

Yuvraj Singh

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EXPERIENCE

IISER, Kolkata | *Research intern*

May 2024 – Present

- Working under Prof. Kripabandhu Ghosh on exploring Fine-tuning LLMs and Using GenAI Models on Medical and Finance Data for QnA

AIISC | *Research intern*

March. 2024 – Present

- Working with Prof. Amitava Das on Prevention of Hallucination in LLMs
- Part of the Data Generation Team- Conduct Collecting, performing Data Analysis and reformation to be used by various RL-based models for idea testing.

Clinical AI Assistance | *Research intern*

Dec. 2023 – March 2024

- Worked closely with the Research Team for the main project, building dataset and testing the model's generated output with other Text Generative tools like GPT etc.
- Used HuggingFace API to use various LLMs to test our generated response to the original ones
- Data Gathering and cleaning and performing Data Analysis on the generated output to view model's efficiency

SKILLS

Languages: C++, Python, Dart

Frameworks: Keras, Flutter, Flask

NLP: RNN, LSTM, Bi-LSTM, Word2Vec, Fasttext, LLMs

Machine Learning: Supervised and Unsupervised Algorithms

Deep Learning: ANN, Seq2Seq (Encoder-Decoder), Autoencoders

Computer Vision: CNN, OpenCV, YOLOv8, Vision Transformer

Tools: Streamlit, Git, Github, HuggingFace API, Firebase, GCP (VM Instances)

PROJECTS

Insight-Ed (HackNITR 5.0) | *EdTech Platform for Student and Teacher*

2024

- * **Role:** Backend (AI/ML+Server)
- * **Vision/Goal:** Our solution tries to bridge the knowledge gap between a teacher and a student in online classes by leveraging the power of AI to provide the teacher and student with insights to better prepare themselves for the course/lecture.
- * **Solution:** Implemented features such as- Detection of Emotion and Attentiveness of a Student for better understanding of student's understanding of a topic, Topic Modelling to know exactly where he/she lost attention, QnA with uploaded PDFs (Handwritten/Printed) along with any Videos/Tutorials and Reverse Video Search to quickly look for any concepts in the same.
- * **Tools:** Flask, Python, Gemini API, Whisper API, HuggingFace Open-Source Models (EmotionLLM), MTCNN, LangChain, Cloud Run, GCP(VM)

MoviesMania | *A Reverse Search based Movies Recommendation System(Geek-o-thon @IIIT-BH)*

2023

- * **Role:** Team Lead
- * **Vision/Goal:** To provide an interface to users to find similar movies/web-series recommendations based on an uploaded video clip/YT Short.

- * **Solution:** To make use of the various faces of actors in the provided clip and the details provided(title, genre, plot) for the prediction of the movie's title (if available in the dataset) or similar movies/web series.
- * **Result:** Prediction of movie's title(if available in the dataset) with 78% accuracy and similar movies with 85% accuracy.
- * **Tools:** Keras, Tensorflow, Word2Vec (Word Embeddings), MTCNN, NLTK, Spacy, VGGFace, OpenCV, Streamlit, Render

Movie Review System WebApp | *Spoiler-Free Sentiment-Analysis based Movies Review System*

2023

- * **Vision/Goal:** To provide an interface to allow users to read spoiler-free reviews along with a touch of sentiment analysis (on reviews) for a better viewing experience.
- * **Solution:** Made use of the a Machine Learning model(sentiment analysis) using Voting Classifier(SVC+Logistic Regression) and Deep learning model(spoiler v/s non-spoiler) using Bi-LSTMs after thorough preprocessing and custom trained Word2Vec.
- * **Result:** Successfully built the said WebApp with Streamlit as front-end. Achieved an accuracy of 91 % with precision 91 % and recall 90 %.
- * **Tools:** Keras, Tensorflow, Word2Vec (Word Embeddings), Bi-LSTMs, NLTK, Spacy, Streamlit, Render

ACHIEVEMENTS

Finalist @YESIST12 '24- Special Track

2024

Led the winning project (PlogPayouts) at YESIST12 '24 under Special Track category

Geek-o-thon (D3 @IIIT-BH)

2023

Led the winning project (MoviesMania) at D3 2023, inter-college hackathon in AI/ML domain

EDUCATION

IIIT Bhubaneswar

June 2027

BTech Computer Science Engineering

CGPA: 7.94(1st Semester)

Delhi Public School

2022-23

CBSE Grade 12

Percentage: 91

Amity International School

2021-22

CBSE Grade 10

Percentage: 96