# DANIEL HUYNH

Mechatronics Engineering | d35huynh@uwaterloo.ca | danielrh.ca | LinkedIn | GitHub

## OVERVIEW

- **Languages:** C/C++, Java, Python, JavaScript/TypeScript, HTML/SCSS, SQL, Swift/Swift UI, PHP
- **Libraries & Frameworks & Tools:** Git, ROS, Docker, React.js, Node.js, Flask, Pandas, Plotly, Scikit-learn, TensorFlow, PoseNet
- 4+ years of experience in designing mechanical equipment using **SolidWorks** and **AutoCAD**
- Skilled communicator that loves working with others

## PROFESSIONAL EXPERIENCE

**Data Scientist | PureFacts Financial Solutions | May 2023 – August 2023**

- Developed and tuned an **Scikit-learn** Bayesian optimized random forest regressor with a mean percentage error of 17.32% that forecasts client revenue movements, whilst providing interpretable explanations for model predictions using **SHAP**.
- Aggregated, cleaned, and wrangled over 100,000 rows of data using **pandas**, and performed missing data and outlier treatment, resulting in a 94.86% decrease in the mean percentage error of a random forest regressor.
- Designed a dashboard using **Plotly Dash** that features dynamic visualizations of investor revenue, AUM, transactions, and customer trends over time for PureFacts clients, encouraging data-driven decision making.
- Led development of a **Flask** + **React** tool tailored to the PureFacts tech stack utilizing **OpenAI APIs** that empower non-technical personnel with accessible information and optimizes engineer labor time whilst maintaining data confidentiality.
- Proactively collaborated with NGR and QA to integrate AI-owned products into their portfolios, while establishing a platform for cross-functional product groups to test and refine ideas that foster innovation and shared learning.

**Software Engineer | Ford Motor Company | September 2022 – December 2022**

- Created components including a data-model agnostic autocomplete component using **React Typescript**, that queries 1000+ **Firestore** records for objects that fit a **Regex** string on one of 7+ record properties.
- Wrote asynchronous REST API methods using **Axios** that reads/writes to 1000+ records in a CRUD **Firestore** database.
- Leveraged TDD by creating mocks with **Jest** to develop 2 test suites that authenticate **React** apps and REST APIs.
- Received the Ford Modernization Recognition Award ($100) for significant contributions to the Ford Pro Gateway.

**ERP Full-Stack Developer | G.B.I.E | January 2022 – April 2022**

- Implemented a self-proprietary method of caching **SQL** results within **PHP** which improved the load time of web pages by up to 643.5% (from 1.48 s to 0.23 s).
- Designed six **MSSQL** tables using star schema warehouse data architecture and wrote queries that scraped data from 73 tables to gather data pertaining to the prediction and planning of product shipments.
- Created a large-scale internal system used daily by the R&D department using **Python**, **Flask**, **JavaScript** and **MSSQL** that allows employees to view lab request analytics.
- Wrote a method using **Openpyxl**, and **Pandas** which generates CSVs to display lab analytics, saving R&D more than 30 hours of labour per year.

## PROJECTS

**LiftBro | November 2022 – December 2022**

- Built a 99% accurate AI-based personal trainer using **React**, **Electron**, **TensorFlow**, and **PoseNet** that tracks demonstrated poses using 17 body indices to train a 3-dense layer, RNN sequential model on one-hot encoded data, which identifies movements to track one's workout.
- Produced eight stateful **React** components that contain the **React-Webcam**, current workout statistics, and an **MUI** naive-select form that houses movements that the user may train.
- Composed a pre-trained **PoseNet** estimation algorithm that finds pose points, whilst leveraging **PoseNet** to visually indicate 17 indices and create a tracked skeletal frame.

**Self-Parking Robot | November 2021 – December 2021**

- Produced a program written within **C** that allows an integrated LEGO EV3 robot to use ultrasonic, and colour sensors to locate a suitable parking space and perform a parallel park.
- Applied error handling that utilizes a motor encoder and an ultrasonic sensor to prevent the robot from colliding with nearby objects from a range of 1 – 250 cm.
- Wrote a 19-page technical document that includes function descriptions, and a software design outline, which resulted in a grade of 99% in conjunction with the project source code in the capstone project of MTE 121.

## EDUCATION

**University of Waterloo** | 2021-2026 (expected) | GPA: 3.9 | Honours BASc. (Mechatronics Engineering Co-op) Candidate

**Queen's University** | 2020-2021 | GPA: 4.0 | BASc. (Computer Engineering) Candidate | Queen's University Excellence Scholarship