC Thunderbikes, UBC Formula Electric (Alumni)

EXTERNAL EXPERIENCE **JUNIOR FIREFIGHTER, FORT ST. JAMES VOLUNTEER FIRE DEPARTMENT - FORT ST. JAMES BC**

May. 2014 – June 2015 - Learned how to work efficiently from a para-military perspective. How preparation and execution greatly affect performance mentally and physically. First organizational experience with mentorship and desire for growth.

PROJECTS **COMPUTER VISION TRAFFIC SENSOR PROTOTYPE – PERSONAL, FORT ST. JAMES BC**

Dec. 2016 - Using the SimpleCV Python library, I prototyped a camera system to detect vehicles moving across a path. I used SimpleCV functions to analyze frames and detect movement to create "blobs" to track. Further iterations include speed-detection and live data broadcasting.

SCRIPTING AND APP DESIGN – PERSONAL, VANCOUVER/FORT ST. JAMES BC

Nov. 2015 –N/A - Solving personal budgeting issue by prototyping script to scrape UBC Food Services account balance. Intention of developing App to mobilize information but left at having numerical value accessible by Python and excel. App design in prototyping with Google's Android Studio and React Native. This was during my free time during my first year at UBC.

MACHINE SHOP/SMALL ENGINE RE-BUILD – PERSONAL, FORT ST. JAMES BC

January – June 2015 - On my own time I borrowed a 2-cylinder small gasoline engine to deconstruct and rebuild to understand how combustion engines function. Included rebuild of carburetor and combustion chamber. This was the semester after helping my shop teacher rebuild his 6-cylinder hot rod engine in Automotives 11 (High-school).

RELEVANT EDUCATION **AT89LP MICROCONTROLLER AND 8051 ASSEMBLY LANGUAGE – ELEC 291: EE DESIGN STUDIO**

*** NOTE: EACH WEEKLY PROJECT REQUIRED UNIQUE ADDITIONAL FUNCTIONALITY**

PROJECTS Jan. 2017

- **Programming an AT89LP board** in 8051 Assembly to use bit-banged SPI communication with an analog to digital converter to turn temperature readings in voltage to binary values. Used Putty to read serial data via USB.

Jan. – Feb 2017

- **Created a soldering Reflow Oven** for SMT for PCB assembly. I debugged code to create temperature profiles, save using flash memory, and control a toaster oven using PWN. Used serial communication and Python to display a real-time graph.

- **Capacitance Meter with Python GUI (all extra functionality):** I used pySerial and Tkinter to display capacitance readings obtained via Serial Communication in a user-interface. Iterative updates include auto-ordering from DigiKey and views.

This class involved a new project every week and was a fast-paced learning experience. Learning how to quickly adapt to a new development environment and create things that were brand new to me in short periods of time made me confident in my ability to pick up projects and complete them efficiently.