







# Shubham Mishra

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 Github  in LinkedIn  Medium

## Education

Rajiv Gandhi Proudhyogik Vishwavidyalaya	Bhopal, India
B.Tech (CSE)	2021-2025

## Skills

**Languages/Frameworks** - C/C++ | C# | Python | JavaScript | HTML/CSS | SQL | PyTorch | Tensorflow | Spacy | Librosa | FastAPI  
vLLM | Selenium | Streamlit/Gradio | Git | Docker | Kubernetes | GCP | **Domains Explored** – Computer Vision, NLP, Unity, Reinforcement Learning

## Experience

Artificial Intelligence Intern	Bangalore, India
Wysa – Touchkin Pvt. Ltd.	Aug 2024 – Current

- Optimizing large language model (LLM) inference and performance.
- Migrating Wysa's internal NLP-AI tools from a Flask to a FastAPI-based implementation.
- Training and fine-tuning language models to boost the NLP capabilities of the Wysa mental health app directly enhancing the experience of over a million active users.

Deep Learning Intern (R&D)	Delhi, India
DeepLogic AI	March 2024 – May 2024

- Worked under the R&D team and engineered various high-throughput retrieval pipelines to scale and replace, Vectara endpoints within DeepLogicAI's enterprise search solutions.
- Conducted rigorous trials across various versions of RAG pipelines for advanced components such as finetuning embedded models, re-ranker, chunking, and indexing, optimizing for peak performance.
- Our query results outperformed high-precision retrieval models such as ColBERT (v2).

AI Research Intern	Remote
FireLLama Pvt. Ltd.	Feb 2024 – May 2024

- Explored various Vision-Language Models (VLMs) to replace the PaddleOCR solution, enhancing the retention of document structures. Managed the entire process from *Proof of Concept* to deployment.
- Developed Speech APIs for chat-bots leveraging various open-source speech models.
- Fine-tuned VLMs and used pre-trained CNNs to create rich embeddings for visual-image search.
- Developed Python APIs to encapsulate multiple anomaly detection models and writing lengths of unit tests, ensuring smooth integration into production environments.
- Created custom metrics to evaluate models for classification and Name Entity Recognition (NER) tasks.

## Projects

Graph Vision: Python, PyTorch, VLMs, Graphs [GitHub](#)

- Graph Vision is a Python library that aims to create topological maps for an environment connecting neighboring image segments, capturing each segment's spatial and semantic feature embeddings.
- Custom mapping options for segment topology creation, allowing the localization of objects relative to one another using Dijkstra's algorithm for performing visual queries on the environment.

Brain MRI Segmentation for Tumor Detection: Deep Learning, PyTorch, Docker, Streamlit [GitHub](#)

- Model is trained on a diverse dataset encompassing various tumor and non-tumor scans. 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 Hugging face Spaces for real-world clinical inference achieving a high validation *Dice score* of  $\sim 0.9$ .

Pool of Models: PyTorch, ViTs, CNNs [GitHub](#)

- A GitHub repository containing a variety of Deep Learning architectures implemented from scratch with PyTorch, features both supervised and unsupervised learning models.
- The architecture primarily includes various important ViTs (Swin, Dino, MAE, CvT, etc.). A detailed walkthrough of some of these papers is on my medium page.

Sentence-Level Lipreading: PyTorch, Deep Learning, LSTM [GitHub](#)

- A Recurrent Network model to predict the spoken sentence by extracting features from the lip movements in the frames.
- Improves upon the paper Based on End-to-End Sentence-level Lipreading by replacing the GRU-based Implementation with a bi-directional LSTM using a CTC Loss to handle the variable length of input alignments (spoken sentence) with Kaiming Normal (He) initialization.

## Other Achievements and Contributions

- Finalist** Inter College Bhopal Hackathon for Deep Learning-based Lipreading
- Top 10** in Anual College Hunt Coding Fest 2022
- Partner writer of [TheDeepHub](#) publication explaining deep learning architectures and detailed paper walkthroughs.
- Contributed to the winning AI Team in the **Wysa** internal Hackathon
- Bronze Medal** on Kaggle Dataset for Dynamically generating the IMDB Movies Data.

## Courses

- Deep Learning Specialization by DeepLearning.AI [Coursera](#)
- Structuring Database and Management systems with MySQL Coursera [Coursera](#)
- Modern Computer Vision PyTorch, Tensorflow2, OpenCV [Udemy](#)
- Algorithmic Toolbox by University of California San Diego [Coursera](#)