Shardul Kolekar

210110063@iitb.ac.in | +91-84465 93865 | LinkedIn | Github

EDUCATION

Indian Institute of Technology Bombay
BTech - Metallurgical Engineering and Materials Science
Minor in Artificial Intelligence & Data Science

[2021-2025
CPI: 8.01

WORK EXPERIENCE

Software Engineer | Magyk.AI   [May '24 - Aug '24]
Received LoR from CEO for outstanding performance.

- Led **end-to-end development** of an AI video generator product, integrating various APIs like **OpenAI** & **Elevenlabs**
- Developed robust pipeline in **TypeScript**, integrating APIs for audio, subtitle, and image generation to generate AI videos
- Used **FFmpeg** to ensure precise **synchronization** and seamless integration of audio, subtitles, image and scene transitions
- Designed and deployed a **Discord Bot**, improving user experience and enabling seamless **video generation & editing**

Junior ML Engineer | Raskhak, IIT Bombay   [Jan '23 - Feb '24]
Rakshak is an IIT Bombay student technical team to develop UAVs for search & rescue operations

- Fine-tuned **YOLOv8** for aerial object detection of cars, humans, buildings using a customized **DOTA** and **xView** dataset
- Performed letter/shape recognition and segmentation on the **SUAS** dataset using **DenseNet** and **Segment Anything Model**
- Used **Gazebo, RViz, and Cartographer** to simulate **SLAM**-based environment mapping and localization for a virtual robot

KEY PROJECTS

Ranking Algorithm Using Gradient Descent | Course Project   [Jan '24 - May '24]
Guide: Prof. P Balamurugan | Dept. of IEOR, IIT Bombay

- Researched and implemented **RankNet**, a neural network model for ranking documents, on the **LETOR 4.0 dataset**
- Achieved a **0.52 NDCG score** by optimizing using **L2 regularization**, varying architectures and fine-tuning hyperparameters
- Implemented a **custom loss function** using **NDCGß** to directly optimize ranking metric, **improving NDCG** score to **0.56**

Hybrid Customer Churn Prediction Algorithm | Course Project   [Jan '24 - Apr '24]
Guide: Prof. P Balamurugan | Dept. of IEOR, IIT Bombay

- Performed detailed EDA on the **Telecom-Customer-Churn dataset** to extract insights driving **customer churn prediction**
- Implemented **Logit Leaf-** A hybrid **Decision tree & Logistic regression** model, resulting in **AUC score** of **0.79** & **TDL** of **2.8**
- Modified the Logit Leaf model by integrating **SVM algorithm**, achieving a **AUC** score of **0.68** and a **TDL** of **2.6**

Placement Portal Scrapper | Self Project   [Dec '23]

- Automated extraction of **1000+ job listings** from IIT's placement portal by developing a web scraper using **Selenium** & **Python**
- Engineered pipeline using **Gemini API** to convert unstructured text data into s**tructured JSON** format for efficient processing
- Designed an **intuitive UI dashboard** with **Streamlit**, enabling **searching** and **filtering** to streamline job search process

Algorithmic Trading | ITSP | Institute Technical Council, IIT Bombay   [May '23 - Jul '23]

- Analyzed candlestick patterns and intraday/swing trading strategies using technical indicators **Bollinger Bands, RSI, etc**
- Backtested trading strategies such as **trend following** and **mean reversion** on the top 10 companies by market cap
- Developed an automated trading system using **Angel Broking's Smart API** for real-time market data and trade execution

FIFA Talent Predictor | Self Project   [Dec '23]

- Built **Statistical Player Similarity Model** to identify emerging talent through percentile-based analysis of **18,000+ players**
- Implemented a **weighted similarity scoring system** with **customizable attribute weights**, allowing users to prioritize key traits
- Utilized Python **(Pandas, NumPy)** for data processing and similarity calculations, and **Streamlit** for an **interactive dashboard**

SKILLS & COURSES

Programming languages	C++, Python, JavaScript, TypeScript, Matlab,
Libraries/Framework	NumPy, Pandas, Matplotlib, Scikit-Learn, PyTorch, TensorFlow, OpenCV
Relevant Coursework	1. Machine Learning: Principles and Techniques 2. Data Analysis and Interpretation
	3. Computer Programming & Utilization 4. Probability and Stochastic Process
	5. Introduction to Derivatives Pricing 6. Operating Systems 7. Mathematical Optimization

EXTRA-CURRICULARS

- Worked in a lab to advance a **startup idea**, developing **eco-friendly wooden furniture alternative** using **textile waste**
- Secured **3rd** prize in **Strategy Wars**, organized by the **Finance Club**, where participants allocated portfolios across sectors
- Placed among **top 15** teams in **Tower Research's Data Science Challenge**, earning an exclusive team session invitation
- Passionate about **stock markets** - Active investor and swing trader since **2 years**, consistently **outperforming NIFTY** returns
- Participated in a team of 4 in a 2-month-long **RC-plane** making competition conducted by the Aeromodelling Club