Shrinkhla Pandey

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Education

Vellore Institute of Technology Oct. 2022 – Sep 2027
Integrated Masters of Technology, Artificial Intelligence CGPA - 8.98

Experience

Project Intern Oct 2025 – Dec 2025
TATA Steel On-Site

- Developed a secure face-based identity verification system using deep embeddings and cosine similarity, achieving **95.8%** accuracy and **0.94 F1-score**, while adhering to internal data handling and access control regulations.
- Designed and deployed a real time pipeline using FastAPI and React, integrating request validation, authentication, and activity logging, and achieving an average response time of **148 ms** in live testing.
- Optimized face detection and matching using YOLOv8, reducing end-to-end inference time from **480 ms to 120 ms**, and assisted in log analysis and system testing to improve deployment reliability.

Projects

SAR Image Colorization|*PyTorch, U-Net, Docker* | GitHub Nov 2025 – Ongoing

- Developed a SAR-to-RGB colorization model using a customized U-Net architecture, training on **50,000+** paired images to improve satellite image interpretability.
- Optimized network parameters and loss functions to reduce reconstruction error from **0.039 to 0.033** MSE and improve output similarity to **0.91 SSIM**.

Deep Image Steganography|*Stable Diffusion, DDPM, OpenCV*| Github Jun 2025 – Oct 2025

- Designed a hybrid DDPM and Stable Diffusion based framework for secure data embedding in digital images, supporting high capacity message hiding with minimal visual distortion.
- Implemented a custom encoder–decoder pipeline achieving **99.82%** SSIM and reducing steganalysis detection accuracy by **87%** across benchmark test images.
- Implemented batch testing and result logging using Python, evaluating the model on **10,000+** images to identify performance differences between training versions. *(https://image-stego-c5n5.onrender.com)*

Conversational AI Chatbot |*Gradio, Transformers (HuggingFace), PyTorch*|Github May 2025 – Jun 2025

- Built a context aware conversational system using **LLaMA 3.2–1B**, integrating embedding based memory to maintain dialogue context across multi-turn interactions.
- Improved response relevance and stability through sentiment analysis and prompt filtering, achieving **95%** conversational coherence and **91%** intent classification precision.
- Developed a real time web interface using Gradio with request validation and logging, reducing average response latency by **27%** during user testing.

Technical Skills

Programming: Python, Java, SQL (PostgreSQL)
AI & Machine Learning: Deep Learning, CNNs, U-Net, YOLOv8, Embedding Models, NLP, Generative AI, Model Evaluation
Frameworks & Tools: PyTorch, TensorFlow, NumPy, Pandas, OpenCV, Hugging Face Transformers, Docker
Backend & Systems: FastAPI, Gradio, Git, GitHub, Authentication, Logging

Extra-Curricular & Achievements

- **Semifinalist at NASSCOM Tech Developer Hackathon 2025**: Semifinalist among **1,200+ teams**, developed an agentic AI-based call automation system with autonomous intent detection.
- **IEEE ICIIP 2025 Publication**: Co-author of a peer reviewed paper on machine learning techniques for assistive scene description systems. Available online: *ieeexplore.ieee.org/document/11346259*
- **Core Member at Eureka Club (PR & Outreach Team)**: Organized **7+ technical workshops** with **1,000+ participants** and led a 5-member outreach team.