URBAN PISTEK

Candidate for BASc in Mechatronics Engineering | University of Waterloo

urbanpistek.com upistek@uwaterloo.ca linkedin.com/in/urbanpistek/ github.com/UrbanPistek

EXPERIENCE

Software Engineering Intern

IntelliCulture

May 2020 - Aug 2020 Kitchener, Canada

- Led development of a web application using Bootstrap and Javascript along with the Geotab API and SDK for database management.
- Performed code reviews, managed and distributed tasks of two software engineering interns across software projects.
- Developed a NodeJs server and MySQL database management system hosted on Google Cloud Platform to run a custom web application.
- Integrated Express Js, Google Maps API, into a live data application utilizing websockets for data streaming between the server and client.

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 3 custom PCBs to interfacing with CAN, performing LV diagnostics and controls utilizing KiCAD for schematic and PCB design.
- Wrote software in C++ for 3 custom PCBs utilizing a STM32 with the Arduino IDE and CAN-Bus-Shield library.
- Developed wiring schematics and harness diagrams for the vehicle HV powertrain and LV systems using VeSys.

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 chromium.
- Collected data on the IDEAS Beamline using x-ray absorption spectroscopy (XAS) techniques such as XRF and XANES.

SKILLS

Programming Languages

Python, Javascript, C++, HTML, MySQL, C

Software

Git, Altium, NodeJs, Anaconda, Keras, ROS, KiCAD, Matlab, Arduino, VSCode, PyCharm, VeSys, NX, SolidWorks, Confluence, Jira, PuTTY, Ubuntu

Technical Skills

Hardware, Firmware, PCB Design, Circuit Design, HV Systems, Deep Learning, Full Stack, Data Science

Soft Skills

Leadership, Project Management, Public Speaking, Agile Workflow Environment

PROJECTS

BLE Occupancy Sensing Convolutional Neural Net

- Developed a Convolutional Neural Net (CNN) to detect human occupancy using RSSI values trained to a 80% out of sample data accuracy.
- Wrote the CNN and data processing scripts in Python using the Anaconda and Keras packages in the PyCharm IDE.
- Utilized the Nordic nrf5 SDK to flash and configure firmware for BLE modules.

Relay Control and LV Diagnostics PCB

- Led development of a custom PCB that controls relays and performs LV diagnostics on various components while communicating through a CAN bus.
- Assisted design of the PCB in kiCAD while aiding development of the software for the STM32 controlling the PCB in C++ using the Arduino IDE.

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.