Yazan Masoud

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Education

University of Waterloo — Waterloo, ON
Bachelor of Applied Science in Biomedical Engineering — *Sept. 2020 – April 2025*

Experience

Embedded Software Contractor — March 2023 – Present
smartARM — *Toronto, ON*

- Developing signal processing code in Python to analyze EMG data and detect muscle flexion in real-time for control of upper-limb prostheses

Software Development Engineer — Sept 2022 – December 2022
Infinera Canada Inc. — *Ottawa, ON*

- Designed and implemented CLI API in C++ to configure Digital Sub-Carrier Groups via CRUD operations
- Instrumented SDK for heap memory and CPU profiling using gperftools and visualized with pprof and KCachegrind
- Wrote C++ unit test suite to test encryption bypass/passthrough mode on chip initialization using doctest
- Enabled port forwarding via IP tables to enable Docker container runtime to communicate with custom MCU

Software Developer — Jan 2022 – Apr 2022
Thomson Reuters — *Toronto, ON*

- Prototyped OpenTelemetry integration to generate and collect distributed traces for application performance and behavior analysis
- Identified and fixed vulnerabilities in .NET Core codebase using Veracode and SonarQube to meet the OWASP 2021 Standard
- Wrote unit tests in C# to increase Legal Tracker test coverage for legacy code by 8%

Software Engineer — May 2021 – Sept 2021
Cox Automotive Inc. — *Mississauga, ON*

- Developed user stories in agile environment with ASP.NET Core and C# for car dealership applications
- Implemented UI updates using Angular to modernize the DealerTrack platform and ensure AODA compliance
- Configured backend email automation for customer financing inquiries

Projects

Brain Wave Gaming & SSVEP Communication — Jan 2023 – Feb 2023

- Architected EEG Brain-Computer Interface to play Flappy Bird with alpha/beta waves as input
- Built verbal communication system with steady state visually evoked potentials and OpenAI text completion API
- Designed and constructed analog circuit to amplify/filter brain waves in the 8-32Hz range
- Processed signals on Raspberry Pi using Python to apply FFTs, calculate signal power, visualize data, and build interfaces

Naruto Hand Sign Classifier — Mar 2022 – June 2022

- Led design of computer vision pipeline to classify hand gestures using transfer learning
- Trained 12-class model comparing architectures of MobileNetV2, ResNet50, VGG16, and InceptionV3
- Leveraged OpenCV in Python to curate dataset, localize and crop hand positions, and make real-time predictions
- Achieved 93.60% test accuracy and 83.33% live demo accuracy with VGG16

Skills

Languages: Python, C/C++, C#, SQL, JavaScript, HTML/CSS, Bash
Frameworks: Angular, Node.js, ASP.NET, .NET Core
Tools: Git, Docker, Unity, Jenkins, Linux, Xilinx Evaluation Boards, Zync SoC (Arm-Cortex A53)
Libraries: pandas, NumPy, Matplotlib, TensorFlow, Keras, OpenCV, eRPC/gRPC