Samuel Harrison

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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 (via Neon Database acquisition) **October 2024 - Present**
Software Engineer/Community Manager *Remote - Bay Area, CA*
- Built sync and async SQL-over-HTTP Python drivers with bidirectional type mapping, reducing latency for single-shot queries in serverless environments by cutting connection overhead by 5 round-trips
- Created an automated social media scraper that tracked untagged Neon mentions and used a Llama-8B classifier to filter noise and highlight real problems; surfaced, triaged, and routed hundreds of support tickets

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

GBatteries **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* | *Rust, C++, Python, OpenMPI*
Novel, highly parallel turbulence characterization algorithm designed for execution on HPC clusters

pgtensor | *github.com/sam-harri/pgtensor* | *Rust, Postgres, ONNX, pgrx*
Postgres extension written in Rust adding a native tensor data type using an ATen styled memory-layout and an ONNX inference engine for in-database model execution using background worker processes and shared memory

TensorCraft | *tensorcraft.click* | *PyTorch, React, Next.js, AWS (RDS, Lambda, S3, API Gateway)*
Drag'n'drop neural network builder, provides real-time feedback on tensor shapes and compiles to PyTorch code

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