Murtadha Saeed Nisyif

Computer Engineering Undergraduate

Kitchener, Ontario, Canada
mnisyif@gmail.com
+1 (519) 502-8463
mnisyif.com
linkedin.com/in/mnisyif
github.com/mnisyif

Relevant Work Experience

Graduate Researcher **Jan 2024 – Dec 2024**

University of Guelph *Guelph, Ontario*

- Conducted research on the application of transformer-based models for semantic data transmission in end-to-end (E2E) communications
- Developed and trained models using PyTorch to enhance the efficiency and reliability of data transmission
- Published findings in CCECE 2024, presenting results that showed an improvement in data transmission latencies

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
- Assisted in improving and maintaining a mobile app developed in React Native for iOS and Android
- Deployed application using AWS services (EC2 & S3) and managed PostgreSQL database for research survey data
- Developed ROS libraries in Python and C++ for a robot feeding system targeted for the elderly

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

Kitchener Downtown Community Health Centre - SRHC *Kitchener, Ontario*

- Worked with a tight budget for equipment upgrades, saving 45% of a $10,000 budget
- Streamlined communication between doctors and patients, reducing patient waiting times by 30%
- Maintained existing OSCAR McMaster EMR system and migrated to the new TELUS healthcare infrastructure
- Configured and maintained secure remote working environments using Firewall solutions

Projects

Transformer-based Semantic Data Transmission | *Git, PyTorch, KD-SDK, C, Python*

- Explored the use of transformer-based models for semantic communications in E2E networks. Developed and trained models using PyTorch and demonstrated practical implementation on Xilinx KD-240 and KD-260 SoC boards
- Achieved 20% lower latencies, highlighting the potential of transformer models in improving data transmission quality and efficiency in communication systems

Homelab with Self-Hosted Services | *Git, Docker, Linux, Kubernetes, PostgreSQL, React, HTML, JS*

- Managed and maintained a wide variety of applications deployed in Docker containers, ensuring efficient resource utilization and isolation
- Incorporated load distribution methods using Kubernetes to balance workloads and enhance application availability and scalability

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*

- Powered by a Raspberry Pi, the device performs complex operations including extracting text from images captured by a camera module integrated at the bottom of the device
- Designed and developed a braille-display for deaf-blind individuals, addressing various technical aspects and ensuring the system is accessible and exceeds user expectations

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

Education

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

Masters of Applied Science in Computer Engineering *Guelph, Ontario*

- Research Focus: Exploring and incorporating transformer-based models for semantic data transmission in end-to-end (E2E) communications

University of Guelph — BEng. **Sep 2019 – May 2023**

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