

HARRY ZHU

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EDUCATION

University of Waterloo

Honours Bachelor of Mathematics (Data Science) (GPA: 3.9)

- Courses: Object-Oriented Programming, Algorithm Design, Statistics, Linear Algebra, Calculus

Waterloo, ON

Sep 2023 - Present

EXPERIENCE

Full-Stack Developer

BTNX

Apr 2024 – Aug 2024

Pickering, ON

- Led the creation and development of a new **ERP** software product and created **30+ pages** in **Blazor** and **110+ API endpoints** using **.NET** in addition to designing the relational database in **SQL Server**.
- Decreased loading times by **60% to 95%** for **30+ pages** on the E-commerce platform by drastically improving the time and space complexity of the LINQ queries within **16 API endpoints**.
- Constructed an employee analysis platform on the internal management site using **React** and **.NET** to measure the performance of **200+** sales reps worldwide.
- Developed **10+ API endpoints** with error handling and data validation with **C#** supporting over **1300+** daily requests.
- Implemented a price optimization module with **Angular** and **ASP.NET** by applying **statistical modeling** to help sales reps determine the optimal price and quantity for each product per client resulting in a **4% increase in sales**.

PROJECTS

FinTrack [🔗](#) [📄](#) | TypeScript, Python, Next.js, React, Flask, Firebase

- Engineered an equity analysis full-stack application providing analytics into market activity, built with TypeScript using **Next.js**, **React**, and **Tailwind**, supporting Google's MaterialUI 3 **UI/UX** framework.
- Architected a financial **REST API** in Python with **Flask** to deliver equity analytics to the user including historical price data, key financial metrics, and current news analyzed with a sentimental analysis model.
- Leveraged **web scraping** in Python using **BeautifulSoup** to provide users with up to date news for each security.
- Implemented **Firebase** and **Cloud Firestore** for authentication and its cloud database for personalized watchlists.

Stock News Sentiment [🔗](#) [📄](#) | Python, TensorFlow, Pandas, Numpy, Sklearn

- Developed a **natural language processing** model in Python to analyze the sentiment of financial text to predict future stock performance and provide investment insight.
- Engineered a **Deep Learning** model with **over 88% accuracy** across 3 distinct classes utilizing a **Gated Recurrent Unit** neural network with **TensorFlow**, **Numpy**, and **Sklearn**.
- Constructed an **open-source library** allowing users to preform predictions using the trained model along with providing additional resources to create, train, and test custom sentimental analysis models.
- Employed **web scraping** using **BeautifulSoup** and **Pandas** to create a dataset with almost **50,000** financial headlines.

Financial Portfolio Optimizer [🔗](#) [📄](#) | Java, TypeScript, Spring Boot, Next.js, React, Docker, AWS

- Constructed a **Quantitative Financial** model in Java, utilizing **Machine Learning** to optimize investment portfolios and determine the ideal distribution of total capital to invest in each financial asset.
- Engineered a **Genetic Algorithm** applying statistical modeling and heuristic crossover to optimize investment weights.
- Implemented a web platform using a **Spring Boot** backend in Java with a **Next.js** frontend to demonstrate the model.
- Leveraged **Docker** for containerization and deployment on **Amazon Web Services** using an EC2 instance.

Hands-on Fluency [🔗](#) [📄](#) | JavaScript, Python, React, Flask, Tensorflow, OpenCV, MediaPipe, SQLite

- Developed a sign language learning web platform that teaches and quizzes the user using their webcam with **OpenCV**.
- Leveraged **Jupyter Notebook**, **Tensorflow**, and **MediaPipe** to design and implement a **Convolutional Neural Network** for hand gesture recognition, resulting in a **61% accuracy** across over **30 distinct classes**.
- Designed a **REST API** backend in Python using **Flask** integrating the hand guesture recognition model with the user-friendly JavaScript frontend built using **React** and **Tailwind**.
- Implemented a **SQLite** database for user authentication and storing their learning progress.

TECHNICAL SKILLS

Languages: TypeScript, C#, Python, Java, JavaScript, C/C++, HTML/CSS, SQL, R

Frameworks: React, Next.js, .NET, Blazor, Angular, Flask, Spring Boot, Express.js, Node.js, Pandas, NumPy, TensorFlow, SciKit

Developer Tools: SQL Server, Docker, Git, Maven, Gradle, Firebase, AWS, Vercel, Azure