

Murtadha Saeed Nisyif

Computer Engineering Undergraduate

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Education

University of Guelph — MASc.

Masters of Applied Science in Computer Engineering

Sep 2023 – Aug 2025

Guelph, Ontario

- Focus Area: Machine Learning, Embedded Systems, Edge-Cloud computing, Core Networks
- Research Topic: Developing efficient algorithms for edge-cloud computing networks

University of Guelph — BEng.

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

Sep 2019 – May 2023

Guelph, Ontario

Relevant Work Experience

Graduate Research Assistant

University of Guelph

Jan 2023 – Ongoing

Guelph, Ontario

- Developed semantic communication techniques, reducing edge-to-cloud latency by up to 30%
- Implemented transformer-based models to enhance data relevance and network efficiency
- Optimized and benchmarked AI infrastructure for minimal end-to-end latency and high-quality data transmission
- Research published in IEEE CCECE 2024

Undergraduate Research Assistant & Software Developer

University of Guelph - Robotics Institute

Oct 2022 – Oct 2023

Guelph, Ontario

- Developed and optimized circuitry and code for automated door control logic board
- Enhanced mobile app communication using React Native for iOS and Android
- Developed ROS libraries in Python and C++ for a feeding robot system
- Dockerized ROS packages to resolve conflicts and improve system communication
- Migrated Python system to ROS, optimizing node interactions and data flow

Information Technology Analyst

Kitchener Downtown Community Health Center - SRHC

Jul 2020 – Oct 2020

Kitchener, Ontario

- Devised a call scheduling scheme reducing patient waiting times by 30%
- Implemented a self-devised equipment upgrade plan, saving 45% of a \$10,000 budget
- Administered and maintained Linux and Windows servers, ensuring 99.9% uptime
- Configured and maintained secure VPNs using Fortigate firewall

Projects

Homelab with Self-Hosted Services | [Git](#), [Docker](#), [Linux](#)

- Configured and maintained a homelab with self-hosted services including Nextcloud for file storage, Immich for photo management, a Git server for version control, and two game servers
- Deployed each service in isolated Docker containers, ensuring resource efficiency, automated backups, and secure network protocols

Dynamic Noise Cancelling with RL | [Python](#), [PyTorch](#)

- Implemented a voice noise cancellation solution using Reinforcement Learning and Dynamic Sparse Training to improve system accuracy and adaptability
- Adapted an Automatic Noise Filtering algorithm for real-time application, providing significant improvements in voice clarity in varied noise environments

Text-to-Braille Real-Time Converter | [Python](#), [Git](#), [Eagle](#), [Jira](#)

- Led a team to develop a real-time text-to-braille converter, implementing a modular architecture for improved flexibility
- Collaborated with an NPO to deliver the solution with a budget-friendly building cost of \$250 CAD

ZAMAZ UTI Diagnosis - Image Processor | [Python](#), [NumPy](#), [SciPy](#), [Matplotlib](#)

- Created a software system to automate urine test readouts using image analysis and pixel calculations
- Delivered a solution 16x faster than the gold standard, winning a \$2,000 prize in a competition among 50+ teams

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 30%
- Implemented transformer-based models to enhance data relevance and network efficiency