MEENAKSHI SRIDHARAN SUNDARAM

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GitHub | LinkedIn | Portfolio

EDUCATION

Master of Science in Artificial Intelligence Sep 2024 – Dec 2025
Illinois Institute of Technology, Chicago, IL

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, Verilog, VHDL, SQL
ML/AI: PyTorch, TensorFlow, LangChain, OpenCV, MediaPipe, HuggingFace, Groq/Gemini APIs
Tools: Docker, Streamlit, FastAPI, Vercel, GitHub Actions, AWS, React, Flask, WebSocket
Hardware: FPGA (Vitis HLS, PYNQ), Raspberry Pi, INT16/INT8 Quantization, Edge Computing

EXPERIENCE

ML Developer Intern – National Institute of Ocean Technology Jan 2023 – Apr 2023

- Built an underwater object detection pipeline using CLAHE preprocessing and AdaBoost, achieving 80% accuracy on 500+ images and 25% performance gains in turbid water.

PROJECTS

FPGA-Accelerated VGG Neural Network Nov 2025

- Designed a ReducedVGG CNN for CIFAR-10, achieving 85.69% accuracy on 10K test images using INT16 quantization, with only 1.35% degradation from the FP32 Quantinzed baseline.
- Accelerated inference latency by 49.8× using pragma Optimization techniques, while meeting Zynq-7020 resource constraints (70% BRAM, 14% DSP).
- Delivered a deployable FPGA inference pipeline, achieving 466 ms end-to-end latency, demonstrating efficient performance under tight power and hardware limits..

MediTrack – AI Wound Healing Monitor | Live Demo Oct 2025

- Developed an app to analyse post-surgical wounds in an 8-hour hackathon, integrating OpenCV segmentation with Groq/Gemini LLMs for patient-friendly healing assessments.
- Implemented Pathway streaming for real-time monitoring and deployed on Streamlit Cloud with sub-5s analysis time.

Wallet Wealth – LLM Financial Advisor | Live Demo Sep 2025

- Developed full-stack wealth advisory platform (React, FastAPI) with JWT authentication and WebSocket for secure real-time client interactions along with appointment scheduling
- Integrated multi-provider LLM architecture (Groq, OpenAI) via LangChain, reducing query response time to under 3 seconds.

Gesture-Controlled IoT for Accessibility | GitHub Aug 2025

- Developed gesture-based control for visually and verbally impaired users to access voice-assistant devices(Siri, Alexa), achieving 95%+ accuracy, 33 ms median latency (P95: 48 ms).
- Designed distributed PC + Raspberry Pi architecture reducing hardware cost to under $40 per installation.

PUBLICATION

"Underwater Resource Detection using Image Processing" – IEEE Conference July 2023