

# Dan Huynh

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## OVERVIEW

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

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

**5+ years of experience in designing mechanical equipment using SolidWorks and the Autodesk suite**

## PROFESSIONAL EXPERIENCE

### Data Scientist @ theScore

Sept 2024 – Dec 2024

- Conducted several **Exploratory Data Analyses** using **Pandas**, **Matplotlib**, and **Sklearn** to identify under-performing betting markets, enabling regression to consensus lines; benchmarked sportsbook suspension times, enabling data-driven adjustments to ESPN BET; engineered a "starting pitch" feature capturing game-time effects on pitcher performance, improving the RMSE and  $R^2$  of a PCA-based total pitches prediction model by 46.13% and 46.18% respectively; and corrected biases in logistic regression stolen base projections, reducing odds deviation by 56%.
- Designed a configuration-driven **Python** data monitor for rapidly scaling odds models, validating projection availability, data sparsity across 27+ tables in **BigQuery** and **PostgreSQL**, and anomaly detection using distributional divergence and z-scores which trigger alerts to **Slack** and **DataDog** within an **Argo Workflow**.
- Built an in-play odds validation **Argo Workflow** to track real-time MLB odds and pair external to internal betting lines to enable real-time adjustments to market odds improving model accuracy and mitigating exposure.
- Built an **Argo Workflow** for chunked table data migration between **BigQuery** and **PostgreSQL** schemas, avoiding **GCP** rate limits for 10M+ row transfers while ensuring row uniqueness and schema consistency.

### Software Development Engineer in Test @ Vivid Seats

Jan 2024 – Apr 2024

- Designed a **Stoplight**-documented test-data Backend for Frontend (BFF) with **Spring** and **OpenAPI**, exposing RESTful endpoints for **JPA** entity generation and management, that insert regression-agnostic data for E2E checkout tests into 4+ Vault-authenticated **AWS Aurora** databases.
- Developed a distributed subscriber for the test-data BFF which enables on-demand and autonomous data cleanup via client API calls and a proprietary cleanup micro-service, allowing for concurrent data management.
- Integrated **SonarQube** for static code analysis, leading to the development of 210+ unit and integration tests using **JUnit5**, **Mockito**, and **Spring** that achieved 96% code coverage for the test-data BFF.

### Data Scientist @ PureFacts Financial Solutions

May 2023 – Aug 2023

- Developed and tuned an **Sklearn** bayesian optimized random forest regressor with a mean percentage error of 17.32% that predicts client revenue movements, while providing interpretable explanations for model predictions using **SHAP**.
- Designed a dashboard using **Plotly Dash** that features dynamic visualizations of investor revenue, AUM, transactions, and customer trends over time for PureFacts clients, enabling 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 reduces engineer labor time while maintaining data confidentiality.

### 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 RESTful methods using **Axios** that reads/writes to 1000+ records in a **Firestore** database.

## PROJECTS

### Perceptions Lead @ Watonomous — LiDar Object Detection | Github

Sept 2023 – Sept 2024

- Developed a data loader for **OpenPCDet** to processes 32-beam, 4/5 feature Velodyne point clouds into **NumPy** arrays, optimized for **VoxelNeXt**, **TransFusion**, and **PV-RCNN** predictions.
- Wrapped **OpenPCDet** in a **ROS2-humble** node that processes a point cloud rosbag feed, publishing real-time bounding box predictions through the **Foxglove** WebSocket protocol for immediate data visualization.
- Modified **OpenPCDet** visualization utilities to render static **PV-RCNN** bounding-box predictions using **XVFB**, ensuring compatibility without reliance on a native **X-11 server**.
- Collaborated in the design and implementation of a end-to-end perceptions pipeline that tracks and associates objects in real time.

## EDUCATION

**University of Waterloo — GPA: 3.9/4.0**

*Honours B.ASc Candidate in Mechatronics Engineering (Option in Software Engineering)*

Waterloo, Canada

2021 – 2026