Samuel Harrison Ottawa, Ontario
samharrison.ca | sharr125@uottawa.ca | https://github.com/sam-harri

EDUCATION

University of Ottawa **Expected Graduation April 2025**

BSc in Computing Technology and BASc in Chemical Engineering – 5th Year

- Computing Technology GPA : 9.8/10.0, Chemical Engineering GPA : 9.1/10.0
- Dean's Honour List and Dean's Merit Scholarship 2020 – 2023

WORK EXPERIENCE

SkyWorks Solutions (Ottawa, ON) **July 2024 – Present**

Machine Learning Engineer II for III-V Modelling Group

- Developed predictive Physics-Informed Neural Network models for drain and gate current of GaAs pHEMT devices, and leveraged gradient matching to estimate charge dynamics
- Created CLI with a TUI to push and pull datasets from Azure blob storage, provision compute to train models, and launch monitoring tool instances
- Built an RF switch design math package, deployed behind a React frontend and REST API, and as an installable python package; Automated testing, building, and deployment using Azure DevOps
- Spearheaded devops efforts within device modeling teams by standardizing the development environment with dev containers, implementing pre-commit hooks, enforcing test coverage and type checking, and maintained comprehensive documentation for deployed packages

GBatteries (Ottawa, ON) **September 2023 – January 2024**

Algorithm Developer Intern for R&D Division

- Developed and deployed various machine learning and deep learning models to tackle state estimation of Li-Ion batteries during drive cycles
  - Deployed models using FastAPI, used Redis for data buffering
  - Built a CI pipeline integrating MyPy static type checking, PyTest for unit testing, and automated deployment workflows
  - Utilized LSTM, GRU, and Gradient Boosting for time-series regression and state estimation
- Created Electrochemical Impedance Spectroscopy dashboard and accompanying REST API to standardize data acquisition for all platforms and share battery cycling results across teams
  - Used React, Typescript, and Bootstrap to build dashboard where users could access, compare, and share data across many EIS sweeps to support research efforts
  - Integrated API calls into existing EIS platforms for transmission of sweep conditions and impedance results into MongoDB

Public Services and Procurement Canada (Gatineau, QC) **May 2022 – August 2022**

Junior Data Scientist for National Project Oversight Branch

- 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
- Reduced quarterly review exercise 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
- Worked extensively with large, complex datasets in the project management and financial industry

PROJECTS

Uranium Milling Demonstration Plant – Hatch Ltd. | *TensorFlow, Python,*

Collaborated with engineering firm for honors capstone project, designed and optimized solvent extraction process of uranium using deep reinforcing learning. Winner of University of Ottawa plant design competition

TensorCraft.click | *React, Tailwind, Zustand, Typescript, AWS (Lambda, S3, Route53, API Gateway), Python*

Created web app enabling users to build neural networks by dragging, connecting, and defining layers in an interactive playground, providing real-time tensor shape feedback and a PyTorch implementation instantly

SKILLS

- Languages : Python, Golang, Rust, TypeScript
- Machine Learning : PyTorch, ScikitLearn, Pandas, Numpy, Lightning, Optuna, XGBoost
- Databases : MongoDB, Redis, PostgreSQL, SQL
- DevOps : Docker, CI/CD, Linux, Bash, Git, AWS
- Web Development: React, Next, Tailwind, Bootstrap