Abhinav Jain

a252jain@uwaterloo.ca • abhij2706.github.io • linkedin.com/in/abhij2706/

- **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

Experience

Qualcomm (Toronto, ON)   **August 2023 - December 2023**
AI Performance Analysis Intern   *Python, NumPy, Pandas, Plotly, Android*
- Enhanced hardware and software performance profiling tools for AI workloads running on Snapdragon.
- Increased speed and scalability of data preprocessing and performance profiling tools by over 500%.
- Added a querying and caching system for very large performance datasets stored on the filesystem.
- Implemented a time-based search engine, enabling 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 which enables smartphone OEMs to run AI workloads on Snapdragon.
  - Added dynamic configuration for debugging infrastructure, improving debugging for 40+ engineers.
  - Integrated data and parameter transmission into production code, ensuring thread-safety and scalability.
- Created an MLOps suite to analyze the performance of AI 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 solved.
- Used a data-driven approach to evaluate and improve the performance of the embedded framework.
  - Performed Inter-Process Communication (IPC) optimizations, achieving a 50% performance improvement.
  - Enabled performance data collection for 5+ AI-based image processing use cases on Snapdragon.

Cisco Systems (Ottawa, ON)   **May 2022 - August 2022**
DevOps and Analytics Intern   *Python, Docker, Jenkins, ElasticSearch*
- Designed a system to recommend code reviewers for pull requests, serving 3,600+ engineers.
  - Applied collaborative filtering ML techniques. Optimized for large datasets of 500,000+ entries.
  - Deployed as a Jenkins job for CI/CD, and integrated into Cisco's GitHub and Grafana dashboard suite.
- 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 Understanding (NLU) pipeline optimizations.

Cisco Systems (Ottawa, ON)   **May 2021 - August 2021**
SRv6 Testing Team Intern   *Python, TensorFlow/Keras, InfluxDB, Grafana*
- Built a deep learning model to detect anomalies in router telemetry data.
- Created test cases for the Cisco Automation FactorY (CAFY) Test Suite for SRv6 performance measurement.
- Configured router topologies for test scenarios and developed RESTful APIs to preprocess network information.
- Wrote platform-agnostic data collection functions for SRv6 features using YANG, achieving 100% coverage.

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

Extracurriculars

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

Waterloo Data Science Club (Waterloo, ON)   **September 2022 - September 2023**
Various Roles   *Python, TensorFlow/Keras, PyTorch, MLFlow*
- Fine-tuned a distillBERT Large Language Model (LLM) to retrieve metrics from climate disclosure extracts.
- Led reading groups covering papers concerning image processing and natural language processing.
- Prepared resources and hosted workshops on Pandas, Numpy, MatPlotLib, and Tensorflow.

Education

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