Urban Pistek

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Experience

Siemens — Kitchener, ON, Canada
Machine Learning & Algorithms Engineering Intern — May 2022 - Aug 2022

- Integrated software tools and IoT infrastructure with machine learning to create scalable real-time intelligent applications.
- Utilized **TensorFlow** and **Keras** in Python to develop supervised models such as LSTMs, Decision Trees and XGBoost.
- Leveraged software tools & libraries such as MLflow, **Pandas** and **Docker** in machine learning operations & data engineering.
- Explored algorithms such as kmeans and KNN, utilizing dimensionality reduction techniques such as PCA and tSNE.
- Created publisher and subscriber agents with Docker using **MQTT** and **Kafka** protocols to enable edge processing.

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

- Developed firmware for an NRF and STM SoC using **C** with The Zephyr Project **RTOS** and **Python** for scripts and testing.
- Utilized embedded tools such as **GDB**, **Jlink**, **Altium** and **Oscilloscopes** for development and debugging.
- Developed an IMU, Magnetometer and digital signal processing driver using CMSIS and custom sensor APIs.
- Implemented a firmware architecture for automated PCBA testing of peripherals such as BLE, SPI, I2C, GPIO, PWM and UART.

Athos — Redwood City, CA, USA
Software Engineering Intern — Sept 2021 - Dec 2021

- Integrated and developed component and system tests into a **Jenkins CICD** and End-to-End testing pipeline.
- Utilized **Robot Framework** to develop automated End-to-End tests involving Python, iOS, Redis, and C components.
- Developed UI tests for an iOS mobile app using the Xcode UI testing (XCUI) testing framework in **Swift**.

IntelliCulture — Kitchener, ON, Canada
Software Engineering Intern (Co-op & Part-time) — May 2020 - Present

- Leading development of the back-end infrastructure and data platform for core products and internal development.
- Leveraged **OpenCV**, Jupyter Lab and **Python** to develop image object edge detection algorithms and processing.
- Maintaining and improving **NodeJs**, Python, **Bash Scripting**, Fauna DB, **Docker**, and **Jenkins** technology stack.

Geotab — Kitchener, ON, Canada
Automotive R&D Engineering Intern — Sept 2019 - Dec 2019

- Performed R&D with **hardware** and **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.
- Engaged in rapid prototyping utilizing **Arduino** for quick development while reverse engineering various PCB's and devices.

Projects

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

CubeSat Electrical Power System — Skills/Technologies:
Developed firmware for battery management, MPPT & telemetry using the Zephyr RTOS kernel. — C | Ubuntu | Zephyr RTOS

Deep Learning Benchmarking — Skills/Technologies:
Building deep learning models in Jax to compare performance and metrics between other frameworks. — Python | Jax | Jupyter

Skills

- **Programming:** Python, C, TensorFlow, Jax, C++, NodeJs, OpenCV Anaconda, Keras, ROS, Jenkins
- **Software:** Git, Zephyr RTOS, Docker, GDB, Mlflow, Altium, KiCAD, Matlab, Arduino, Robot Framework, Ubuntu
- **Technical Skills:** Firmware, Hardware, Full Stack, PCB Design, Data Engineering, Machine Learning, Software
- **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