

Sunny Soni

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Summary

B.Tech student in **Digital Transformation** with hands-on experience in **machine learning, generative AI, computer vision, and AI deployment**. Interested in research on generative AI, intelligent systems, and applied machine learning, with experience developing independent LLM applications and conducting research on deep-learning-based medical imaging and edge deployment. Particularly interested in developing and evaluating AI systems for practical applications.

Education

Atria University, Bengaluru
B.Tech in Digital Transformation

2023 – 2027
CGPA: 8.5/10

Research Experience

Brain Tumor Segmentation and Edge Deployment using Deep Learning

3 months

Manuscript submitted for publication

[\[GitHub\]](#)

- Developed a deep-learning pipeline for brain-tumor segmentation from multimodal MRI data using a **2.5D approach**, comparing U-Net, AttentionDRUNet, and MobileNetV2-UNet architectures.
- Investigated the trade-off between segmentation performance and computational efficiency using **Hybrid Focal-Dice loss**, local normalization, and architectural variations for resource-constrained deployment.
- Converted trained models through **ONNX and TensorRT FP16** and deployed them on an **NVIDIA Jetson Nano**, evaluating segmentation quality alongside latency, throughput, model size, and power consumption.
- Achieved **83.08% Dice, 82.79% recall, 53.56 ms latency, and 5.08 W power consumption** for the AttentionDRUNet deployment configuration on Jetson Nano.

Projects

Nyaya Sahayak | Llama-3, RAG, Agentic AI, Groq

3 months [\[GitHub\]](#)

- Developed an LLM-based legal assistant using **Llama-3 and retrieval-augmented generation (RAG)** to ground responses in relevant legal material rather than relying solely on model knowledge.
- Designed an **agentic workflow** combining the language model with retrieval and supporting tools for multi-step legal information processing.
- Built supporting capabilities including a real-time speech-to-text interface and an NLP document analyzer for legal clause extraction and highlighting.

Vizor: Intelligent Shelf Monitoring System | Computer Vision, OpenCV, YOLO, SSIM

[\[GitHub\]](#)

- Developed a real-time computer vision system for detecting changes in retail shelves using a hybrid **SSIM-based change detection and YOLO object detection** pipeline.
- Applied image preprocessing and temporal smoothing to improve robustness and reduce false positives across video frames.

English to Hinglish Translator | TensorFlow, LSTM, Seq2Seq, NLP

[\[Kaggle\]](#)

- Built an encoder-decoder **Seq2Seq LSTM** model for English-to-Hinglish translation using TensorFlow and trained it on 40,000 sentence pairs.
- Used teacher forcing, sequence padding, and 200D GloVe embeddings to improve training stability and semantic representation.

Technical Skills

Machine Learning & AI: PyTorch, TensorFlow, Scikit-learn, XGBoost, CNNs, RNNs/LSTM, Seq2Seq, Reinforcement Learning

Generative AI: LLMs, Llama-3, RAG Pipelines, Agentic AI, Prompt Engineering, Hugging Face, Groq

Computer Vision: OpenCV, YOLO, Image Processing, Medical Image Segmentation

Programming: Python, SQL, Bash/Shell

Deployment & Tools: ONNX, TensorRT, NVIDIA Jetson Nano, Docker, Git/GitHub, Google Cloud Platform, Flask, NumPy, Pandas, Google Colab

Honors & Achievements

Aspire Leaders Program Finalist | *Aspire Institute*

Jun 2025 – Aug 2025

- Selected as one of **6,175 finalists from 36,050 applicants** globally (Top 17% of Cohort 3).
- Completed a leadership curriculum designed by **Harvard University faculty**, with a focus on AI and social impact.

Certifications

Natural Language Processing Specialization | *DeepLearning.AI (Coursera)*

[\[Certificate\]](#)

Getting Started with AI on Jetson Nano | *NVIDIA Deep Learning Institute*

Relevant Coursework

Machine Learning & AI: Advanced Machine Learning, Agentic AI, Reinforcement Learning, Supervised Learning, Unsupervised Learning

Computer Vision & Systems: Computer Vision, Digital Image Processing, Embedded AI, Software Design & Architecture