

Ashok A

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PROFESSIONAL SUMMARY

Specializing in Data analysis, Computer Vision and Edge AI, with expertise in deep learning model optimization and hardware-accelerated deployments.

EDUCATION

B. Tech - Artificial Intelligence and Data Science

Kumaraguru College of Technology

2023 - 2027

Coimbatore, Tamil Nadu

WORK EXPERIENCE

SRFP Research Intern

IIT, Gandhinagar

May 2025 - July 2025

- Implemented a Image enhancement system on Zynq UltraScale+ FPGAs via Vitis-AI, deploying the 10K-parameter custom finetuned ZeroDCE++ model.
- Optimized DPU execution by replacing unsupported operators, reducing complexity with zero CPU fallback.
- Deployed a complete real-time inference pipeline using Vitis AI to validate performance on embedded edge devices.

PROJECTS

Knowledge Distilled lightweight AI model for image enhancement | [GitHub](#)

- Developed an lightweight deep learning model for low-light image enhancement, achieving a 98.5% size reduction (161 parameters) compared to the state of the art ZeroDCE++ while maintaining visual quality.
- Implemented Knowledge Distillation to compress the model, reducing filter channels and convolutional depth, and curated a diverse dataset of over 6,000 images to prevent overfitting.
- The final model reduced inference latency from 45ms to 7ms on live video feeds, demonstrating significant efficiency improvements suitable for edge and real-time applications.

Satellite Image Visual Search using AI | [GitHub](#)

- A few-shot learning system using Siamese Networks and ResNet50 to detect objects in satellite imagery, successfully identifying 3,156 objects with only 3-5 training examples per class.
- Optimized end-to-end pipeline featuring mixed-precision training and custom 4-channel projection.

CHB-MIT EEG Data Analysis for Seizure Patterns | [Github](#)

- Conducted exploratory data analysis on the CHB-MIT EEG dataset to compare seizure and non-seizure signals across patients.
- Applied preprocessing including channel selection, normalization, and segmentation, and analyzed time-domain statistics and signal distributions to study seizure duration patterns and inter-patient variability.

TECHNICAL SKILLS

Languages | Python, C++, SQL, R, MongoDB

Frameworks | Flask, React, Vitis AI

Developer Tools | Git, Docker, GitHub, PowerBI, Tableau, AWS, SupaBase, Vercel, Excel

Libraries | Pandas, NumPy, Matplotlib, PyTorch, OpenCV, Sklearn