Urban Pistek

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Experience

Athos — Redwood City, CA, USA
Electrical Engineering Intern — Jan 2021 - April 2021

- Developed firmware for the NRF52833 and STM32L4 MCU chips using the **Zephyr RTOS** and utilizing **GDB** for debugging.
- Implemented firmware architecture for automated PCBA testing of peripherals such as BLE, SPI, I2C, GPIO and UART.
- Designed a BLE Client in **Python** on macOS to perform GATT writes with custom **Protobuf** message definitions.

IntelliCulture — Kitchener, ON, Canada
Software Engineering Intern — May 2020 - Aug 2020

- Led development of 2 web applications using **NodeJs**, **MySQL**, **NGINX** and **Bootstrap** as the technology stack, launching Beta versions within 6 weeks of starting development.
- Performed code reviews, managed and distributed tasks for 2 software engineering interns across software projects.
- Developed a **NodeJs** server with **ExpressJs** and a **MySQL** database hosted on **Google Cloud Platform** to run a live data web application incorporating the **Google Maps API**.
- Integrated a custom portal into a web application with the **Geotab SDK** and **Bootstrap** framework while developing helper data migration scripts and prototyping in **Python**.

Geotab — Kitchener, ON, Canada
Applications Engineering Developer Co-op — Sept 2019 - Dec 2019

- Analyzed 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 with 20+ units shipped to customers.
- Research and development of internal hardware and firmware with embedded tools such as an oscilloscope and running an internal alpha testing program with 25+ participants.
- Engaged in rapid prototyping utilizing **Arduino** for quick development while reverse engineering various PCB's and devices.

UWAFT EcoCar Team — Waterloo, ON, Canada
Electrical Engineering Team Lead — Sept 2018 – Present

- Leading electrical development of HV and LV systems to convert a stock Chevrolet Blazer into a hybrid electric vehicle with SAE level 2 autonomy, managing a sub-team of up to 10 student volunteers.
- 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 integrating a **STM32** with the Arduino IDE and CAN-Bus-Shield library.
- Authored wiring schematics and harness diagrams for the vehicle HV powertrain and LV systems using **VeSys**.

Projects

BLE Occupancy Sensing — Skills/Technologies: Python | Anaconda | Keras
Developed a **Convolutional Neural Net** (CNN) to detect human occupancy with 80% accuracy.

Relay Control and LV Diagnostics PCB — Skills/Technologies: PCB Design | KiCAD | C++
Designed a PCB to control relays and perform LV diagnostics through CAN.

Skills

- **Programming:** Python, C, Javascript, C++, NodeJs, Anaconda, Keras, ROS, HTML, MySQL
- **Software:** Git, Zephyr RTOS, GDB, Altium, KiCAD, Matlab, Arduino, VSCode, PyCharm, VeSys, PuTTY, Ubuntu
- **Technical Skills:** Hardware, Firmware, Full Stack, PCB Design, Circuit Design, HV Systems, Deep Learning
- **Soft Skills:** Leadership, Project Management, Public Speaking, Agile Workflow Environment

Education

University of Waterloo — Waterloo, ON, Canada
Candidate for BASc in **Mechatronics Engineering** — Graduation: April 2023