Shardul Kolekar

IIT Bombay, Mumbai

+91-8446593865 | skiitb37@gmail.com | Portfolio| Github | Linkedin

EDUCATION

Indian Institute of Technology, Bombay   2021 – 2025
B.Tech in Metallurgical Engineering & Material Science | CPI : 7.59   Minor in AI & Data Science

WORK EXPERIENCE

SPROUTSAI | AI Engineer Intern   JUN '25 – AUG '25

- Built an audio-based cheating detection tool for online interviews using **cosine similarity** & audio-embeddings from **WavLM model**
- Engineered an efficient **FastAPI microservice**, containerized with **Docker**, and deployed on **Google Cloud GPU** for inferencing
- Implemented a scalable pipeline with **RabbitMQ** message broker for interview processing using **FFmpeg** & for ML inference
- Achieved **90%** reduction in **GPU** costs through cost-effective architecture and **80%** faster processing via **internal batching**

MAGYK.AI | Software Engineer Intern   MAY '24 – JUL '24

- Engineered a Gen-AI driven video generation tool utilizing **OpenAI** & **Elevenlabs** API, cutting video production time by **90%**
- Developed robust pipeline in **TypeScript**, integrating APIs for audio, subtitle, and image generation to generate AI videos
- Applied **FFmpeg** for efficient video rendering, ensuring smooth integration of multimedia elements and high-quality output
- Deployed the solution as a **Discord bot**, enabling users to customize the settings and generate or remix videos interactively

KEY PROJECTS

RANKING ALGORITHM USING GRADIENT DESCENT | Course Project   2024

Guide: Prof. P Balamurugan | Dept. of IEOR, IIT Bombay

- Researched & implemented **Microsoft's Ranknet** (2005 research paper), a **neural network**-based algorithm for ranking documents
- Achieved a **0.52 NDCG** score by optimizing with **L2 regularization**, varying architectures and fine-tuning hyperparameter
- Implemented **NDCGβ**-based **custom loss function** directly optimizing final ranking metric, improving **NDCG** score to **0.56**

AGENTIC PLACEMENT INSIGHTS PORTAL | Link   2025

- Scraped **1000+** jobs from IITB's placement portal using **Selenium** & used **Gemini** to convert unstructured to structured data
- Built **LangChain**-based **agentic chatbot** enabling **Text-to-SQL** queries & **RAG-based** information retrieval on placement data
- Built an interactive **Streamlit** web interface, linked with **Supabase PostgreSQL**, & deployed backend microservice on **Render**
- Deployed the portal for IIT Bombay students, with **300+** students actively using the tool, demonstrating real-world impact

HYBRID CHURN PREDICTION ALGORITHM | Course Project   2023

Guide: Prof. P Balamurugan | Dept. of IEOR, IIT Bombay

- Performed detailed exploratory **data analysis** on the **Telecom-Customer-Churn** dataset to extract insights driving churn rate
- Implemented **Logit Leaf model**- a hybrid of **Decision tree** & **Logistic Regression**, resulting in AUC score of **0.79** and TDL of **2.8**
- Extended Logit Leaf by integrating **SVM** in place of **Logistic Regression** attaining AUC of **0.68** and TDL of **2.6** for churn classification

AUTOMATED JOB APPLICATION SYSTEM| Self Project   2024

- Developed a LinkedIn **scraping pipeline** integrated with **LLM** to extract information of HR professionals at target companies
- Automated **ad-watching** for free credit generation on email finder extension, **extracting 1000+ verified email IDs** free of cost
- Integrated **Gmail API** in workflow to send **personalized cold emails** to hiring managers, **automating end-to-end job outreach**

YELP REVIEW ANALYSIS | Assignment for Prodigal (YC-startup)   2025

- Implemented **zero-shot** and **few-shot** prompting achieving **69.6% accuracy** and **0.68 Macro-F1** with **100% JSON** compliance rate
- Built multi-objective AI assistant, evaluated via **chain-of-thought reasoning** LLM judge protocol, achieving **97.6%** success rate
- **Fine-tuned RoBERTa** on 65k Yelp reviews and tested cross-domain robustness on **Yelp, Amazon, and IMDB** review datasets
- Generated **adversarial test set** exposing model vulnerabilities to sarcasm and long reviews and proposed mitigation strategies

POSITION OF RESPONSIBILITY

Junior ML Engineer | Rakshak, IIT Bombay   JAN '23 – JAN '24

Rakshak is an IIT Bombay student technical team which aims to develop UAVs for search & rescue operations

- Fine-tuned **YOLOv8** model for aerial detection of cars, humans, and buildings using customized **DOTA** and **xView** datasets
- Applied **YOLOv8** and **Segment Anything Model** for letter and shape recognition with segmentation on **SUAS** aerial dataset
- Generated synthetic data with **OpenCV** techniques, achieving **Mean Average Precision** of **0.88** across **30** object categories

TECHNICAL SKILLS

Language & Framework	C++, Python, JavaScript, TypeScript, LangChain, FastAPI, PyTorch, TensorFlow, Keras
Tools & Technologies	MongoDB, PostgreSQL, RabbitMQ, Docker, Git, Github, GCP, GCS, Postman, FFmpeg, LLMs
Courses Undertaken	Computer Programming, Machine Learning, Probability & Stochastic Process, Data Analysis

EXTRA-CURRICULARS

Finance & Competitions	- Completed 2-month-long **Finlatics** Financial Market Analyst Program. Gained skills in fundamental analysis - Secured **3rd** prize in **Strategy Wars** by Finance Club, competing in portfolio allocation with risk minimization - One of the top teams in **Tower Research's** Data Science Challenge, earning an exclusive team session invite
Startup	- Worked in professor's lab for a semester on a **startup idea**, developing engineered wood from textile waste