Collin Kwan *Mechatronics Engineering*

collin.kwan@uwaterloo.ca
Collin Kwan
SemiCollin
647-769-6765

TECHNICAL SKILLS

Languages - (Python, C/C++, Java, Flutter, JavaScript/TypeScript)

Tools and Technologies - (TensorFlow, OpenCV, Flask, Git, Firebase, Selenium, AutoCAD, Inventor, SolidWorks)

PROFESSIONAL EXPERIENCE

Machine Learning Software Developer January 2022 – April 2022
Healthcare Systems R&A

- Developed a mobile app using **Flutter** and **Firebase** that captures and graphs vital information, providing users with predictions of their heart rate, blood glucose, and blood pressure levels for the following month.
- Designed and implemented multiple **LSTM**-based **machine learning** models using **TensorFlow**, for predicting heart rate, blood glucose, and blood pressure levels with >90% accuracy
- Developed a **REST API** using the **Flask Python** module to facilitate communication with ML models within the mobile app.

Process Engineer September 2022 – December 2022
Andersen Corporation Windows & Doors

- Designed and built new tools and appliances using **AutoCAD** and **Inventor** that have remained in use, improving the efficiency of key production processes on the factory floor such as window screen assembly, glass delivery, and general safety/ergonomics.
- Managed the ordering-receiving process of plant materials, and manufacturing commissions to maintain project delivery in a time efficient manner.
- Regulated production workflow, ensuring projects met delivery requirements, making use of strong time management and communication skills while collaborating with multiple departments.

PROJECTS

MediScanner

- Designed and developed a web-based application utilizing image recognition technology to accurately assess injury severity and recommend appropriate recovery procedures.
- Front-end logic and user interface were built using **React** and **JavaScript**
- Created a **CNN** machine learning model from scratch for accurate image classification using **TensorFlow**.
- Utilized **Flask** module in **Python** to design and implement a **REST API**, allowing for seamless integration of the deployed machine learning model with the user interface.

Grab and Go

- Created a web application to help users locate grocery stores with the lowest prices for specific items.
- Designed and implemented an interactive map UI using **ReactJS** and **CSS** for intuitive store identification.
- Developed a web-scraping algorithm using Python's **Selenium** and **HTML parsing** libraries to gather pricing information, integrated through backend with **Flask API**.

Block Sorting Robot

- Constructed a robot using Lego EV3 Robotics hardware and 3D printed components to collect and sort small cubes by their colour.
- Implemented straight driving correction and sorting functions using **C** and inputs from colour sensors and motor encoders, with **PID control** to optimize robot pathing.

EDUCATION

University of Waterloo 2021 – present | Waterloo, Ontario
Candidate for BASc. Mechatronics Engineering
President's Admission Scholarship recipient