

Relevant Work Experience

MLOps Engineer - Researcher	Jan 2024 – Dec 2024
<i>University of Guelph</i>	<i>Guelph, Ontario</i>
- Collected latency data from diverse hardware setups and performed feature engineering to identify optimal correlations, enhancing model performance in varying network conditions - Designed, implemented, and trained an adaptive model extension to the existing semantic communication transformer, improving real-time responses to network bandwidth fluctuations while maintaining at least 96% accuracy - Pioneered deployable transformer-based models for semantic data transmission, achieving 29% lower latencies in end-to-end communications specifically 30x reduction in network bandwidth utilization - Deployed existing PyTorch-based implementations onto Kira SoCs using Vitis AI™, leveraging hardware acceleration to achieve a 15% reduction in computational time	
Software Developer	Oct 2022 – Oct 2023
<i>University of Guelph - Robotics Institute</i>	<i>Guelph, Ontario</i>
- Developed ROS2 modules in C++ and Python to migrate an Assistive Robotic Feeding System for Elderly Individuals, ensuring multithreaded operations' integrity - Managed and maintained the codebase of a smart door application suite with a Node.js backend, React Native app, and Vue dashboard, enabling smartphone control of motorized doors and providing user analytics from over 50 users - Built a Jenkins CI/CD pipeline for automated building, testing, and deployment of Node.js backend, Vue frontend, and React Native app, with Dockerized PostgreSQL for data handling - Implemented Terraform for IaC to automate AWS resource provisioning, enhancing the scalability and reliability of the smart door system	
Information Technology Analyst	Jul 2020 – Oct 2020
<i>Kitchener Downtown Community Health Centre - SRHC</i>	<i>Kitchener, Ontario</i>
- Conducted thorough market research on equipment pricing, engaging with three vendors to secure competitive offers; steps taken yielded a 45% savings, enabling the purchase of additional needed tools - Streamlined communication between doctors and patients, reducing patient waiting times by 30% - Maintained the OSCAR McMaster EMR system while migrating to TELUS PS healthcare, the transition involved training 20 staff members, ensuring seamless adoption and minimal disruption to services	

Skills

Languages:	C/C++/C#, Python, JavaScript, SQL, Java, HTML, MATLAB, CSS
Frameworks:	PyTorch, Node.JS, React, Express JS, .NET, TensorFlow, ROS, Django
Cloud & DB:	Docker, AWS, Kubernetes, PostgreSQL, MongoDB, MySQL, SQLite
Tools & Protocols:	Git, Jenkins, Postman, Flask, Swagger, HTTP, TCP, Jira, CMake

Projects

Full-stack application	Developed and Dockerized a full-stack portfolio using React and Java (adhering to microservices architecture) and deployed it on a home server using a Jenkins CI/CD pipeline and Minio S3 bucket
DevOps Homelab	Orchestrating a robust homelab environment with dockerized apps, virtual machines, Kubernetes clusters for load distribution, Ceph distributed storage and CI/CD pipelines for seamless deployment of personal applications
RL Dynamic Noise Cancelling:	Implemented real-time Automatic Noise Filtering using Reinforcement Learning and Dynamic Sparse Training in PyTorch
Real-Time Text-to-Braille:	Built a Raspberry Pi device for real-time image-to-Braille conversion, enhancing accessibility for the deaf-blind community

Education

University of Guelph	<i>MASc. - Computer Engineering</i>
University of Guelph	<i>B.Comp. - Computer Science</i>
University of Guelph	<i>B.Eng. - Computer Engineering</i>

Publications

Boosting Edge-to-Cloud Data Transmission Efficiency with Semantic Transcoding
<i>Published @ IEEE CCECE (Aug 2024)</i>

- Explored a novel approach to incorporate semantic transcoding in edge-cloud system to reduce data latency rates