

Relevant Work Experience

Software Engineer - Research Assistant <i>University of Guelph</i>	Jan 2024 – Dec 2024 <i>Guelph, Ontario</i>
• Pioneered transformer-based models for semantic data transmission, enhancing E2E communications • Developed PyTorch models, boosting data transmission efficiency and reliability • Deployed implementation on industry-grade SoC with hardware acceleration using Vitis AI™, optimizing performance • Published findings in CCECE 2024, showcasing improved data transmission latencies	
Software Developer <i>University of Guelph - Robotics Institute</i>	Oct 2022 – Oct 2023 <i>Guelph, Ontario</i>
• Developed ROS2 modules in C++ and Python for an Assistive Robotic Feeding System for Elderly Individuals • Enhanced a React Native mobile app, ensuring flawless BLE reliability with IoT devices for maximum accessibility • Deployed an analytics application using AWS services and a PostgreSQL database for research survey data	
Information Technology Analyst <i>Kitchener Downtown Community Health Centre - SRHC</i>	Jul 2020 – Oct 2020 <i>Kitchener, Ontario</i>
• Achieved a 45% savings on a \$10,000 budget for equipment upgrades • Streamlined communication between doctors and patients, reducing patient waiting times by 30% • Maintained the OSCAR McMaster EMR system and successfully migrated to the new TELUS healthcare infrastructure	

Skills

Languages:	C/C++/C#, Python, JavaScript, Java, HTML, MATLAB, CSS
Frameworks:	PyTorch, Node.JS, React, Express JS, .NET, TensorFlow, ROS, Django
Databases:	PostgreSQL, MongoDB, MySQL, SQLite
Other:	Docker, AWS, Kubernetes, Git, Postman, Flask, Swagger, WoodPecker CI, HTTP, TCP, Xilinx, CMake

Projects

Transformer-based Semantic Transcoding:	Developed PyTorch models for E2E semantic transcoding, deployed on Xilinx SoC boards using Vitis AI™
Clean Architecture C# Backend:	Engineered a scalable portfolio website backend using C#, adhering to Clean Architecture and REST API principles and implementing CI/CD pipeline for efficient deployment
DevOps Homelab Maestro:	Orchestrating a robust homelab environment with Docker containers, Kubernetes clusters, Ceph distributed storage, and CI/CD pipelines for seamless application deployment
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
ZAMAZ UTI Diagnosis:	Developed a Raspberry Pi-based system for automated urine test analysis, achieving 16x faster results than standard methods

Education

University of Guelph <i>MASc.</i>	Sep 2023 – Dec 2024
University of Guelph <i>B.C. Computer Science</i>	Sep 2021 – Apr 2023
University of Guelph <i>B.Eng. in Computer Engineering</i>	Sep 2019 – Apr 2023

Publications

Boosting Edge-to-Cloud Data Transmission Efficiency with Semantic Transcoding <i>Published @ IEEE CCECE (Aug 2024)</i>
• Developed a semantic transcoding method using transformer-based models for edge-to-cloud data transmission, reducing latency by up to 30% and optimizing bandwidth in core network systems to support next-generation applications.