

SHIVAIN VIJ

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SKILLS

Programming Languages: Python C++ R MATLAB SQL

Technologies: PyTorch TensorFlow Docker Flask Azure PySpark AWS Firebase Pandas Jupyter Git

EDUCATION

University of Waterloo

September 2021 - April 2026 (Expected)

Bachelor of Applied Science, Mechatronics Engineering

Cumulative GPA: 94.76%

- Relevant Coursework: Data Structures and Algorithms (C++), Linear Algebra, Calculus 1 & 2, Advanced Calculus (MATLAB), Digital Computation (C++), Experimental Measurements and Statistical Analysis, Introduction to Macroeconomics (R), Numerical Methods
- Dean's Honours List

PROFESSIONAL EXPERIENCE

Kinaxis, Machine Learning Co-op Developer

January 2024 – Present

- Leveraged existing data resources to improve the performance of forecasting models by up to **17%**, demonstrating an innovative approach to data utilization.
- Conducted an exploratory data analysis using statistical approaches to identify features that could be used for clustering algorithms, ultimately reducing training time and cost by **over 10x**.

Flex AI, Machine Learning Intern

September 2023 – December 2023

- Collaborated with the iOS team to prototype a quantized machine-learning pipeline for local execution on mobile devices resulting in **700x speed increase** and real-time capabilities.
- Enhanced performance of video classification models by up to **30%** by repairing training data and models.

Kinaxis, Machine Learning Co-op Developer

May 2023 – August 2023

- Researched and prototyped methods to enhance the accuracy of product demand forecasts by modifying existing Gradient Boosted Decision Trees, achieving an **average accuracy improvement of 3%**.
- Developed an internal tool to identify and rectify flaws in clustering algorithms and suggest improvements for optimization.
- Leveraged Large Language Models (LLMs) to establish a direct link between natural text descriptions of events and disruptions in the supply chain, occasionally achieving a **perfect match of 100%**.
- Designed and implemented a customer-facing tool capable of predicting potential supply chain disruptions based on inputted incident descriptions, utilizing text embeddings and Large Language Models (LLMs).

Flex AI, Machine Learning Intern

January 2022 – April 2023

- Achieved **95% accuracy** and demonstrated **state-of-the-art precision** in crafting a production-ready pose estimation model.
- Conducted research, proposed, and implemented a novel algorithm leveraging Dynamic Time Warping, parallel processes, and data structures to **eliminate training time**, ultimately replacing resource-intensive algorithms and reducing company costs.
- Designed and built an online keypoint annotation tool using JavaScript, with data storage on Google Firebase, enabling the creation of custom datasets and outsourcing annotation tasks.
- Successfully quantized production models, resulting in a **65% reduction in size** and **doubling the inference speed** while maintaining 100% of the original performance.

PROJECTS

Hot or Not AI 🔄 ShivainVij/hotornot

- Designed and deployed an end-to-end, bespoke machine learning pipeline incorporating YOLO and ResNet models in PyTorch to classify outfits as fashionable or not, achieving a **classification accuracy of over 70%** in just **48 hours** as part of Hack the North.
- Developed a custom dataset by creating a script for automated retrieval and labeling of outfit images from the web, ensuring a diverse and comprehensive dataset. Deployed the pipeline using Flask on an AWS EC2 instance, providing a REST API for an iOS app to access the trained outfit classifier, enabling real-time outfit evaluation.

Python PyTorch Flask Jupyter AWS Git