URBAN PISTEK

Candidate for BASc in Mechatronics Engineering | University of Waterloo

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EXPERIENCE

Applications Engineering Developer Co-op

Geotab

Sept 2019 - Dec 2019 | Kitchener, Canada

- Developed and tested firmware for IoT devices within a embedded development environment.
- Designed a custom PCB for hardware testing using Altium to develop the schematic, board layout and component libraries.
- Research and development of internal hardware and firmware by utilizing embedded tools and running an internal alpha testing program.
- Engaged in rapid prototyping utilizing arduino's and circuit boards for quick development while reverse engineering various PCB's and devices.

Electrical Engineering Team Lead

UWAFT EcoCar Team

Sept 2018 – Present | Waterloo, Canada

- Leading electrical development of HV and LV systems to convert a stock Chevrolet Blazer into a hybrid electric vehicle with SAE level 2 autonomy.
- Led development and testing of a custom PCB to interface with vehicle networks and IC's utilizing KiCAD for schematic and PCB design.
- Collected battery voltage data from Simulink model and used Matlab to examine HV bus voltage ripple.
- Developed wiring schematics and harness diagrams for the vehicle HV powertrain and LV systems using VeSys.

Research Assistant Co-op

Center for Advanced Materials Joining

Jan 2019 - April 2019 | University of Waterloo

- Co-Author of research paper investigating the role of spot weld electrode geometry on liquid metal embrittlement crack development.
- Experienced with operating and using PLC programming for a production robotic spot welder.
- Collected data on AHS steel cracking while using Excel and Matlab to perform data analysis investigation distributions and correlations.

Synchrotron Research Team Lead

BCHS Synchrotron Research Team

May 2016 - April 2018 | Canadian Light Source

- Leadership role in hypothesizing, organizing and conducting two unique scientific experiments tested at a synchrotron.
- Examined the relative concentrations, speciation and oxidation/reduction of sulfur, arsenic and chromuin.
- Collected data on the IDEAS Beamline using x-ray absorption spectroscopy (XAS) techniques such as XRF and XANES.

SKILLS

Programming Languages

C++, C, Python (Pandas, Numpy, Scikit-learn), HTML, CSS

Software

Matlab, Arduino, Git, Altium, KiCAD, VSCode, Canalyzer, PyCharm, VeSys, NX, SolidWorks, AutoCAD, Confluence, Jira, PuTTY, Raspbian

Technical Skills

Embedded Systems, Hardware, Firmware, Circuit Design, HV Systems, Embedded Software, PCB Design, Data Science

Soft Skills

Leadership, Project Management, Public Speaking,Agile Workflow Environment

PROJECTS

Wireless BLE Occupancy Sensing

- Developing firmware for BLE hardware to predict human occupancy through parameters of RF signals.
- Utilizing Nordic Semi-conductor's SDK and embedded development tools for nRF MCU firmware development in C.
- Refining prediction and measurement capabilities by utilizing machine learning models such as RNN, LSTM and GRU.

Portfolio Website and Web Server

- Built a personal portfolio website using HTML and CSS in the sublime text3 editor.
- Configured a Raspberry Pi 4 running Raspbian using Apache2 as a server for web hosting.

CERN Particle Physics Project

- Entered CERNs Beamline for students competition with a mathematical based theory for tachyon particles.
- Presented a Keynote at the Telus Spark Science Center on our theory and some of the fundamentals of particle physics.