

MURTADHA SAEED NISYIF

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WORK EXPERIENCE

ICT Teacher

Mar 2026 – Jul 2026

International Community School

Baghdad, Iraq

- Delivered the Cambridge ICT curriculum to students in Grades 1-8, teaching computer fundamentals, Microsoft Office applications, internet safety, digital citizenship, introductory programming, robotics, and computer hardware concepts
- Designed lesson plans and classroom assignments tailored to students' grade levels, ensuring instruction aligned with curriculum objectives and learning outcomes
- Maintained the computer laboratory by troubleshooting hardware and software issues, installing instructional software, and preparing classroom technology to support effective teaching
- Resumed ICT instruction following a three-month teacher vacancy and developed a teaching plan to support continuity into the following academic year
- Communicated with parents regarding student progress and participated in school-wide events, including graduation ceremonies and other academic activities

Teaching Assistant

Sep 2024 – Dec 2025

University of Guelph

Guelph, Ontario

- Led laboratory sessions and tutorials for over 100 undergraduate students in robotics and microcomputer interfacing, providing hands-on instruction and technical guidance
- Bridged theoretical concepts with practical implementation through demonstrations, guided exercises, and one-on-one student support
- Prepared and graded laboratory reports, project deliverables, and practical demonstrations while providing constructive feedback to enhance students' technical understanding
- Held office hours to mentor students, answer technical questions, and support their academic success throughout the semester

Researcher - Machine Learning

Jan 2024 – Dec 2025

University of Guelph

Guelph, Ontario

- Developed semantic communication pipelines using Swin Transformer models, achieving a 30× reduction in bandwidth usage and 29% lower latency while preserving atleast 96% task accuracy under variable network conditions
- Extended models with adaptive deterministic mechanisms to handle bandwidth fluctuations and anomalies, ensuring stable real-time performance
- Quantized encoder models to INT8 during edge-cloud simulations to emulate smartphone hardware constraints, enabling realistic performance benchmarking
- Published a first-author paper in IEEE conference proceedings, detailing the novel integration of semantic communication with edge computing for real-time, near real-time and task-offloading applications

Software Developer

Oct 2022 – Oct 2023

University of Guelph - Robotics Institute

Guelph, Ontario

- Architected and containerized a multi-technology stack combining ROS2, Node.js, and Vue to enable seamless real-time control across distributed robotic systems
- Implemented automated AWS infrastructure provisioning with Terraform and integrated CI/CD pipelines via GitLab and Jenkins, reducing manual deployment steps by 80%
- Created a secure certificate management workflow that streamlined Let's Encrypt renewals and configured a Nginx reverse proxy to enforce HTTPS and granular CORS policies
- Led the design and implementation of an accessible smart door system using ESP32, PIR sensors, and React Native, achieving over 95% reliability in extensive field tests

EDUCATION

University of Guelph | *Masters of Applied Science - Semantic Communication*

Dec 2025

University of Guelph | *Bachelors of Engineering - Computer Engineering*

Apr 2023

SKILLS, TECHNOLOGIES, INTERESTS

Skills:

AI; DevOps; Cloud Computing; IaC; Containerization; CI/CD; Monitoring; Data Engineering; ML Ops

Languages:

Python; C++; C; Rust; JavaScript; HTML; Java; Bash; Go

Tech Stacks:

FastAPI; PyTorch; React; Flask; SQLite, PostgresSQL, MongoDB, Express JS; Node.js; Swagger; Docker; Git; Jenkins; Terraform; AWS; Kubernetes

PROJECTS

Home Lab Administration | *Docker, Terraform, Jenkins, Prometheus, Grafana, SSL/TLS*

- Orchestrated a comprehensive home lab environment managing 15+ Docker containers for media, web, and gaming services, configured auto-renewal SSL/TLS certification with Let's Encrypt, setup Prometheus/Grafana monitoring, and applied Fail2Ban for robust security achieving 99.9% uptime and detailed system analytics

Heart Disease Predictor | *Python, Flask, RESTful, HTML, CSS, JS*

- Developed a scalable Flask-RESTful API paired with an interactive HTML/JS frontend while leveraging the UCI dataset and implemented real-time feature scaling with hyperparameter tuning to deliver a 95% prediction accuracy, supporting timely clinical decision-making

Real-Time Noise Cancellation with RL | *Python, PyTorch, Gymnasium, SciPy, librosa*

- Created a bespoke OpenAI Gym environment incorporating FFT-based audio processing and trained a PPO agent to perform adaptive noise cancellation in real time, achieving processing speeds exceeding 5,200 FPS for high-fidelity audio performance

PUBLICATIONS

Network-Aware Adaptive Semantic Image Transmission in Edge-Cloud Communications **MECOM 2025**

- Proposed an adaptive JSCC framework that couples Swin-Transformers with real-time network telemetry to optimize image transmission over dynamic 5G/6G core networks (Published, IEEE Xplore)

Boosting Edge-to-Cloud Data Transmission Efficiency with Semantic Transcoding **CCECE 2024**

- Utilized transformer-based edge-to-cloud models to achieve a 30× bandwidth reduction and 30% improvement in end-to-end latency for high-speed data systems (Published, IEEE Xplore)