



# AI-Powered Interview Analysis System: A Multi-Phase Approach to Enhance Interviews and Detect Job Scams Using Machine Learning

**Mr. Parwateeswar Gollapalli<sup>1</sup>, Renusree Deekonda<sup>2</sup>, Anudeep Tanaji<sup>3</sup>, Sindhu Meghana Raghupathi<sup>4</sup>, Dubba Varun<sup>5</sup>**

<sup>1</sup> Assistant Professor, Dept. of CSE-Data Science, ACE Engineering College, India

<sup>2,3,4,5</sup> B.Tech CSE-Data Science, ACE Engineering College, India

Emails: [parwateeswar.g@gmail.com](mailto:parwateeswar.g@gmail.com), [renusreedekonda2004@gmail.com](mailto:renusreedekonda2004@gmail.com), [anudeeptanaji@gmail.com](mailto:anudeeptanaji@gmail.com), [sindhumeghanareddy18@gmail.com](mailto:sindhumeghanareddy18@gmail.com), [varundubba007@gmail.com](mailto:varundubba007@gmail.com)

## ABSTRACT

In today's competitive job market, job seekers face challenges in identifying genuine opportunities and preparing for interviews effectively. This project introduces an AI-powered interview analysis and career guidance system to assist candidates through five intelligent phases: (1) Job post summarization using NLP, (2) Video transcription to convert job-related videos into text, (3) Scam detection through analysis of fake job postings, (4) Posture and body language analysis during mock interviews, and (5) Resume scoring and live interview assessment using AI. The system integrates machine learning, computer vision, and NLP for an end-to-end solution that helps users prepare, identify scams, and receive feedback, enabling better career decisions.

Keywords: NLP, Video Transcription, Fake Job Detection, Posture Analysis, Resume Scoring, Interview Feedback, Career Guidance.

## 1.Introduction

In today's competitive job market, candidates often begin their journey by reviewing job advertisements and end it by participating in interviews that test their communication skills, confidence, and overall suitability for the role. However, this process is increasingly challenged by the presence of fraudulent job postings and a lack of proper interview preparation tools. To bridge this gap, we propose an AI-powered system that streamlines the job search and preparation process. The system integrates natural language processing for summarizing job descriptions, machine learning models for identifying fake job offers, and real-time analysis tools to evaluate a candidate's resume, body language, and verbal responses—ultimately providing comprehensive feedback to enhance interview performance.

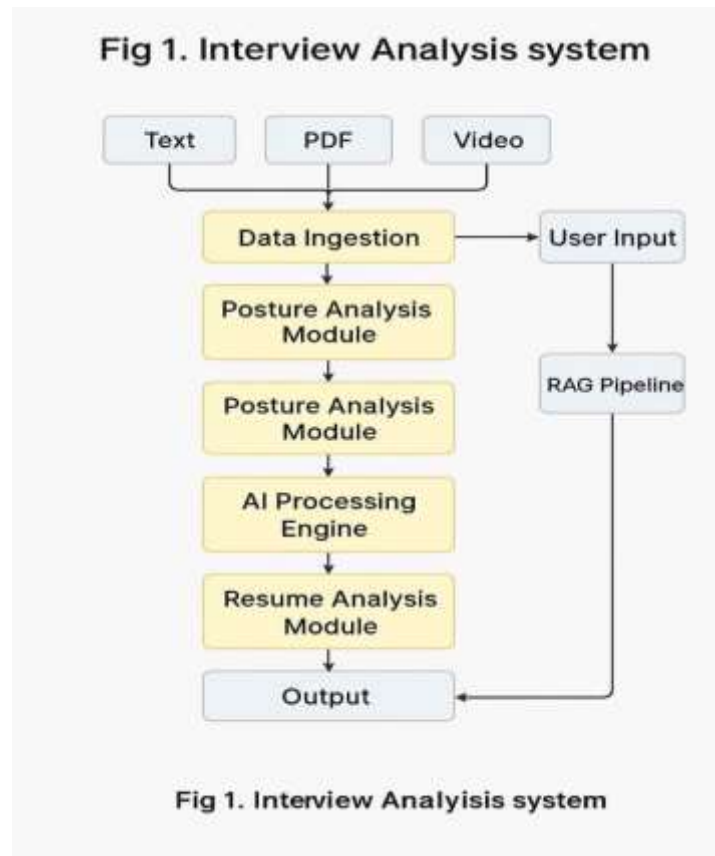
In today's competitive job market, candidates often begin their journey by reviewing job advertisements and end it by participating in interviews that test their communication skills, confidence, and overall suitability for the role. However, this process is increasingly challenged by the presence of fraudulent job postings and a lack of proper interview preparation tools. To bridge this gap, we propose an AI-powered system that streamlines the job search and preparation process. The system integrates natural language processing for summarizing job descriptions, machine learning models for identifying fake job offers, and real-time analysis tools to evaluate a candidate's resume, body language, and verbal responses—ultimately providing comprehensive feedback to enhance interview performance.

## 2.Literature Review

Recent advancements in artificial intelligence have enabled the use of natural language processing (NLP) techniques for summarizing large bodies of text, particularly in extracting key information from job descriptions. Studies have also demonstrated the effectiveness of machine learning models in identifying fake or misleading job advertisements by analysing patterns such as word frequency, employer credibility, and offer inconsistencies. Additionally, research in automated interview systems has explored the use of facial recognition and sentiment analysis to assess candidates' expressions and emotional states during interviews, which can be useful in gauging confidence and communication skills.

Despite these advancements, most existing solutions tend to operate in isolation—focusing on only one aspect of the recruitment process, such as resume screening or expression analysis. There remains a gap in delivering a holistic system that integrates all key functionalities into a unified, interactive platform. The proposed AI-powered interview analysis system addresses this limitation by combining job summarization, scam detection, real-time posture tracking, and live interview evaluation into a single, intelligent framework. This integration ensures a smoother and more effective preparation process for job seekers, offering them real-time feedback and actionable insights.

### 3.Methodology



**Fig. 1. AI-powered Interview Analysis System Methodology.**

The AI-Powered Interview Analysis System is designed around five integrated phases to guide job seekers through a comprehensive, AI-driven interview preparation process. It begins with the Job Understanding phase, where users upload either a text-based job description or a video, which is then summarized using natural language processing and transcribed using speech-to-text algorithms to highlight key requirements.

In the Scam Detection phase, machine learning models analyse the job post for indicators of fraud, such as unrealistic offers or vague descriptions, and alert the user if any red flags are detected. The Data Analysis module provides visual representations of job market trends using graphs derived from real and fake job datasets, helping users make informed decisions. Posture Analysis follows, leveraging computer vision to monitor body language, gestures, and facial cues in real time, offering feedback for improved physical presentation.

Lastly, the Live Interview Evaluation phase includes resume scoring and a mock interview, during which the system evaluates the candidate's voice tone, expression, and answer quality. A final report is generated.

### 3.1 System Architecture

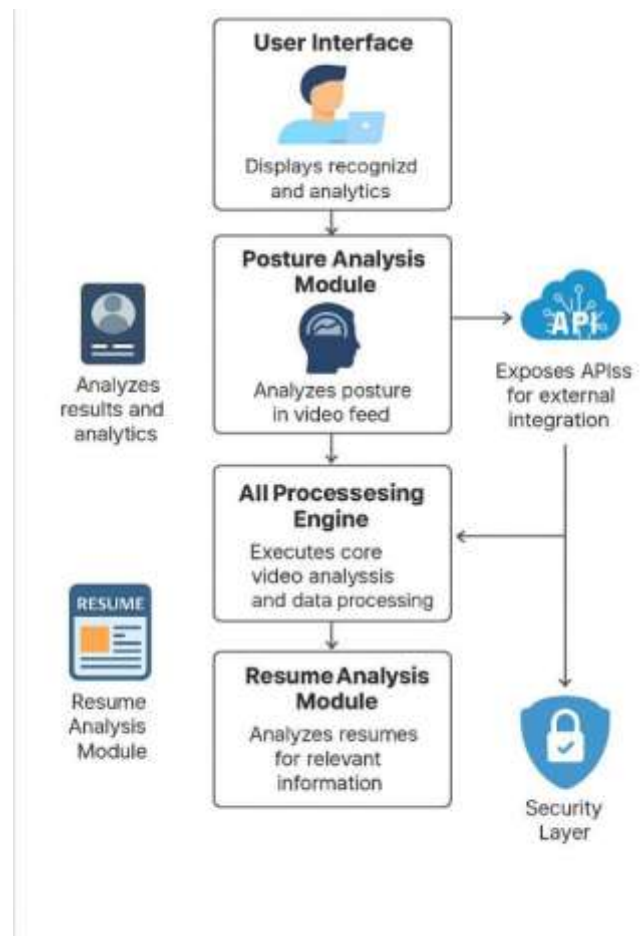


Fig. 2. AI-INTERVIEW ANALYSIS System Architecture

The architecture of the AI-Powered Interview Analysis System is modular and user-centric, ensuring seamless integration of various machine learning components to support each phase of the interview process. The system begins with a **data input module**, allowing users to upload job descriptions, videos, and resumes. This feeds into the **NLP and transcription engine**, which handles text summarization and speech-to-text conversion. The output is passed to the **scam detection module**, where pre-trained classifiers analyze job content for fraudulent characteristics. A centralized **data visualization module** then uses structured datasets to generate informative graphs that highlight differences between legitimate and fake job postings. The **posture and expression monitoring module** operates in real-time using webcam input and computer vision frameworks like Media Pipe to assess the candidate's body language. Finally, the **interview analysis engine** evaluates live responses, voice tone, and resume match, compiling the results into a personalized feedback report. All modules interact through a shared backend supported by local storage or a database, enabling efficient tracking and reporting across the entire system pipeline.

## 4.Result and Discussion:

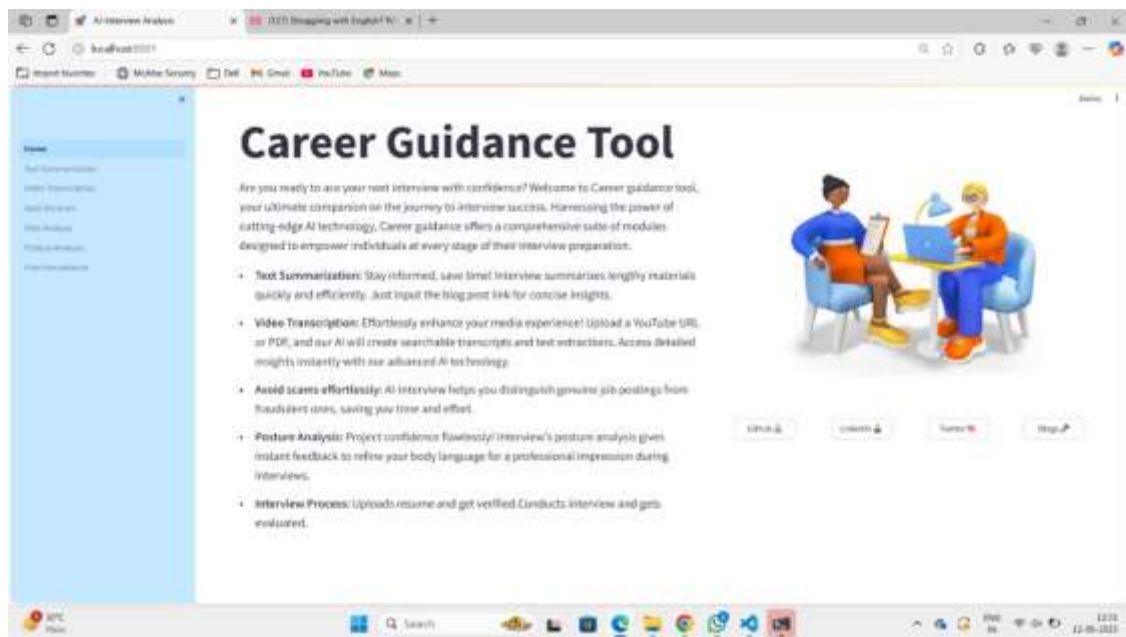


Fig 3. User Interface

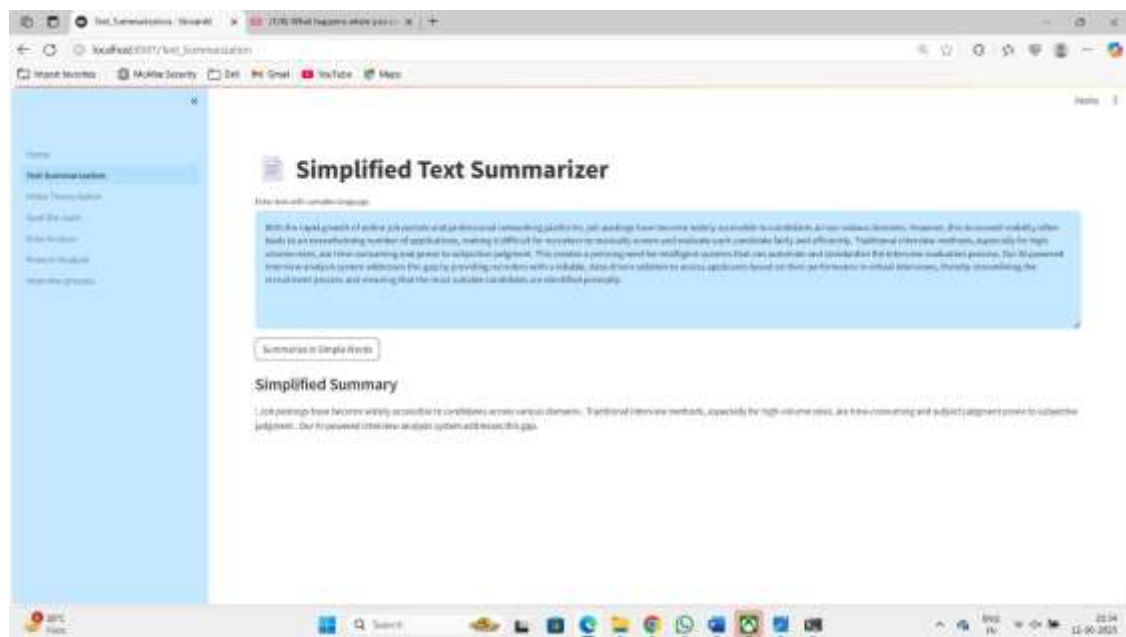


Fig 4. Text Summarization

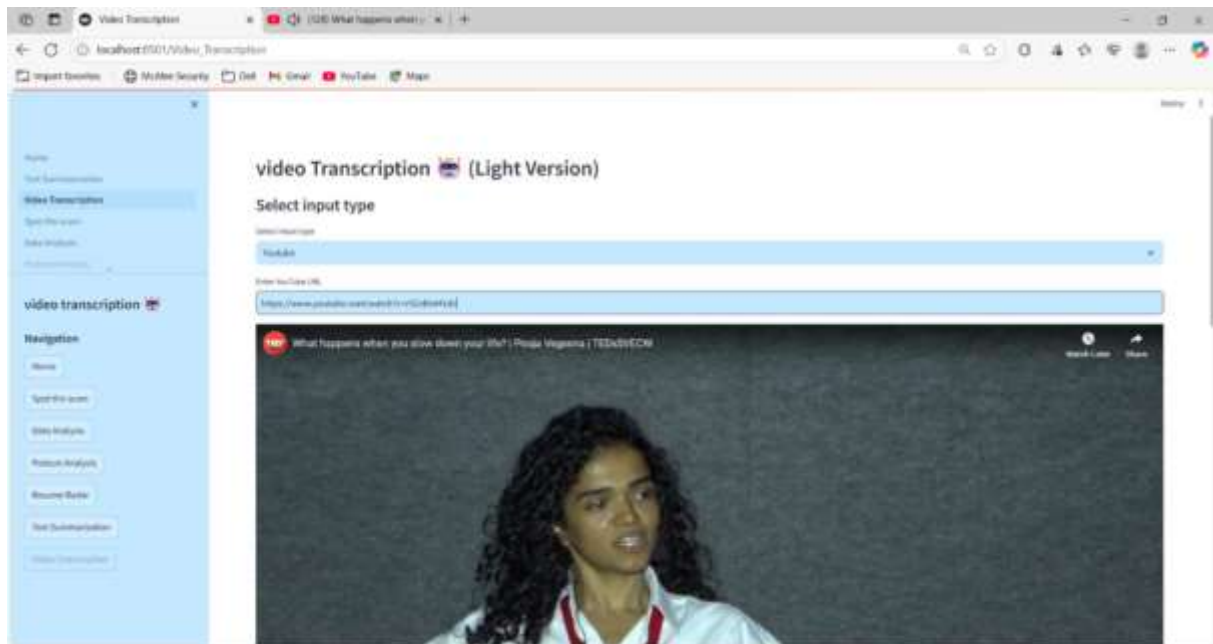
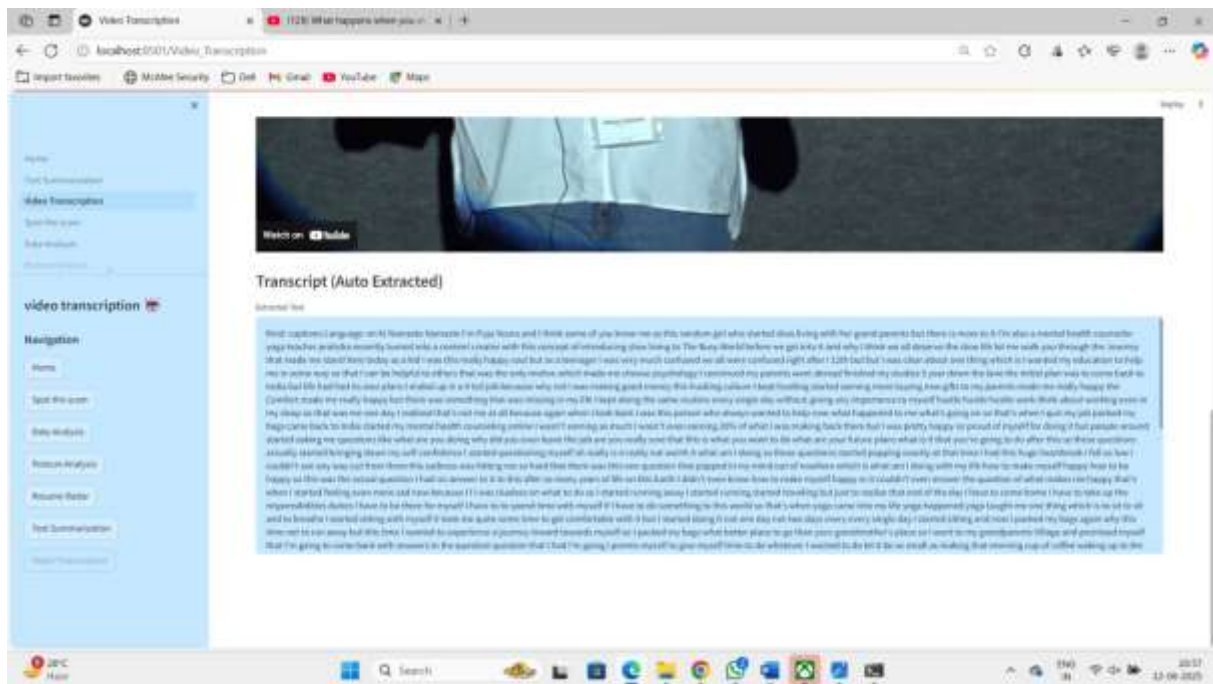


Fig 5. Video Transcription



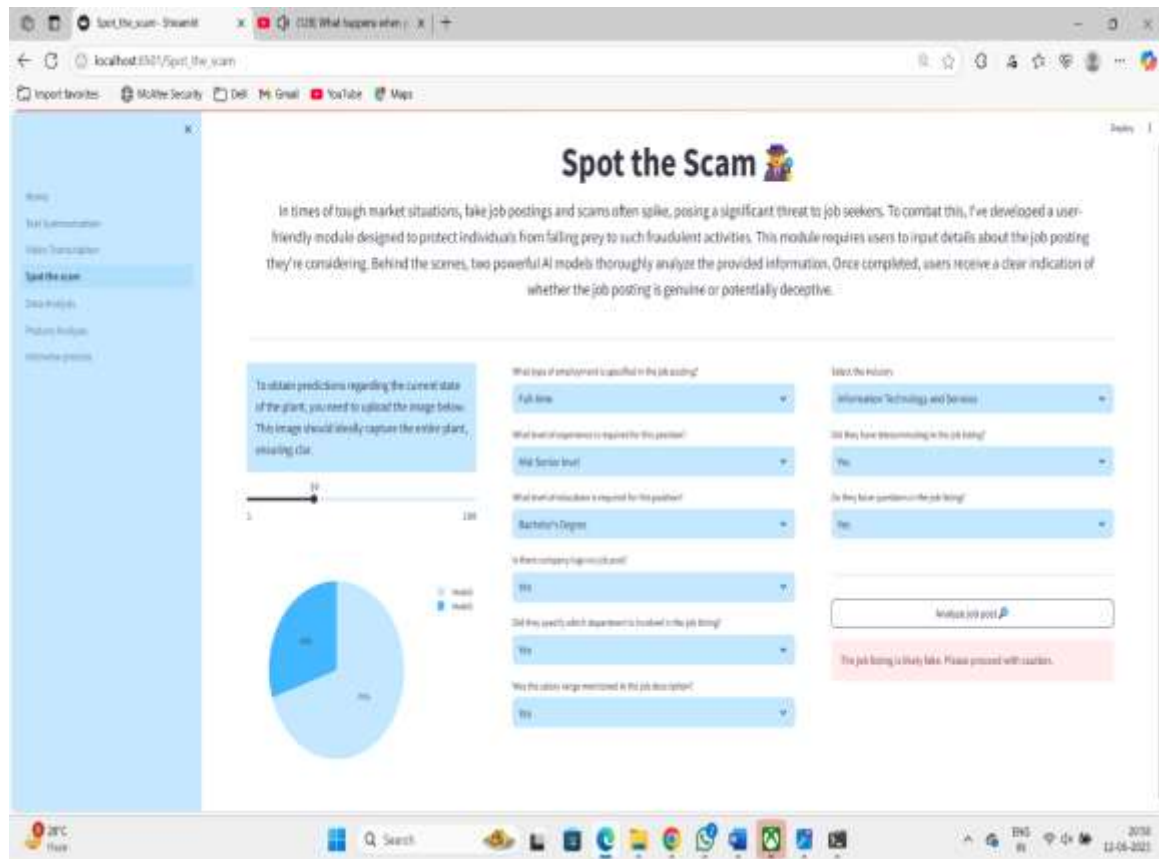


Fig 6. Spot the Scam

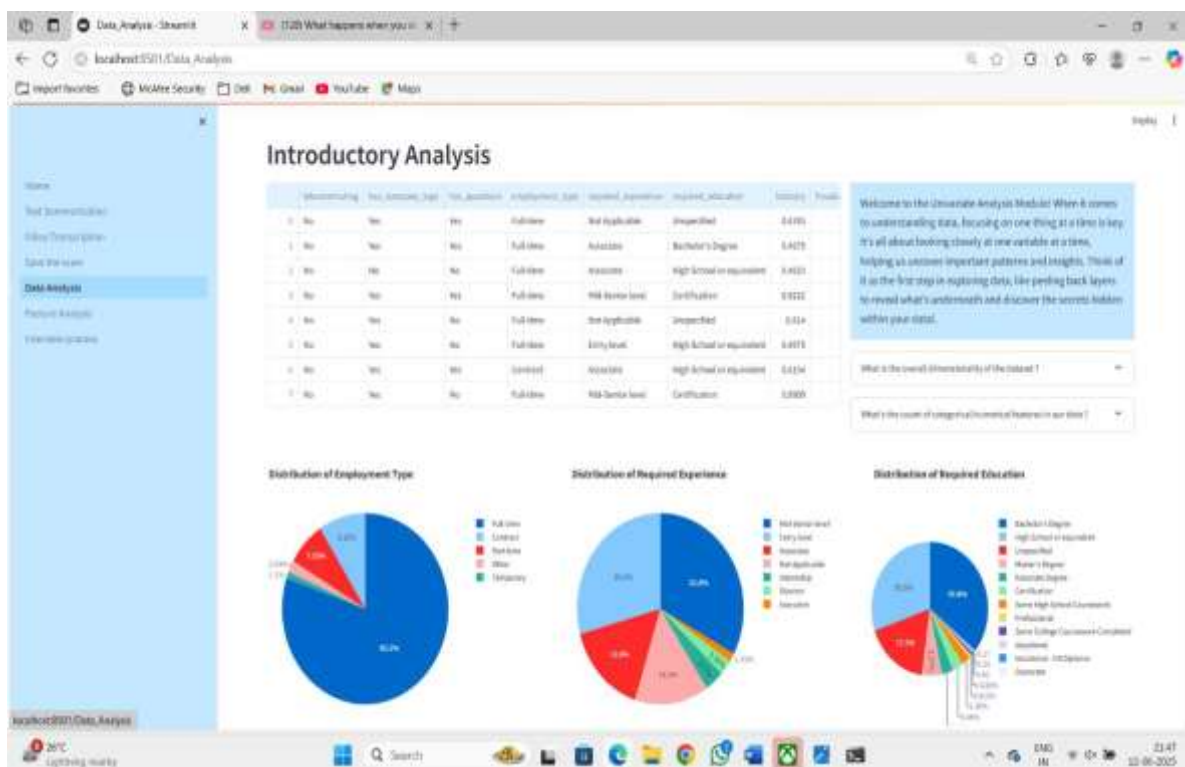


Fig 7. Data Analysis



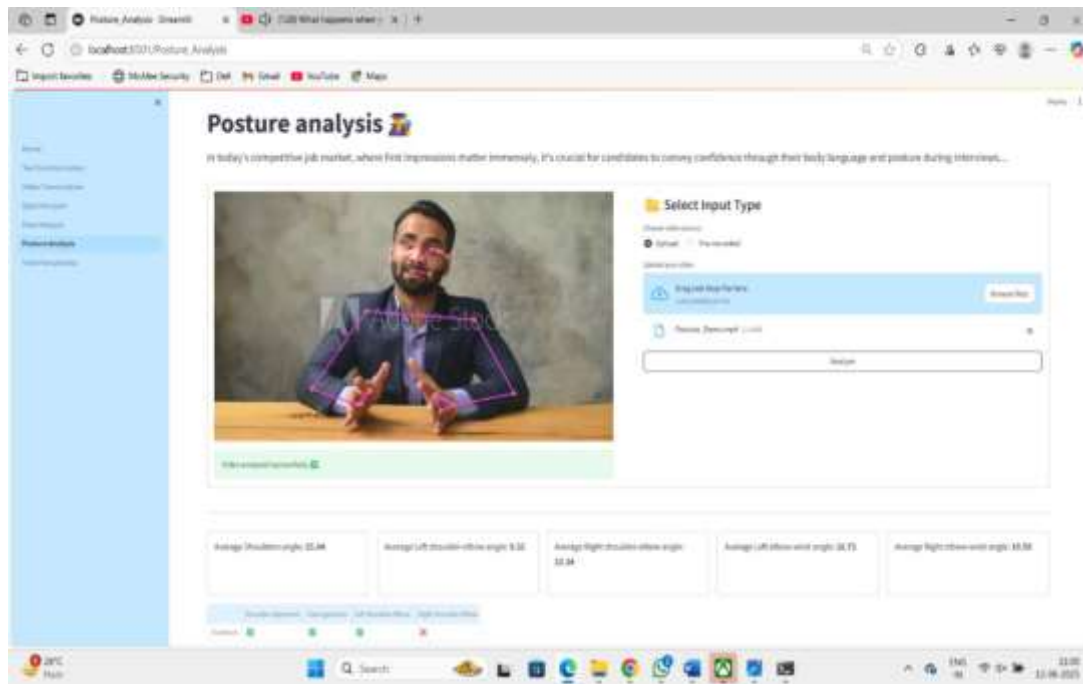


Fig 8. Posture Analysis

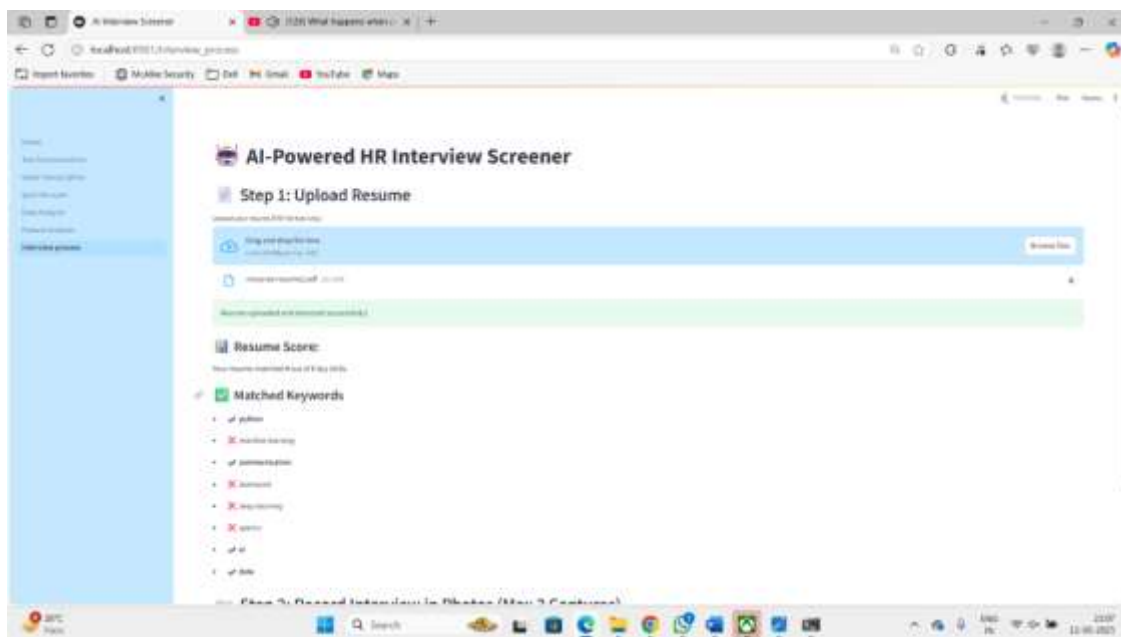


Fig 9. Interview Process

## 5. Conclusion and Future Works:

The AI-Powered Interview Analysis System presents a comprehensive solution for modern job seekers by integrating multiple artificial intelligence techniques to enhance career readiness. It addresses key challenges in the hiring process, such as identifying fake job postings, understanding job requirements, and preparing for interviews through real-time evaluation of posture, voice, and facial expressions. The system enables:

- An end-to-end guided interview preparation experience using AI-driven tools.
- Real-time transcription and summarization of job videos and descriptions.
- Intelligent detection of fraudulent job listings using machine learning.
- Visual analysis of job market data to aid better decision-making.
- Personalized feedback through resume scoring and live interview assessments.

- Seamless integration of NLP, computer vision, and speech analysis into a unified career support platform.

### ***Future Scope:***

#### **1.Enhanced Emotion and Sentiment Detection:**

Integrate deep learning-based emotion recognition models to detect subtle expressions and emotional states during interviews.

#### **2.Cloud-Based Resume & Interview Database:**

Implement cloud storage to maintain historical interview performance, resume versions, and system feedback for long-term user tracking..

#### **3.Mobile Application Development:** \*Provide a mobile app where users can: \*Record and review mock interviews

\*Receive instant feedback

\*Get interview tips and job alerts

\*Access previous performance reports

#### **4.Multilingual Support and Voice Modulation Feedback:**

Extend support to regional languages and assess voice modulation, clarity, and speech rate for better communication skills training.

#### **5.Employer Integration Portal:**

Develop a dashboard where recruiters can:

\*View candidate profiles and scores

\*Schedule AI-driven mock interviews

\*Track job posting responses and system-flagged scams

This conclusion reinforces the AI-Powered Interview Analysis System as a scalable, smart, and future-oriented platform for job seekers aiming to improve their interview success through automation, feedback, and fraud detection.

### ***6.Acknowledgement:***

We would like to express our heartfelt gratitude to everyone who contributed to the successful completion of our project, AI-Powered Interview Analysis System Using Machine Learning. We are especially thankful to Prof. Y. V. Gopala Krishna Murthy, General Secretary, and Mrs. M. Padmavathi, Joint Secretary, for their constant encouragement and for providing us with the opportunity and environment to work on this project.

We extend our sincere thanks to Dr. P. Chiranjeevi, Head of the Department, whose support and guidance played a key role in shaping our work. We are truly grateful to our internal guide Mr. G. Parwateeswar and our project coordinator Mrs. B. Saritha for their continuous supervision, insightful suggestions, and motivation throughout the development phase. We also thank the entire faculty and staff members of our department for their unwavering support and encouragement during every stage of the project.

### **References:**

- [1].Yi-Chi Chou, Felicia R. Wongso, Chun-Yen Chao and Han-Yen Yu, "An AI Mock-interview Platform for Interview Performance Analysis", 10th International Conference on Information and Education Technology, IEEE 2022.
- [2]. Dulmini Yashodha Dissanayake, Venuri Amalya, Raveen Dissanayaka, Lahiru Lakshan, Pradeepa Samarasinghe, Madhuka Nadeeshani, et al., "AI-based Behavioural Analyser for Interviews/Viva", IEEE 16th International Conference on Industrial and Information Systems (ICIIST),IEEE 2021.
- [3] Vikash Salvi, Adnan Vasanwalla, Niriksha Aute and Abhijit Joshi, "Virtual Simulation of Technical Interviews", IEEE, 2017.
- [4] Y. C. Chou and H. Y. Yu, "Based on the application of AI technology in resume analysis and job recommendation", IEEE International Conference on Computational Electromagnetics (ICCEM), pp. 291-296, IEEE 2020.
- [5] Aditi S. More, Samiksha S. Mobarkar, Siddhita S. Salunkhe and Reshma R. Chaudhari, "Smart Interview Using Ai", Technical Reacher Organization Of India, 2022