

Murtadha Saeed Nisyif

Software Engineer

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Relevant Work Experience

Software Engineer - Research Assistant

Jan 2024 – Dec 2024

University of Guelph

Guelph, Ontario

- 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

Oct 2022 – Oct 2023

University of Guelph - Robotics Institute

Guelph, Ontario

- 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

Jul 2020 – Oct 2020

Kitchener Downtown Community Health Centre - SRHC

Kitchener, Ontario

- 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 JS, Express JS, .NET, TensorFlow, ROS, Django
Databases: MongoDB, MySQL, SQLite, MSSQL
Other: Docker, AWS, Kubernetes, Git, Postman, Flask, Swagger, WoodPecker CI, HTTP, TCP, Xilinx, CMake

Projects

Transformer-based Semantic Data Transmission : Developed PyTorch models for E2E semantic transcoding, deployed on Xilinx SoC boards using Vitis AI.

Homelab with Self-Hosted Services : Managed Docker and Kubernetes-deployed applications for efficient resource utilization in a personal server environment.

Dynamic Noise Cancelling with RL : Implemented real-time Automatic Noise Filtering using Reinforcement Learning and Dynamic Sparse Training in PyTorch.

Text-to-Braille Real-Time Converter : Built a Raspberry Pi device for real-time image-to-Braille conversion, enhancing accessibility for the deaf-blind community.

ZAMAZ UTI Diagnosis - Image Processor : Developed a Raspberry Pi-based system for automated urine test analysis, achieving 16x faster results than standard methods.

Education

University of Guelph | **M.A.Sc.**

Sep 2023 – Dec 2024

Masters of Applied Science in Computer Engineering

Guelph, Ontario

University of Guelph | **B.Eng.**

Sep 2019 – May 2023

Bachelor of Engineering: Major in Computer Engineering, Minor in Computer Science

Guelph, Ontario

Publications

Boosting Edge-to-Cloud Data Transmission Efficiency with Semantic Transcoding

Published @ IEEE CCECE (Aug 2024)

- Developed semantic communication techniques, reducing edge-to-cloud latency by up to 20%, and implemented transformer-based models to enhance data relevance and transmission efficiency