

# Dan Huynh

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## OVERVIEW

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**Languages:** C/C++, Java, Python, TypeScript, PHP, SQL, Swift, MATLAB

**Technologies:** Git, Docker, Azure, GCP, Node.js, React.js, Angular, Scikit-learn, Tensorflow, PoseNet, ROS2, OpenCV

**4+ years of experience in designing mechanical equipment using SolidWorks and AutoCAD**

## WORK EXPERIENCE

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### Software Development Engineering in Test @ Vivid Seats

Jan 2024 – Apr 2024

- Plenty of cool stuff in the works!

### Data Scientist @ PureFacts Financial Solutions

May 2023 – Aug 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

Sept 2022 – Dec 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**.

### ERP Full-Stack Developer @ G.B.I.E

Jan 2022 – Apr 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

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### STM32 Nucleo64 RTOS

Sep 2023 – Dec 2023

- Designed a **Real-Time Operating System** kernel for STM32 micro-controllers focusing on hardware abstraction layer configuration and precise system clock settings.
- Developed threads with tailored timeslices and deadlines, optimizing task execution and resource allocation, and implemented context switching mechanisms, thread lifecycle management, and a round-robin scheduler.

### LiftBro | GitHub

Nov 2022 – Dec 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, **MLP** on one-hot encoded data, which identifies movements to track one's workout.
- 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.
- Produced eight **React** components that contain the React-Webcam, current workout statistics, and an **MUI** naive-select form that houses movements that the user may train.

## EDUCATION

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### University of Waterloo

Waterloo, Canada

Honours B.ASc Candidate in Mechatronics Engineering; **GPA: 3.9/4.0**

2021 – 2026