

Sachin Mosambe

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GitHub Portfolio

Education

M.Tech in Infrastructure Design Management, Indian Institute of Technology Kharagpur 08/2022 - 05/2024
CGPA: 9.09/10
B.Tech in Civil Engineering, Government College of Engineering Amravati 08/2017 - 05/2021
CGPA: 8.16/10

Professional Experience

- iRAP (International Road Assessment Programme)** 05/2023 - 08/2023
Data Research Analyst
 - Collected and pre-processed road data from **1000+ km** of sections, conducting EDA to identify **accident hotspots** and patterns related to **fatalities** and **serious injuries**.
 - Applied Principal Component Analysis (PCA) and Clustering techniques to uncover **five** critical road attributes responsible for **95%** of accident severity, enabling data-driven insights for targeted safety improvements.

Technical Skills

- Programming Languages:** Python, C++, SQL, HTML, CSS, JavaScript (Basics)
- Libraries & Frameworks:** Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn, PyTorch, Hugging Face, LangChain, LangGraph, TensorFlow, Streamlit, Flask, FastAPI, Langserve, OpenAI, Ollama
- Machine Learning & AI:** Supervised and Unsupervised Machine Learning, Deep Learning (CNNs, RNNs, LSTMs, Transformers), Attention Mechanisms, Transfer Learning, Generative AI, LLMs, NLP
- Cloud & DevOps:** AWS (EC2, Lambda), Google Cloud Run, Kubernetes, Docker, Pinecone, Git, GitHub, MLflow

Projects

- AI Agent Chatbot with Langchain and LangGraph** 03/2025 - 04/2025
 - Designed and developed a role-based AI-powered chatbot and web application utilizing **Streamlit**, **LangGraph**, and **OpenAI and Groq LLMs**, leading to a **50%** improvement in user interaction.
 - Deployed the application on **Google Cloud Run** using **Docker** and implemented a **CI/CD pipeline**, reducing deployment time by **40%** and improving scalability by **30%**.
- Langchain RAG Chatbot** 02/2025 - 03/2025
 - Built a RAG chatbot leveraging **Langchain** and **OpenAI API**, improving response speed by **25%** and optimizing query processing by **90%** using **Pinecone**.
 - Deployed with **Streamlit**, integrating **history** and **memory** features, enhancing user engagement by **35%**.
- Object Detection with YOLOv8 and OpenCV** 01/2025 - 02/2025
 - Implemented **YOLOv8** for **real-time object detection**, achieving **95% accuracy** and cutting processing time by **50%** using **OpenCV**.
- Sentiment Analysis App with NLP** 12/2024 - 01/2025
 - Created a **Sentiment Analysis** app using **Hugging Face Transformers**, achieving **95% accuracy** in classifying text as **Positive**, **Negative**, or **Neutral** with **under 2 seconds** processing time.
- Dog Breed Classifier with Fine-Tuned TF EfficientNetV2-S** 11/2024 - 12/2024
 - Fine-tuned **TF EfficientNetV2-S** on the **Kaggle Dog Breed Dataset** (over **20,000 images** across **120+ breeds**), achieving **92% accuracy** and reducing inference time by **40%** via **hyperparameter tuning**.
- Image Caption Generator with ResNet50 CNN and LSTM** 10/2024 - 11/2024
 - Developed an **Image Caption Generator** using **ResNet50 CNN** and **LSTM**, improving **BLEU scores** by **15%**.
 - Trained on the **Flickr30k dataset** (30,000 images), fine-tuning hyperparameters for enhanced model accuracy and performance.

Certificates

- Machine Learning Specialization** by DeepLearning.AI (Coursera) [\(Link\)](#)
- Deep Learning Specialization** by Illinois Tech (Coursera) [\(Link\)](#)
- Natural Language Processing (NLP) Specialization** by DeepLearning.AI (Coursera) [\(Link\)](#)
- Generative AI with Large Language Models** by DeepLearning.AI (Coursera) [\(Link\)](#)

Positions of Responsibility & Achievements

- Led a **200-participant conference** as **Core Committee Member** at **IBSR, RCGSIDM, IIT Kharagpur**, showcasing leadership.
- Mentored **60+ students** in **Engineering Drawing** as a **Teaching Assistant** at **IIT Kharagpur**, improving outcomes.
- Won the **Doubles Championship** in **Table Tennis** at the **Kalpna Chawla Trophy, GCOEA** in **2019**, showcasing teamwork.
- Awarded **"Man of the Match"** and led the team to a **runner-up finish** in **IFAS Premier League 2024**, highlighting leadership.