Albin Jojo

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About

I am an Electronics and Computer Engineering student with hands-on experience in embedded systems and applied machine learning. I am seeking an internship opportunity where I can apply my skills to real-world problems involving both hardware and software, and further develop my understanding of system design under practical constraints.

Education

Saintgits College of Engineering 2023 – Present
B.Tech in Electronics and Computer Engineering, 3rd Year CGPA: 7.13

Skills

Machine Learning / CV:	PyTorch, YOLOv8, CNNs, OpenCV, ONNX Runtime
Embedded / Edge:	ESP32, Raspberry Pi, Linux, Edge Computing, PlatformIO
Programming:	Python, C/C++, SQL
Hardware & Tools:	KiCad, Verilog, Cadence, Git, Streamlit

Experience

Embedded Systems Intern (Short-term) — Keltron *2 weeks, 2024*

- Worked on microcontroller-based hardware interfacing and real-world embedded applications.
- Gained exposure to industry workflows in electronics system development.

Projects

HelmetGuard — Real-Time Helmet Detection

YOLO11m · PyTorch · OpenCV · Streamlit

- Trained a custom **YOLO11m** model on a Roboflow dataset of 10k+ images across two classes (`helmet`, `without_helmet`).
- Built an interactive **Streamlit** app supporting image, video, and live webcam inference modes.
- Built a webcam inference pipeline using **PyTorch** and **OpenCV**, focusing on efficient frame processing.

Smart Glasses — OCR-Based Assistive Reading

Raspberry Pi Zero W · EasyOCR · pyttsx3 · Bluetooth Audio

- Designed a wearable edge device that captures images via a button-triggered camera input, performs on-device OCR, and outputs speech over Bluetooth.
- Deployed **EasyOCR** + **pyttsx3** fully offline on a **Raspberry Pi Zero W** for text-to-speech conversion.
- Focused on low-power operation and efficient processing on constrained hardware.

Tomato Leaf Disease Classifier — Handheld Edge Device

YOLOv8s · MobileNetV3 · ONNX Runtime · Raspberry Pi 4B · TFT Display

- Worked on a pipeline combining **YOLOv8s** for leaf region detection and **MobileNetV3** for disease classification.
- Deployed inference using **ONNX Runtime** on a **Raspberry Pi 4B+**.
- Integrated a TFT display and camera module to create a self-contained handheld diagnostic device.
- Enabled on-device inference without cloud dependency.

RFID Attendance System — Distributed Edge IoT

ESP32 · MQTT · Google Sheets API

- Architected a multi-node **ESP32** RFID system with inter-device communication via a central edge coordinator.

- Automated attendance logging to **Google Sheets** in real time via API integration.
- Demonstrated a full IoT pipeline: sensor capture → edge processing → cloud sync.

32-bit Ripple Carry Adder

Verilog · Digital Design · Testbench Verification

- Designed and simulated a 32-bit ripple carry adder in **Verilog**; verified via testbenches and waveform analysis.
- Analysed propagation delay behaviour to understand timing trade-offs in combinational logic.

Certifications & Training

- **Hands-on Introduction to Linux Commands and Shell Scripting** — IBM, Coursera *Oct 2025*
- **Hands-on Workshop on Vega Processor** — IIC & CDAC Trivandrum *May 2024*
- **Winter Technical Training Programme** — India Space Lab *Feb 2026*
  Drone Technology, CanSat/CubeSat, Rocketry, Remote Sensing (GIS)
- **Robotic Process Automation Workshop** — Automation Anywhere *Feb 2026*