

# Shakti Labhaniya

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## EDUCATION

### Vellore Institute of Technology

Integrated Masters of Technology, Artificial Intelligence (CGPA- 9.04)

Bhopal, Madhya Pradesh

Oct 2022 – July 2027

## EXPERIENCE

### Machine Learning Intern

Oct 2025 – Dec 2025

Indian National Centre for Ocean Information Services (INCOIS)

Hyderabad

- Designed a **multi-class fog–cloud classification** algorithm using a **Random Forest (RF) classifier**, enhanced with a custom-built **Pattern Recognition Filter (PRF)** and advanced morphological shape and texture operations, and created a custom Python-based, QGIS-like polygon data labeling tool for building a structured training dataset.
- Operationalized a fully automated, **near-real-time fog detection** and severity monitoring pipeline using Python-based SMTP/MIME, integrating multi-sensor and multi-satellite data and ensuring **100% alert delivery** per satellite file.
- Achieved **95.97%** overall classification accuracy, mIoU of **0.8703**, False Alarm Rate (Fog) of **0.0178**, and Critical Success Index (CSI) of **0.9814**, indicating reliability and robustness in **nighttime fog detection**.

## PROJECTS

### PageSense: Webpage-aware LLM Chrome Extension | Github

Nov 2025 – Ongoing

- Built a fully local, **browser-aware conversational AI system** using **LLaMA-3.2-1B** with Ollama, enabling contextual reasoning over webpage text and visual metadata; developed a Manifest V3 Chrome extension, DOM-aware metadata extraction, and Wikipedia-specific parsing for accurate page-level context ingestion.
- Optimized real-time inference and streaming performance by implementing **token-level generation** controls (stop/cancel), achieving sub-100 ms page ingestion latency and a **59.5%** reduction in response time (**6.33 ms → 2.56 ms**).

### Deep Image Steganography | Github

June 2025 – Aug 2025

- Architected and implemented a deep learning–based image steganography system using Stable Diffusion and Denoising Diffusion Probabilistic Models (DDPM), featuring a custom alpha-blending encoder–decoder for secure data hiding with increased embedding capacity.
- Evaluated and optimized reconstruction quality using standard image metrics, achieving high SSIM scores (**0.9644–0.9982**) and low MSE by refining pixel-level blending techniques while preserving strong visual fidelity.

## TECHNICAL SKILLS

**Programming Languages:** Python, Java, HTML, CSS, JavaScript

**AI/ML Frameworks and Libraries:** PyTorch, Scikit-learn, OpenCV, MLflow, Hugging Face Transformers

**Specialized skills:** Local LLM Deployment (Ollama), RAG Pipelines, LangChain, LLM Prompt Engineering

**Databases, Cloud and Version Control:** Vector Databases, AWS, Docker, Git, GitHub

## RESEARCH PUBLICATIONS

Shakti Labhaniya, et al. “A Survey of Machine Learning Techniques for Enhancing Scene Description in Assistive Systems.” Proceedings of the **IEEE International Conference on Image Information Processing (ICIIP 2025)**, 2025.

Available online: <https://ieeexplore.ieee.org/document/11346259>

## EXTRACURRICULARS

### Semifinalist – NASSCOM Tech Developer Hackathon

Aug 2025 – Sept 2025

Spearheaded development of an AI-based call assistant as part of a 3-member team, delivering a concept note and functional prototype using agentic AI automation.

### AI Club (Technical Team - Core Member)

Feb 2023 – Feb 2024

Collaborated with a 7-member team on AI/ML projects involving autoencoders, object detection, geospatial applications (Mapbox APIs), and deep learning frameworks.

### Smart India Hackathon (Internal Hackathon Finalist)

Aug 2023 – Nov 2023

Led design of an AI/ML phishing domain detection framework with high accuracy and low false positives.