Shubham Mishra

mishra4475@gmail.com Phone: (+91) 8770867683 skmishra.netlify.app
Github LinkedIn

Education

Lakshmi Narain College of Technology — Bhopal, India
B.Tech, Computer Science Engineering — **2021-2025**

Skills

Programming Language	C/C++ | Python | C# | JavaScript | HTML/CSS | SQL |
Explored Domains	Machine Learning | AI |Computer Vision | NLP | Web Development | Neo4j
Frameworks	PyTorch | Tensorflow | Flask | Librosa | Scikit-learn
DevOps	Git | Docker | Kubernetes | Google Cloud Registry | Selenium | Streamlit/Gradio

Experience

FireLamma — Remote

AI Research Intern — **Feb 2024 – May 2024**

- Worked with various VLLMs (open-source/paid) and GNNs for OCR to replace the PaddleOCR solution, to enhance the retention of table structure in documents. Compare the results of open-source VLLMs withpaid solutions and set custom benchmarks for OCR.
- Integrated sophisticated Intent and Entity classification using wit.ai and other open-source models, boosting NLP capabilities.
- Created Python APIs to wrap various anomaly detection models, and worked on real-time audio processing, and high-precision visual image search, ensuring seamless production integration.

DeepLogicAI — Remote

Deep Learning Intern — **March 2024 – May 2024**

- Worked under the R&D team and engineered high-throughput RAG pipelines to scale and replace Vectara endpoints within DeepLogicAI's enterprise search solutions.
- Outperformed query results from high-precision retrieval models such as ColBERT V2. Conducted rigorous trials across over 12 permutations of RAG pipelines for advanced components such as embedding models, Re-ranker, Chunking, and Indexing, optimizing for peak performance.

Projects

Segmentation for Tumor Detection in MRI Brain Scans: Deep Learning, PyTorch, Docker, Streamlit — GitHub

- Model is trained on a diverse dataset encompassing various tumor types, sizes, and locations, capturing the inherent heterogeneity of brain tumors encountered in clinical practice.
- The project has a docker image available on Docker Hub. A user-friendly Streamlit front-end interface on Huggingface Spaces for real-world clinical inference achieving a high validation Dice score of ~0.9.

Pool of ML Models: PyTorch, Deep Learning, ViTs — GitHub

- A personal GitHub repository containing a variety of DL architectures implemented from scratch using PyTorch leveraging einops for sophisticated tensor manipulation, facilitating the handling of complex, higher-dimensional operations.
- The architecture includes various important ViTs like Swinn, Dino, MAE, CvT, etc. Having explained a few of the papers on my medium page as a writer under TheDeepHub publication.

Generative Study Resources: LLMs, Flask, HTML, CSS, JS, Vue.js — GitHub

- A Flask-based web application that generates study resources from PDFs, employing LLMs to create content MCQs, Flash Cards, and Q&As from PDFs where the user can get resources with different levels of complexity.
- Assured content accuracy by implementing advanced and tight model prompting to prevent hallucinations. Implemented the front end in HTML, CSS, and Vue.js.

Sentence Level lipreading: Python, PyTorch, opencv — GitHub

- Developed a 3DConv-LSTM (bi-directional) to predict the spoken sentence by extracting features from the lip movements in the frames based on End-to-End Sentence-level Lipreading.
- Utilized CTC Loss for training to handle the variable length of input alignments (spoken sentence) and weights initialized with *He (*Kaiming normal) initialization to avoid blank-index predictions.

Courses

- Deep Learning Specialization by DeepLearning.AI — Coursera
- Modern Computer Vision PyTorch, Tensorflow2, Opencv — Udemy
- Structuring Database and Management systems with MySQL Coursera — Coursera
- Mastering Data Structures & Algorithms using C and C++ by Abdul Bari — Udemy
- Algorithmic Toolbox by University of California San Diego — Coursera