URBAN PISTEK

Candidate for BASc in Mechatronics Engineering | University of Waterloo

⚯ urbanpistek.com @ upistek@uwaterloo.ca in 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** 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.