Samuel Harrison

samharrison.ca samharrison@cs.toronto.edu github.com/sam-harri linkedin.com/in/sam-harri

Education

University of Toronto **September 2025 - December 2026**
Master of Science in Applied Computing, Computer Science
- Focus on distributed systems and storage systems

University of Ottawa **September 2020 - April 2025**
Bachelor of Science in Computing Technology *graduated summa cum laude*
Bachelor of Applied Science in Chemical Engineering *graduated summa cum laude*

Experience

Databricks (previously Neon Database) **October 2024 - Present**
Community Manager/Software Engineer *Remote*
- Built sync and async SQL-over-HTTP Python drivers with bidirectional type mapping, reducing median latency by 12% for single-shot queries in serverless environments; shipped with unit and integration tests, and a CI pipeline
- Administered Neon's official Discord community, debugging user issues, escalating bugs to support/engineering, and fielding day-to-day product questions
- Created an automated social media scraper that tracked untagged Neon mentions and used a Llama-8B classifier to filter noise and highlight real problems; pushed hundreds of mention notifications into Slack and Discord for triage

Skyworks Solutions **July 2024 - October 2024**
Machine Learning Engineer *Ottawa, ON*
- Developed physics-informed neural networks of GaAs pHEMT devices, improved bias point selection accuracy leading to reduced intermodulation distortion and simulation wall times
- Implemented a PyTorch-to-Verilog-A transpiler that converts trained neural networks into Verilog-A modules, enabling device teams to drop deep learning models straight into Cadence and Keysight simulators
- Created a CLI for HPC management that simplified ML workflows through templated resource allocation, automated storage mounting, containerized Apptainer environments, and experiment monitoring

Algorithm Developer Intern **August 2023 - January 2024**
Algorithm Developer Intern *Ottawa, ON*
- Developed CNN-LSTM and LightGBM models for Li-ion battery state estimation, improved accuracy by 4% and enabled inference on resource-constrained edge devices
- Created a real-time inference system using FastAPI and Redis telemetry data buffering, delivered low-latency state predictions during active charging cycles for hundreds of batteries
- Consolidated battery data from multiple charging platforms into a central MongoDB database, and developed a React web platform for analysis of battery cycling and EIS results

Public Services and Procurement Canada **April 2022 - September 2022**
Data Science Intern *Gatineau, QC*
- Developed an automated review system for the National Project Management System to provide early warnings for projects at risk of exceeding time, budget, or scope constraints, reducing the quarterly review timeline from over 60 hours to approximately 5 minutes
- Created a comprehensive dashboard to visualize project data, highlighting trends across projects, regions, and project managers

Projects

FLood2 - Undergraduate Research in CFD | *blog.samharrison.ca/posts/flood2*
Novel, highly parallel turbulence characterization algorithm designed for execution on HPC clusters, and applied to DNS results from Nektar++ simulations. Implemented in C++11, Python, and Rust.

pgtensor | *github.com/sam-harri/pgtensor*
Postgres extension written in Rust adding a tensor data type and an ONNX inference engine for in-database model execution using background worker processes and shared memory; supports multiple dtypes and shape validation

Skills

Languages: Python, Rust, TypeScript · **ML/DL:** PyTorch, scikit-learn, Polars, Pandas, NumPy, ONNX · **Databases:** Postgres, MongoDB, Redis · **DevOps:** Docker, Compose, Git, CI, Linux, AWS · **Other:** React, Next, Tailwind, Drizzle