Murtadha Saeed Nisyif

Softawre Engineer

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Relevant Work Experience

ML Engineer - Researcher **Jan 2024 – Dec 2024**

University of Guelph *Guelph, Ontario*

- Pioneered transformer-based models for semantic data transmission, reducing latencies in E2E communications by 29%, and reducing network bandwidth utilization by 30x
- Authored deployable implementations in C on Kira SoCs with Vitis AI™, utilizing hardware acceleration achieving 15% computional time reduction
- 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 in the process of migrating from a standalone Python implementation for an Assistive Robotic Feeding System for Elderly Individuals, accounting for multithreaded operations' integrity
- Co-authored a feedback loop in the React Native mobile app to provide analytics from 50+ users reporting users' interactions to enhance user experience and app performance
- Deployed a Node.js backend system in an EC2 instance, coupled with a PostgresDB to monitor and analyze users' activity as part of a research survey

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

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

- Conducted thorough market research on equipment pricing, engaging with three vendors to secure competitive offers; steps taken yielded a 45% savings, enabling the purchase of additional needed tools
- Streamlined communication between doctors and patients, reducing patient waiting times by 30%
- Maintained the OSCAR McMaster EMR system while migrating to TELUS PS healthcare, the transition involved training 20 staff members, ensuring seamless adoption and minimal disruption to services

Skills

Languages:	C/C++/C#, Python, JavaScript, SQL, R, Java, HTML, MATLAB, CSS
Frameworks:	PyTorch, Node.JS, React, Express JS, .NET, TensorFlow, ROS, Django
Cloud & DB:	Docker, AWS, Kubernetes, WoodPecker CI, PostgresSQL, MongoDB, MySQL, SQLite
Tools & Protocols:	Git, Postman, Flask, Swagger, HTTP, TCP, Jira, CMake

Projects

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

CI/CD React Portfolio Website Designed and developed a personal portfolio website using React. Implemented a CI/CD pipeline to automate the building, testing, and deployment process

Clean Architecture C# Backend: Engineered a scalable portfolio website backend using C#, adhering to Clean Architecture and REST API principles and implementing CI/CD pipeline for efficient deployment

DevOps Homelab Maestro: Orchestrating a robust homelab environment with Docker containers, Kubernetes clusters, Ceph distributed storage, and CI/CD pipelines for seamless application deployment

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

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

Education

University of Guelph | ***B.C. Computer Science*** **Sep 2021 – Apr 2023**

University of Guelph | ***B.Eng. in Computer Engineering*** **Sep 2019 – Apr 2023**

Publications

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

Published @ IEEE CCECE (Aug 2024)

- Explored a novel approach to incorporate semantic transcoding in edge-cloud system to reduce data transmission rates