Clay **Ndugga**

Software Engineer

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Summary

I am a highly motivated Mathematics and Engineering graduate with a main focus and passion for machine learning and software design. I also have experience building scalable cloud solutions, and in full-stack web development. Committed to lifelong learning and quick adaptation to emerging technologies, I consistently aim to exceed project expectations, turning each obstacle into an opportunity for innovation.

Work Experience

Software Engineer

Calgary, AB

Longview Systems

8 Months 2023

- Built an **end-to-end IoT cloud solution** encompassing data ingestion, storage, and real-time decision-making through an **ML model**
- Designed and implemented a robust data ingestion system using **REST APIs**, achieving a 70% improvement in ingestion times.
- Modernized an existing codebase with best-practice **system design** patterns and migrated to Azure/Databricks **cloud architecture**
- Utilized Agile Scrum methodologies for CI/CD, while tracking project in Azure DevOps. (Jira Equivalent)
- ***Technologies:*** *Azure, Databricks, Python, SQL*

Machine Learning Engineer

Calgary, AB

Boardwalk Real Estate

4 Months 2022

- Built an **ML model** using **Tensorflow** to predict tenant lease renewals with 85% accuracy, reducing profit loss to empty properties
- Collected and processed over 1,000,000 data points from various sources including **databases**, surveys, and property management reports.
- Identified significant factors that effect the probability of a tenant renewing their lease
- Optimized the model by hyperparameter tuning and feature engineering, increasing precision metrics by 20% compared to baseline models
- ***Technologies:*** *Python, SQL, Jupyter, Pandas, NumPy, Scikit-Learn, Tensorflow*

Thesis

Deep Learning for Point Cloud Compression

Link

3D Computer Vision Machine Learning

- Conducted an extensive review of existing literature and integrated cutting-edge developments to establish an neural network architecture for point cloud data compression.
- Optimized TensorFlow code to efficiently process large-scale point cloud datasets, achieving significant improvements in resource utilization.
- ***Technologies:*** *Azure, Databricks, Python, Tensorflow*

Projects

Queen's Housing

quhousing.com

Full Stack Web Application

- **Deployed** a web application that allows students to share and discuss their rental experiences.
- Built a robust, scalable RESTful API backend using **NodeJS** and Express, incorporating authentication techniques for secure user sessions.
- Architeched a highly efficient database structure tailored to project needs, optimizing data storage and retrieval processes.
- ***Technologies:*** *Javascript, NodeJS, MongoDB, Express, Passport, Heroku, Tailwind CSS*

API Front-end

Link

React Front-end for API

- Built a responsive user interface using TypeScript and React, serving as the front end for a video game database API.
- Implemented best practices in front-end development, including component-based architecture and reusable code to ensure optimal performance and scalability.
- ***Technologies:*** *TypeScript, React, ChakraUI*

Education

Queen's University

Kingston, ON

Applied Mathematics and Engineering

2019 - 2024

- Similar to **Software Engineering** with a focus on advanced mathematics
- ***Relevant Coursework:*** Statistical Modelling, Data structure's and Algorithms, Stochastic Processes', Operating Systems, Embedded Systems, Control Theory, Information Theory

Skills

Languages Python · C · JavaScript · TypeScript · SQL · MATLAB · HTML · CSS/SCSS

Other Pandas · Scikit Learn · Tensorflow · NodeJS · MongoDB · Express · React · Azure (Cloud Technologies) · Databricks