

WORK EXPERIENCE

Software Engineer - Machine Learning

Jan 2024 – Aug 2025

University of Guelph

Guelph, Ontario

- Drove a **30× bandwidth reduction** and **29% latency cut** by integrating Swin-Transformer semantic compression into an edge-cloud pipeline, while keeping image fidelity $\geq 88\%$
- Authored an **adaptive network-aware module** that tunes compression in real time, ensuring lowest-possible latency under fluctuating link conditions
- Quantised the PyTorch model to ONNX and **deployed on Xilinx Kria SoCs with Vitis AI**, achieving DPU inference $\sim 3\times$ faster than CPU baseline
- Containerised encoder, decoder, and a 10 GbE core-network simulator (TCP/IP); profiled round-trip times with iperf3 to verify 29% latency optimizations

Software Developer

Oct 2022 – Oct 2023

University of Guelph - Robotics Institute

Guelph, Ontario

- Packaged the complete ROS2, Node.js, and Vue stack into versioned **Docker images** for clean reproducibility across development and test rigs
- Provisioned AWS EC2 and S3 resources with **Terraform**; configured a self-hosted GitLab and **Jenkins pipeline** to build, test, and deploy the full-stack application with zero-downtime rollouts
- Implemented **Let's Encrypt auto-renewal** and Nginx reverse-proxy routing, adding HTTPS and CORS hardening without manual intervention
- Delivered a wheelchair-friendly smart-door system integrating ESP32, PIR sensors, and React Native control; field-tested reliability at 95 % success over 3 months

Information Technology Analyst

Jul 2020 – Dec 2020

Kitchener Downtown Community Health Center - SRHC

Kitchener, Ontario

- Designed a Samba-based file-share to replace e-mail transfers, boosting staff file-access speed by $\sim 40\%$
- Configured and maintained **FortiGate firewall + VPN** for 60 remote users; drafted monitoring proof-of-concept in Prometheus before hand-off
- Optimized the 3CX PBX workflow, cutting patient on-hold times by 30 %
- Led a hardware refresh (switches, servers, workstations) that met security targets while saving 45 % against budget

EDUCATION

University of Guelph | [M.A.Sc. - Computer Engineering](#)

Aug 2025

University of Guelph | [B.Eng - Comp. Engineering, B.Comp. - Comp. Science](#)

Apr 2023

SKILLS, TECHNOLOGIES, INTERESTS

Skills: AI; DevOps; Software Testing; Cloud Computing; Data Analysis; ML; CI/CD

Technologies: Python; C++; C; JavaScript; Rust; HTML; Java; Bash; Flask; FastAPI; Swagger; Node.js; React; PyTorch; MongoDB; PostgreSQL; SQLite; Docker; Kubernetes; Git; Jenkins; Terraform; AWS

Languages: English (Fluent); Arabic (Fluent)

PROJECTS

Personal Portfolio Website Full-Stack Developer: built with React frontend and Rust backend, integrated end-to-end Jenkins CI/CD and Docker deployment; reduced manual deployment time by 70%

Home lab Administration Managed a fleet of 15 Docker containers hosting media services, websites, and game servers; implemented automated Let's Encrypt SSL issuance, Prometheus/ Grafana monitoring, and Fail2Ban SSH hardening, achieving 99.9% uptime

Heart Disease Predictor Full-stack Flask-RESTful application with HTML/CSS/JavaScript frontend; trained on the UCI Heart Disease dataset (11 clinical features) achieving 95% accuracy; implements input feature scaling for normalized, real-time predictions

Real-Time Noise cancelling with RL Built a custom OpenAI Gym environment in Python that leverages Dynamic Sparse Training (DST) and FFT-based audio processing (librosa) to adaptively filter noise; implemented a waveform-similarity reward and achieved up to 5209 FPS during PPO training