Abhinav Jain

a252jain@uwaterloo.ca • https://github.com/AbhiJ2706/ • https://www.linkedin.com/in/abhij2706/

Experience

Qualcomm | ML Architecture and Performance Analysis Intern | August 2023 - Present | Toronto, ON
- *Associated skills: C++, Python, Android, Linux, Git, Pandas, Docker, Jenkins.*
- Developing a workflow to perform High-Level Synthesis (HLS) for functional models.
- Enhancing performance analysis and modeling infrastructure for AI-based processing on Android phones.

Qualcomm | Snapdragon AI Processor Intern | January 2023 - August 2023 | Toronto, ON
- *Associated skills: C++, Python, Android, Linux, Bash, Git, GDB, NumPy, Pandas, Docker, Jenkins.*
- Contributed to a multiplatform embedded framework to enable AI-based processing on Android phones.
  - Integrated data transfer features into framework production code for leading smartphone OEMs.
  - Added configurable runtime debugging functionality, bolstering debug infrastructure for 40+ engineers.
  - Wrote unit and functional tests to ensure thread-safety and scalability of data transfer code.
- Conceptualized and implemented MLOps features to analyze performance of the embedded framework.
  - Built a module for KPI definition at the platform & component level, accelerating development by 20x.
  - Implemented an Extract-Load-Transfer (ELT) pipeline, enabling live KPI retrieval using a single command.
- Used a data-driven approach to evaluate and improve the performance of the embedded framework.
  - Performed Inter-Process Communication (IPC) optimizations, achieved 50% performance increase.
  - Enabled measurement collection for 5+ AI and communication use cases on Android and DSP.

Cisco Systems | DevOps and Analytics Intern | May 2022 - August 2022 | Ottawa, ON
- *Associated skills: Python, NumPy, Pandas, Scikit-learn, Docker, ElasticSearch, Linux, Bash, Jenkins, Git.*
- Designed a system to recommend code reviewers for git commits and pull requests, serving 3600+ engineers.
  - Applied collaborative filtering ML techniques. Optimized for large datasets of 500000+ 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 | SRv6 Testing Team Intern | May 2021 - August 2021 | Ottawa, ON
- *Associated skills: Python, TensorFlow/Keras, NumPy, Pandas, Linux, Bash, Git, 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 99% coverage.

MVS Remote Video | Project Consultant | August 2019 - January 2020 | Ottawa, ON
- *Associated skills: Python, OpenCV, Raspberry Pi, NumPy, Linux.*
- Developed a computer vision system to direct an autonomous vehicle transporting supplies through minefields.
- Leveraged OpenCV to calculate distance and angle to a target in real time.

Extracurriculars

University of Waterloo Data Science Club | Various Roles | September 2022 - Present | Waterloo, ON
- *Associated skills: Python, TensorFlow/Keras, PyTorch, Jupyter Notebook, NumPy, Pandas, MatPlotLib, MLFlow.*
- Development Leader for a team solving a business challenge for Manifest Climate.
  - Fine-tuned a distillBERT Large Language Model (LLM) to get metrics from climate disclosure extracts.
  - Provided customers with 16 metrics. Reached an F1 score of 0.85. Used MLFlow to verify performance.
- Transformers/LLMs Reading group lead: Prepared presentations on Transformer and LLM-related papers.
- VP of Data Analysis: Led a team of 20 data analysts generating data science-related content.
  - Prepared and hosted workshops and resources on Pandas, Numpy, MatPlotLib, and Tensorflow.

Education

University of Waterloo | Bachelor of Computer Science + AI Specialization | September 2020- May 2025 | Waterloo, ON
- Cumulative GPA: 89%
- Relevant Coursework: Algorithms, Operating Systems, Object-Oriented Programming, Data Structures