

# 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 self-hosted **GitHub Actions** runner, fully automating CI/CD and streamlining RIWA software deployment.
- 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<sup>2</sup>C, 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<sup>2</sup>C | 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