Dan Huynh

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Overview

Languages: C/C++, Java/Scala, Python, TypeScript, PHP, SQL, Swift, MATLAB, VHDL
Technologies: Docker, Azure, GCP, AWS, Spring, React.js, Angular, Scikit-learn, Tensorflow, PoseNet, ROS2, OpenCV
5+ years of experience in designing mechanical equipment using SolidWorks and the Autodesk suite

Work Experience

Software Development Engineer in Test @ Vivid Seats Jan 2024 – Apr 2024

- Modified **Selenium** grid connection logic to dynamically display repository-specific metadata to identify 71+ active regression suites, and spearheaded comprehensive **Gatling** stress-tests on three key checkout endpoints for Superbowl 58, to identify and document scalability issues.
- Designed a Swagger-documented test-data **Backend for Frontend (BFF)** with **Spring** and **OpenAPI**, and created a custom entity manager factory for secure **JPA** insertions into dual Vault-authenticated **MySQL** databases which enable the generation and management of regression-agnostic data for E2E checkout tests.
- Collaborated with 5+ teams to troubleshoot and resolve Jenkins build issues across 30+ repositories, contributing to CI/CD pipeline stability, and actively participated in the co-operative education interview panel, providing feedback for the selection of 3 out of 8 candidates.
- Integrated **SonarQube** for static code analysis leading to the development of 14+ unit, contract, 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 **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.

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.

Projects

WATonomous LiDar Object Detection | Github Sep 2023 – Present

- Developed a proprietary data loader for **OpenPCDet** to processes 32-beam, 5 feature Nuscenes point clouds into **NumPy** arrays, optimized for **VoxelNeXt** 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.
- Designed a utility that converts **PyTorch** tensors into PointCloud2 messages, post-processed with dual transformation matrices that project **LiDar** PointCloud2 data onto bounding-box prediction planes.
- Modified **OpenPCDet** visualization utilities to render static **VoxelNeXt** and **PV-RCNN** bounding-box predictions using **XVFB**, ensuring compatibility without reliance on a native **X-11 server**.

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.

Education

University of Waterloo Waterloo, Canada
Honours B.ASc Candidate in Mechatronics Engineering; ***GPA: 3.9/4.0*** *2021 – 2026*