

## Summary

Versatile software engineer with hands-on experience in backend systems, machine learning, DevOps, and embedded platforms. Proficient in Python, C++, Rust and JS, with a portfolio of applied AI, web services, and hardware integrated projects. Passionate about writing clean, testable code and clearly communicating technical insights

## Relevant Work Experience

### Software Engineer - Machine Learning

Jan 2024 – Dec 2024

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

## Skills

**Languages:** Python, C++, JavaScript, C, SQL, Java, C#, Bash

**Frameworks:** Flask, FastAPI, Node.js, React, TensorFlow, PyTorch, ROS2

**Databases:** MongoDB, PostgreSQL, SQLite

**Tools:** Docker, Kubernetes, Git, Jenkins, Terraform, AWS, Vitis AI

## Projects

**Heart Disease Predictor** – Flask app with sklearn model, real-time prediction, and input feature scaling

**StonkBot** – Discord bot for fantasy stock trading using Python, Matplotlib, and live API feeds

**Car Model Classifier** – CNN trained on Stanford Cars dataset with ResNet/EfficientNet architectures

**Memory Allocator Simulator** – C implementation of First/Best/Worst fit memory management

**Braille Converter Device** – Raspberry Pi-based image-to-Braille translator for accessibility

**Clean Architecture Backend** – C# backend for portfolio website, CI/CD-ready with REST API

**RL Noise Cancelling** – Real-time audio filtering using RL and sparse training (PyTorch)

## Education

University of Guelph | **MASc. - Computer Engineering**

University of Guelph | **B.Comp. - Computer Science**

University of Guelph | **B.Eng. - Computer Engineering**