Murtadha Saeed Nisyif

Computer Engineering Undergraduate

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Education

University of Guelph — MASc. **Sep 2023 – Aug 2025**

Masters of Applied Science in Computer Engineering *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. **Sep 2019 – May 2023**

Bachelor of Engineering: Major in Computer Engineering, Minor in Computer Science *Guelph, Ontario*

Relevant Work Experience

Graduate Research Assistant **Jan 2023 – Ongoing**

University of Guelph *Guelph, Ontario*

- Implemented 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 **Oct 2022 – Oct 2023**

University of Guelph - Robotics Institute *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
- Migrated Python system to ROS, optimizing node interactions and data flow

Information Technology Analyst **Jul 2020 – Oct 2020**

Kitchener Downtown Community Health Center - SRHC *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