

Akshat Sharma

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EXPERIENCE

Software Developer

April 2024 - Present

Tessonics

Windsor, ON

- Developed variety of **C++** applications to test software components, simulate customer environments, and validate PLC communication for the **RIWA** platform; extensively debugged **C++** and **Go** applications to identify and resolve issues such as memory leaks, race conditions, and segmentation faults.
- Implemented real-time current detection algorithm in **C++** that processes data from a **Hall effect sensor**, achieving results transmission with a minimal latency window of as low as 10 ms.
- Designed a custom **Python**-based Debian packaging system for a monorepo and integrated it into CI/CD; self-hosted a **GitHub Actions** runner to automate release builds and distribution.
- Developed a user-friendly GUI with **ImGui** and in-house libraries to streamline **JSON** configuration management in production software, now actively used by internal teams and field technicians to reduce setup time and improve reliability across customer deployments.
- Built and maintained **Python** scripts using **pandas** and **matplotlib** to clean, analyze, and visualize time-series **EEG** and hypnogram data from a custom sleep wearable.
- Developed embedded firmware in **C** for **STM32** to interface with **MCP4725** (DAC), and **RX8900** (RTC), contributing to system integration and refactoring efforts on a custom sleep wearable SONYA.
- Implemented efficient data acquisition from the **ISM330DHCX** IMU using FIFO and **I²C** communication; handled buffer management and sensor synchronization to ensure accurate, real-time motion data for onboard processing.

Undergraduate Research Assistant

Jan 2023 - April 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++ | Python | Java | Go | C# | SQL

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

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

Embedded / HW: STM32CubeIDE | FreeRTOS | I²C | SPI | Arduino

PROJECTS

CIFAR-100 Analysis | Python, Tensorflow, Keras, NumPy

Nov 2023 - Dec 2023

- Led a research team in an advanced AI concepts class to explore cutting-edge deep learning techniques, culminating in a perfect score of 100% for the project.
- Developed and applied a range of deep learning models using Python, including **Dense Neural Networks** and **Convolutional Neural Networks**. Innovatively integrated **Transfer Learning** with **ResNet-50** for efficient and accurate classification of the CIFAR-100 dataset.
- Focused on the detailed analysis and optimization of the **CIFAR-100** dataset, a benchmark in computer vision studies, enhancing model accuracy and gaining deeper insights through sophisticated data processing techniques. Achieved a high accuracy of 80% with our limited hardware, which is very difficult to obtain for this dataset.

EDUCATION

University of Windsor

Jan 2021 - April 2024

Bachelor of Computer Science Honours

Windsor, ON

- Specialization in Artificial Intelligence, Minor in Mathematics

VOLUNTEER AND AWARDS

Computer Science Society: Event Coordinator 2023-2024

Dean's Honour Roll Recipient: 2021,2022,2023,2024