Arnav Paruthi

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Technical Skills

Languages: C++, C, Python, Typescript

Frameworks: Docker, Kafka, Microsoft Azure, Google Cloud, Tensorflow, Pytorch, ROS 2

Education

B.A.Sc. in Engineering Science • University of Toronto   September 2021 – April 2026
Major in Machine Learning • cGPA: 3.83

Work Experience

Software Engineering Intern – Munich RE • New York NY   May 2023 – August 2023

- Built a **web application** for Alitheia, our risk assessment as a service platform (Typescript, React, NextJS). Took the application from wireframes to production and it is now set to be **sold to clients**.
- Setup CI/CD pipelines (Docker, Helm). Achieved **90%+ test code coverage** (Jest, React Testing Library).

Tracking Software Lead – aUToronto • Toronto, ON   August 2022 – Present

- **Lead 4 students** in building our object tracking pipeline. We use the **Hungarian algorithm**, **Kalman Filters** and a **hidden Markov model** to process camera, radar and LiDAR detections (C++, ROS 2).
- Setup ROS 2 tracing for our repository, allowing teams to easily identify performance bottlenecks.

Data Engineering Intern – Munich RE • Toronto, ON   May 2022 – August 2022

- Migrated one of Munich RE's core products to **Kafka** leading to a **30% decrease in runtime** and greatly improving **scalability**. Setup **CI/CD** pipelines using **Docker** and **Helm**.
- Developed an internal Python package that enables our **70+ person** team to seamlessly interface with Kafka, greatly accelerating the migration of other products to Kafka.

Machine Learning Intern – Zerodown • San Francisco, California   July 2021 – August 2021

- **Trained** a transformer based image segmentation model on **custom** housing data to algorithmically understand a house's features, enabling more precise house recommendations.
- Developed a video **object tracking** ML pipeline using **Pytorch, Numpy** and **OpenCV**. This was utilized to understand the prevalence of various entities (eg. pedestrians) in a neighbourhood.

Data-Science Intern – Fleetops.ai • Toronto, ON   July 2019 – August 2019

- Built a **knowledge graph** based **recommendation system** for Fleetops' **227k truck drivers**.
- Implemented data pipelines using **Apache Beam** to transfer data from MongoDB to Google BigQuery.

Personal Projects

Rovr – Web application that ranks photos taken by NASA's Curiosity rover using this ML model.

AlphaZero – Implemented Deepmind's AlphaZero algorithm from scratch using Python and Tensorflow.