Aditya Ajay

647-425-9857 | a2ajay@uwaterloo.ca | linkedin.com/in/adityaajay33 | github.com/adityaajay33 | adityaajay.dev

Education

University of Waterloo — Waterloo, Canada
BASc. in Mechatronics Engineering — GPA: 3.50 — *Sep. 2023 – June 2028*

Experience

Software Engineer — Jan 2025 – Present
Toyota Motor Manufacturing Canada — *Waterloo, Canada*

- Developed a performance monitoring pipeline for computer-vision defect detection system using C# and Python improving turnaround time by 1.5 days
-
- Automated labeling system for training data using PyTorch, reducing labeling time by 32 minutes per training job
- Implemented automated logging service from vision systems to Kibana in Python using Fluent-Bit

Artificial Intelligence Research Assistant — Dec 2024 – Present
University of Waterloo — Vision and Image Processing Lab — *Waterloo, Canada*

- Implemeted a real-time 3D reconstruction pipeline for cystoscopy videos, achieving 100 fps rendering speed
- Implemented 3D Gaussian representation and differentiable rasterization using PyTorch, improving accuracy by 24.2% over state-of-the-art methods
- Enhanced camera pose optimization with CUDA programming, achieving 0.34 mm Average Translation Error

Machine Learning Engineer — May. 2024 – Sep 2024
Toyota Motor Manufacturing Canada — *Waterloo, Canada*

- Created an end-to-end anomaly detection pipeline that prevented 19 minutes of robot downtime monthly
- Designed an LSTM Autoencoder model in Python using TensorFlow, achieving a 2.3% average reconstruction error
- Orchestrated a data pipeline with PostgreSQL, Docker, and Airflow to handle 34000 records per minute
- Built a robot adapter in .NET for real-time data logging from 320 Kawasaki robots in under 1 second

Software Engineer — April 2024 – Present
WAT.ai - AI Design Team — *Waterloo, Canada*

- Point 1
- Point 2
- Point 3

Firmware Engineer — Sep 2023 – Dec 2024
UW Formula Electric - EV Design Team — *Waterloo, Canada*

- Developed data acquisition algorithms in C for Brake Infrared Sensor and Inertial Measurement Units.
- Wrote Hardware-in-the-Loop tests for Battery Management Unit in line with ECU schematics

Projects

Real-time Sentiment Analysis Platform | *Python, C++, React, PostgreSQL, Docker* — Dec 2024 – Present

- Point 1
- Point 2
- Point 3

Portfolio Sharing Platform | *Node.js, React, MongoDB* — May 2023 - Jan 2024

- Point 1
- Point 2
- Point 3

Technical Skills

Languages: C#, Python, C++, SQL (PostgreSQL), Javascript
Frameworks: .NET 8.0, PyTorch, TensorFlow, Angular, Caffe
Developer Tools: Git, Docker, ONNX
Libraries: pandas, NumPy, Matplotlib