

Murtadha Nisyif

📍 Ontario, Canada
✉️ mnisyif@gmail.com
☎️ +1 (519) 502-8463

🌐 m.nisyif.com
🌐 linkedin.com/in/mnisyif
🌐 github.com/mnisyif

Highlights

- Developed a Flask web app to predict heart disease using ML models, including feature encoding, scaling, and real-time prediction
- Designed nested MongoDB schemas using Mongoose to support flexible, multi-representation document structures
- Dockerized and deployed backend/frontend using Jenkins CI/CD with rollback capability and uptime focus

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, SQL, Bash
Frameworks: Flask, React, Node.js, ROS, Express.js
Databases: MongoDB (Mongoose), PostgreSQL, SQLite
DevOps: Docker, Jenkins, Git, Terraform, AWS
Tools: GitHub, Postman, Swagger, Nginx, iperf3

Projects

Heart Condition Prediction Web App Built a Flask-based app to predict heart disease risk using ML models with real-time input processing, encoding, and instant output.

Full-stack Portfolio Project Dockerized frontend/backend using React and Java; deployed using Jenkins pipeline with AWS S3 for static hosting and MinIO for object storage.

DevOps Homelab Maintained home lab infrastructure with Docker, Kubernetes, Ceph, and Jenkins. Built versioned CI/CD pipelines for staging + rollback experiments.

Education

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

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

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