Akshat Sharma

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Experience

Software Developer Apr 2024 – Present

Tessonics *Windsor, ON*

- Built a **C++** PLC simulator that mirrors real production traffic, accelerating integration tests for the **RIWA** platform.
- Engineered a real-time Hall-effect current-detection algorithm in **C++**, achieving <10 ms end-to-end latency.
- Authored backward-compatible 32-bit **C++** DLLs that exposes a drop-in API, bridging legacy software to a modern **C++** inference server via WebSocket and delivering real-time deep-learning predictions with no code rewrites.
- Built a **Python**-based **Debian** packaging pipeline and a self-hosted **GitHub Actions** runner, fully automating CI/CD and release distribution for the monorepo.
- Designed an **ImGui** GUI for effortless JSON configuration, cutting technician setup time and reducing deployment errors across customer sites.
- Automated cleaning, analysis, and visualization of **EEG** & Hypnogram time-series data using **NumPy** and **matplotlib**.
- Developed STM32 firmware (**C**) that integrates the **MCP4725** DAC and **RX8900** RTC for the SONYA sleep wearable.
- Implemented a **Bluetooth Low Energy (BLE)** GATT service on the STM32 that lets users remotely adjust stimulation intensity and toggle operating modes on the sleep-wearable in real time.
- Optimized **ISM330DHCX** IMU data capture via FIFO and I^2C, ensuring synchronized, real-time motion streams for onboard processing.

Undergraduate Research Assistant Jan 2023 – Apr 2024

Institute of Diagnostic Imaging Research *Windsor, ON*

- Conducted interdisciplinary research in deep learning (AutoEncoders, GANs, U-Nets) for creation of Synthetic Welds using Generative Models for Non-Destructive Ultrasound Evaluation.
- Collaborated on deep learning model development in **TensorFlow**; curated datasets, and developed Python scripts (using **OpenCV**, **NumPy**, **matplotlib**) for ultrasound image analysis in resistance spot weld evaluation.

Technical Skills

Languages: C | C++17 | C++20 | Python | Java | Kotlin | Go | C# | SQL

ML & Vision: TensorFlow | PyTorch | Keras | OpenCV | NumPy | SciKit-Learn | matplotlib

DevOps: Git | Docker | GitHub Actions | CMake | Conan |

Database: PostgreSQL | SQLite | MySQL | Redis

Embedded / HW: STM32CubeIDE | FreeRTOS | I^2C | SPI | Arduino

Projects

CIFAR-100 Analysis | *Python, TensorFlow, Keras, NumPy* Nov 2023 - Dec 2023

- Developed a comprehensive deep learning pipeline for CIFAR-100 dataset, achieving 80% accuracy with CNNs and 85% with ResNet-50.
- Implemented data augmentation techniques to enhance model robustness and prevent overfitting.

Education

University of Windsor Jan 2021 – Apr 2024

Bachelor of Computer Science Honours *Windsor, ON*

- *Specialization in Artificial Intelligence, Minor in Mathematics*

Volunteer & Awards

- **Event Coordinator, Computer Science Society** 2023 – 2024
  Organized events that served 100+ students each term and streamlined logistics to improve attendee experience.
- **Dean's Honour Roll** 2021 – 2024
  University of Windsor