Abhinav Jain

a252jain@uwaterloo.ca • abhij2706.github.io • linkedin.com/in/abhij2706/ • +1 343 558 2078

- **Languages:** Python, C++, C, HTML, CSS, Javascript, Java, Kotlin, Swift, Bash, SQL.
- **Technologies:** Android, Linux, Docker, Jenkins, Git, GDB, NumPy, Pandas, TensorFlow/Keras, SKLearn, OpenCV
- **Domains:** AI Model Development and Tuning, Embedded AI, MLOps, Software Engineering, Test Automation

Experience

Qualcomm (Toronto, ON)   August 2023 - December 2023
AI Performance Analysis Intern   *Python, NumPy, Pandas, Plotly, Android*
- Enabled hardware and software performance profiling for embedded AI workloads running on Snapdragon.
- Increased speed and scalability of performance data preprocessing and profiling tools by over 500%.
- Added a querying and caching system for large performance datasets (50,000+ points) stored on the filesystem.
- Conceptualized a time-based search engine to enable nanosecond-level profiling of code blocks in AI workloads.

Qualcomm (Toronto, ON)   January 2023 - August 2023
Snapdragon AI Processor Intern   *C++, Python, Android, Bash, GDB*
- Contributed to an embedded framework that accelerates AI and CNN-based image processing on Snapdragon.
  - Added runtime configuration for debugging infrastructure, improving debugging for 40+ engineers.
  - Integrated data and parameter propagation into production code. Ensured thread-safety and scalability.
  - Performed Inter-Process Communication (IPC) optimizations, achieving a 50% performance improvement.
- Created an MLOps suite to analyze performance of AI-based workloads running using the embedded framework.
  - Implemented an Extract-Load-Transform (ELT) pipeline to retrieve data and calculate KPIs after execution.
  - Defined 100+ custom KPIs, revealing bottlenecks that led to a 2x performance improvement when resolved.

Cisco Systems (Ottawa, ON)   May 2022 - August 2022
DevOps and Analytics Intern   *Python, Docker, Jenkins, ElasticSearch*
- Designed and implemented a machine learning (ML) system to recommend code reviewers for pull requests.
  - Employed collaborative filtering to make recommendations. Optimized for datasets with 500,000+ entries.
  - Deployed a Jenkins job and integrated results into GitHub and Grafana dashboards, serving 3600+ engineers.
- Enhanced the Cisco Networking Bot (CNBot), a customer guidance chatbot with over 1200 monthly users.
  - Reduced CNBot's space usage by 90% through Docker image optimizations, saving over $35,000/year.
  - Increased CNBot's F1 score to 0.99 using Natural Language Processing (NLP) pipeline optimizations.

Cisco Systems (Ottawa, ON)   May 2021 - August 2021
SRv6 Testing Team Intern   *Python, TensorFlow/Keras, InfluxDB, Grafana*
- Created a Recurrent Neural Network (RNN)-based model to detect anomalies in router telemetry data.
- Developed unit tests for the Cisco Automation FactorY (CAFY) Test Suite for SRv6 performance measurement.
- Built RESTful APIs to collect and preprocess 60+ SRv6 telemetry metrics using YANG.

MVS Remote Video (Ottawa, ON)   August 2019 - January 2020
Project Consultant   *Python, OpenCV, NumPy, Raspberry Pi*
- Developed a computer vision system to direct autonomous vehicles transporting supplies through minefields.

Extracurriculars

WAT.ai (Waterloo, ON)   October 2023 - Present
Stock Forecasting Team   *Python, TensorFlow/Keras, PyTorch*
- Designing a deep reinforcement learning model to trade stocks using sentiment analysis and price predictions.

Waterloo Data Science Club (Waterloo, ON)   September 2022 - September 2023
Various Roles   *Python, TensorFlow/Keras, PyTorch, MLFlow*
- Fine-tuned a BERT Large Language Model (LLM) to retrieve 16 emission metrics from climate disclosure extracts.
- Presented papers covering neural network architecture, image processing, and NLP to 100+ club members.
- Prepared resources and hosted workshops on Pandas, Numpy, MatPlotLib, and Tensorflow for 60+ club execs.

Education

University of Waterloo (Waterloo, ON)   September 2020 - May 2025
Bachelor of Computer Science + AI Specialization   *Cumulative GPA: 89%*