



AI-Driven Virtual Interview and Competency Evaluation System

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Abstract - Virtual interviews have become a preferred recruitment method, effectively addressing challenges related to time, budget, and geography. However, accurately assessing candidates' behavioural aspects during these interviews remains a significant hurdle. This research presents a machine based approach designed to analyze non verbal cues such as emotions to gain insights into interviewee behaviour and personality traits. By employing advanced deep learning and machine learning techniques, we systematically evaluate these non verbal indicators to enhance the analysis further and improve predictive accuracy. Our study includes a comprehensive comparative analysis of candidates, examining differences between the interview environment across various contexts and situations

Keywords — AI mock interview, machine learning, AI, feedback, verbal assessment, AI platform.

I. INTRODUCTION

AI introduces innovative ways to assess candidates , enhancing the traditional hiring process. While traditional interviews have their merits, they often lack fairness and efficiency, prompting a shift towards skills based assessments aims at improving accuracy and impartiality in candidate evaluations. By utilizing advanced technologies like machine learning algorithms, these AI systems evaluate candidates' skills, personalities, and emotional responses. AI powered systems streamline the hiring process by simultaneously managing multiple candidates.



II. LITERATURE REVIEW

The rising demand for efficient and personalized interview preparation tools has led to the development of various platforms like Pramp, InterviewBuddy, and Google Interview Warm Up. While Pramp enables peer-to-peer mock interviews. It heavily depends on user availability and lacks real time AI feedback. Google Interview Warmup uses basic AI to simulate interviews, but its feedback is limited to predefined question sets and lacks depth in soft skill analysis. Despite these advancements, current systems do not fully integrate technical and soft skill evaluation in a scalable, AI driven platform.

Key studies include:

- “An AI Mock interview platform for interview performance analysis”, IEEE Publication, 2022.
- “AI based Behavioural analyser for interviews/Viva”, Springer, 2021.

“Development of an AI- based interview system for remote hiring”, IJARET Publication, 2021.

III. CHALLENGES IDENTIFIED

Existing interview preparation systems lack realistic AI driven interactions, providing only static, text based question lists. They fail to offer personalized feedback, limiting users’ ability to improve effectively. High costs and restricted accessibility make quality interview coaching inaccessible for many. Additionally, poor UI/UX and inefficient data handling impact user engagement. Also integrating facial recognition into this project was a huge hurdle as we did not find proper guidance into the integration of facial recognition and AI driven mock interview system. Therefore these are all the challenges identified during the commencing of this project and which we aim to overcome in the future.

IV. PROBLEM DEFINITION

In the highly competitive job market, interview preparation plays a vital role in securing career opportunities. Traditional methods, such as practicing with peers or reviewing common interview questions, often lack real time feedback, AI driven analysis and personalized improvement insights. Furthermore, access to professional mentors and structured mock interviews can be expensive or unavailable to many candidates. So we aim towards mitigating this problem for the better future of many unprivileged and under estimated candidates to overcome their limitations and push their boundaries with the help of AI driven systems with personalized feedback.



V. ALGORITHM

The proposed algorithm for this project includes:

1. ***Setup and Interview*:**

- User selects a job role.
- AI generates tailored questions.
- The user answers via voice/video or text.
- Platform captures their responses.

2. ***Real time analysis*:**

- For each answer AI analyses the content using NLP and LLM's.
- If voice or video is used it also analyses communication and non verbal cues.

3. ***Personalized feedback*:**

- After the interview the platform provides a detailed report.
- This involves an overall score per question and strengths and weaknesses and also improvement tips.

4. ***Continuous improvement*:**

- Users review feedback and practice areas of weakness and retake mock interviews.
- Platform continuously refines its AI models by learning from anonymized user interactions

VI. REQUIREMENTS

A. Software Requirements

1. TypeScript, Tailwind CSS, ShadCN UI.
2. Libraries: React, Next.js and Node.js.

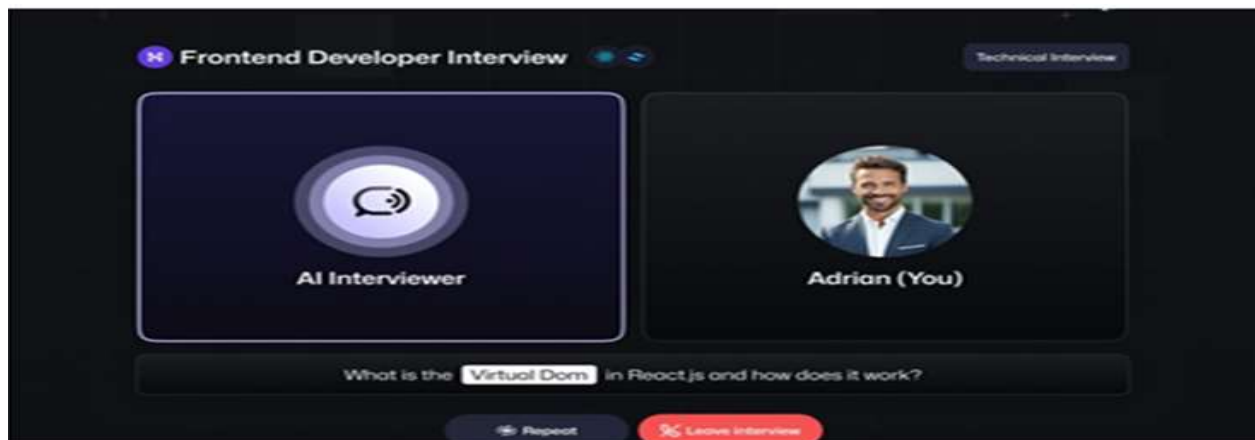


3. Integrated Development Environment (IDE): Visual Studio Code or Cursor
4. Operating System: Windows 10, macOS, or Linux

B. Hardware Requirements

1. Processor: Dual-Core (minimum), Quad-Core (recommended)
2. RAM: 4 GB (minimum), 8 GB or higher (recommended)
3. Storage: 50 GB (minimum), 100 GB or more (recommended)
4. Camera: HD Webcam (minimum), Full HD Webcam (recommended)

IX. OUTPUT SCREEN





VII.ACKNOWLEDGEMENT

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VIII. CONCLUSION

The Mock Interview System using AI marks a substantial progress in equipping candidates for job interviews. By effectively analyzing nonverbal cues, emotional states, and the relevance of responses, the system offers a comprehensive assessment of interview performance. Our study emphasizes the significance of emotional intelligence and confidence in interviews, showing that these factors can be objectively assessed through AI technology. The feedback produced by the system provides candidates with tailored insights, allowing them to recognize their strengths and areas needing improvement. Ultimately, this project not only enhances the interview preparation process but also equips candidates with the tools they need to succeed in real-world situations. By bridging the gap between traditional mock interviews and modern technology, we aim to improve hiring outcomes and boost candidates' confidence



in their abilities. As the system develops further through user input and advancements in AI, it has the potential to become a vital tool in the recruitment.

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