IJARCCE ISSN (O) 2278-1021, ISSN (P) 2319-5940



International Journal of Advanced Research in Computer and Communication Engineering

Impact Factor 8.471 ⁜ Peer-reviewed & Refereed journal ⁜ Vol. 15, Issue 11, November 2026

DOI: 10.17148/IJARCCE.2026.151151

AI MOCK INTERVIEW ANALYZER

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Abstract: Preparing for an interview often involves repeated practice, feedback from peers, and advice from experienced mentors. These approaches do not always give candidates a realistic chance to practice or provide consistent feedback. The AI Mock Interview Analyzer is a web-based platform for role-specific interview practice. Users select an interview type, answer generated questions, and record their responses using a microphone and webcam. The system is designed to transcribe spoken answers and assess their relevance, language, speech characteristics, and visible facial cues. It brings these indicators together in a structured report that highlights strengths and areas for improvement. Users can also save their details and interview results for later review. By bringing question generation, response recording, analysis, and feedback into one workflow, the platform aims to make interview practice more accessible and focused.

Keywords: Artificial Intelligence, Mock Interview, Natural Language Processing, Speech Analysis, Facial Expression Detection, Automated Feedback

I. INTRODUCTION

Interviews help employers assess a candidate's subject knowledge, communication, confidence, and problem-solving skills. Students and recent graduates may find it difficult to explain what they know when they feel nervous or have had little chance to practice. Sample questions and interview videos can help with preparation, but they may not give candidates the experience of answering aloud or feedback tailored to their needs.

The AI Mock Interview Analyzer is designed to make interview practice more interactive. Users can register or sign in, select a job role, or begin a session based on their resume. The platform then presents relevant questions and records responses through audio and video. Practicing in this format gives candidates a chance to become more familiar with interview situations and review their responses.

The system applies Artificial Intelligence techniques to review candidate responses. Speech-to-text conversion produces a transcript, which Natural Language Processing (NLP) can use to assess relevance, content, and language. Measures such as speaking pace and pauses may add information about delivery. Where the feature is implemented, video analysis can also identify visible facial-expression cues. The system combines the available indicators to prepare structured feedback on the session.

After a session, candidates receive a report describing what went well and what they could improve. They can use it to revisit their answers and prepare for another practice round. The platform is designed to support repeated practice and self-assessment, particularly for students preparing for campus placements, recent graduates applying for entry-level roles, and job seekers working to strengthen their interview skills. Its scores and behavioral indicators should be treated as guidance: recording quality, the surrounding environment, and individual communication styles can all affect automated analysis. The platform is intended to complement conventional preparation and human feedback, rather than replace human evaluation.

II. LITERATURE SURVEY

Tejaswini K. et al. (2025) developed an AI-powered mock interview platform that brings together Natural Language Processing (NLP), AI-generated questions, and speech-to-text conversion [1]. It assesses answer relevance, clarity, fluency, tone, confidence-related indicators, and response structure, then uses these measures to produce scores and

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tailored feedback. The work shows how AI can give interview practice a more consistent structure. It also points to the need for broader multimodal assessment and careful validation of automated scores.

Yi-Chi Chou et al. (2022) presented an AI mock-interview platform that combines visual, audio, and text features to assess interview performance [2]. The platform analyzes cues such as emotion, head pose, and voice, and uses them as part of an overall performance assessment. This work illustrates how multiple input types can be brought into interview practice; the validity and fairness of the resulting judgments still need careful evaluation.

Chitikeshi Harichandana and K. Chandrashekar (2025) examined a mock interview system that uses deep learning and emotion detection to provide real-time feedback, confidence-related tracking, performance reports, and personalized recommendations [3]. The system is intended to help candidates make sense of their interview performance through automated analysis. Its usefulness will depend in part on making emotion detection more reliable and combining visual observations with an assessment of answer content.

Al-Mamun and Haque (2019) studied AI chatbots as a form of virtual mentoring for interview preparation [4]. Through chatbot conversations, candidates can rehearse common human resources questions in an accessible virtual setting. More detailed assessment of answers, along with audio and visual analysis, could give candidates a fuller picture of their performance.

Khapekar et al. (2025) described an interview practice system that combines conversational AI with voice analysis, facial-expression recognition, and emotion detection [5]. The work also considers adaptive follow-up questions to make sessions more interactive. Combining these different inputs may broaden an assessment, but the voice and emotion indicators need to be evaluated across users, recording conditions, and interview settings.

Li and Deng (2022) reviewed deep-learning methods for recognizing facial expressions, including the datasets and algorithms commonly used and the challenges involved [6]. Their review explains how deep-learning models can extract facial features and classify expression patterns. Recognition can be affected by lighting, head position, image quality, and differences between individuals, so methods used in interview analysis need to be robust to these conditions.

Bansal, Mehra, and Kaur (2022) discussed AI interview platforms that tailor questions to a technical field or job requirement [7]. This can make practice more relevant to a candidate's area of interest and provide a focused way to evaluate skills. These platforms could be more useful when role-specific question selection is paired with a consistent, thorough review of responses.

Suguna et al. (2024) proposed a generative-AI interview practice system with role-specific questions, adjustable difficulty, and feedback on clarity, coherence, confidence-related indicators, communication, and time management [8]. Candidates can practice on their own and receive guidance suited to their preparation. Further evaluation is needed to establish whether the questions are relevant, the difficulty adjusts appropriately, and feedback remains consistent.

Minaee et al. (2021) reviewed deep-learning methods for text classification and their use in NLP tasks such as question answering, natural-language inference, and topic classification [9]. The review describes how neural network architectures identify patterns in text. These methods can inform the analysis of interview transcripts, but reliable assessment also requires choosing suitable models and understanding their limitations when judging answer relevance and content.

Chopra, Jain, and Sinha (2021) discussed the STAR framework—Situation, Task, Action, and Result—as a way to organize answers to behavioral interview questions [10]. It guides candidates through the context, their responsibility, the steps they took, and the outcome. An AI interview analyzer could use this structure to show candidates which parts of an answer are missing and help them organize their examples more clearly.

Rai et al. (2024) introduced Skillup Bot, a platform for interview practice that offers domain-based questions, response analysis, performance feedback, and personalized suggestions [11]. It gives candidates a way to rehearse relevant questions and see where they may need more work. More detailed assessment of answer quality and additional communication indicators could make its feedback more complete.

Mollahosseini, Chan, and Mahoor (2016) studied deep neural network architectures, including convolutional and Inception-style layers, for facial-expression recognition [12]. Their work demonstrates how deep learning can be used to

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extract visual features and classify expressions. Applying these methods to interview video calls for attention to recognition accuracy, changes in the recording environment, and fairness across users.

III. FINDINGS

Taken together, the studies reviewed here show how AI and machine learning can support interview preparation through generated questions, answer assessment, speech analysis, and tailored feedback. Traditional preparation does not always offer consistent assessment, prompt feedback, or a realistic setting for repeated practice. Advances in Natural Language Processing, speech recognition, conversational AI, and deep learning have helped address some of these gaps. Candidates can now practice questions for specific roles, review their answers, and identify areas to improve with the help of AI-based platforms.

The reviewed work uses several methods to assess interview responses. NLP can examine the content of a transcript, and speech-to-text can make spoken answers available for that analysis [1], [9]. Other platforms combine text with audio and visual features when assessing interview performance [2]. These approaches may help determine whether an answer addresses the question and communicates relevant information, but their results depend on transcription quality and clearly defined evaluation criteria.

The literature also points to the potential value of combining different forms of assessment. Speech analysis can measure delivery features such as pace and pauses, while facial-expression recognition can identify visible cues [3], [5], [6], [12]. Alongside text analysis, these methods may offer more context about a recorded interview. However, voice and facial cues are imperfect signals; they should not be taken as definitive measures of a person's confidence, personality, or professional ability.

Interactive practice and individualized feedback are another recurring theme. Chatbot-based mentoring and AI interview platforms let candidates practice independently and receive guidance without needing a human interviewer for every session [4], [8], [11]. Questions tailored to a technical field can make preparation more relevant, and adaptive follow-up questions may make the session more engaging [5], [7], [8]. The questions and feedback still need to be evaluated to ensure they are useful and appropriate for candidates.

Behavioral interview research also emphasizes organizing answers clearly. The STAR framework—Situation, Task, Action, and Result—offers candidates a practical structure for describing an example [10]. An AI interview analyzer could use it to point out missing details, help candidates explain what they did, and make the outcome clear. Paired with NLP-based content analysis, this kind of guidance may be more actionable than a general score on its own.

Across these studies, question generation, speech-to-text, NLP-based answer assessment, speech analysis, facial-cue processing, and personalized feedback form a promising direction for interview practice. The proposed AI Mock Interview Analyzer brings these capabilities into a single workflow: candidates configure a session, record their responses, and receive automated analysis and feedback. The goal is to help them recognize strengths, identify areas to work on, and prepare more systematically for recruitment interviews. How well the system works will depend on transcription quality, question relevance, assessment reliability, recording conditions, and careful interpretation of its indicators. Future work should compare automated scores with assessments reviewed by people, make the feedback easier to understand, support users with different communication styles, and protect recorded interview data.

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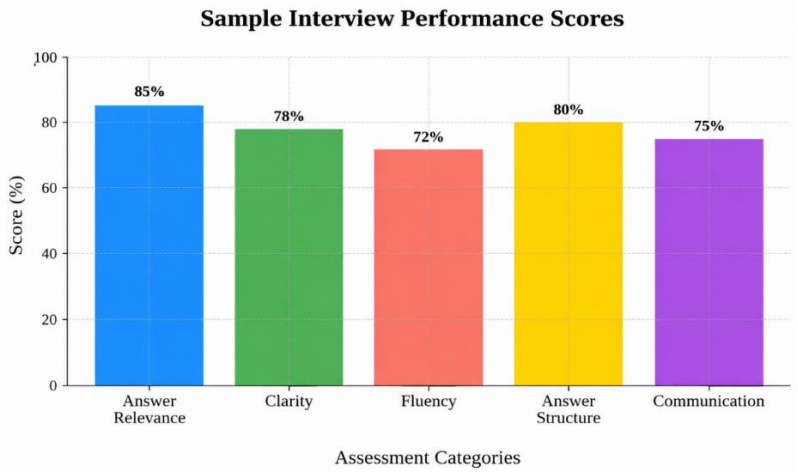


Fig. 1 Sample interview performance scores across assessment categories.

Table I Comparative Analysis of Reviewed Research Papers

No.	Authors & Year	Related Work / Contribution	Research Gap / Future Scope
1	Tejaswini K. et al. (2025) [1]	Presents an AI-powered mock interview platform that uses NLP, AI-generated questions, and speech-to-text. It assesses relevance, clarity, fluency, tone, confidence-related indicators, and answer structure, then provides scores and personalized feedback.	Broaden multimodal assessment and validate the automated scores.
2	Yi-Chi Chou et al. (2022) [2]	Presents an AI mock-interview platform that combines visual, audio, and text features, including emotion, head pose, and voice, to assess interview performance.	Validate the assessment criteria and examine the fairness of inferences drawn from multimodal cues.
3	Chitikeshi Harichandana and K. Chandrashekar (2025) [3]	Applies deep learning and emotion detection to provide real-time feedback, confidence-related tracking, performance reports, and personalized recommendations.	Improve the reliability of emotion detection and connect visual observations with answer-content analysis.
4	Al-Mamun and Haque (2019) [4]	Uses AI-chatbot conversations to simulate interview interactions and let candidates practice human resources questions.	Add more detailed answer assessment and speech or visual analysis.
5	Khapekar et al. (2025) [5]	Combines conversational AI, voice analysis, facial-expression recognition, and emotion detection, and considers adaptive follow-up questions.	Evaluate voice and emotion indicators across users and recording conditions.
6	Li and Deng (2022) [6]	Reviews deep-learning methods for facial-expression recognition, including datasets, algorithms, and challenges such as lighting and head position.	Address environmental variation and the limitations of facial-expression recognition.
7	Bansal, Mehra, and Kaur (2022) [7]	Discusses AI interview platforms that tailor questions to technical fields for more focused practice and skill assessment.	Pair role-specific questions with consistent response analysis.
8	Suguna et al. (2024) [8]	Describes a generative-AI interview practice system with role-based questions, adjustable difficulty, and feedback on clarity, coherence, communication, and time management.	Evaluate question quality, difficulty adjustment, and feedback consistency.

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DOI: 10.17148/IJARCCE.2026.151051

9	Minaee et al. (2021) [9]	Reviews deep-learning text classification and NLP applications such as question answering, natural-language inference, and topic classification.	Select suitable text-analysis methods for interview answers and evaluate their limitations.
10	Chopra, Jain, and Sinha (2021) [10]	Presents the STAR framework—Situation, Task, Action, and Result—as a structure for answering behavioral interview questions.	Use structured-answer guidance in automated feedback on behavioral responses.
11	Rai et al. (2024) [11]	Skillup Bot offers domain-based questions, response analysis, performance feedback, and personalized suggestions for interview practice.	Strengthen answer-quality assessment and add complementary communication indicators.
12	Mollahosseini, Chan, and Mahoor (2016) [12]	Studies deep neural networks, including convolutional and Inception-style layers, for facial-expression recognition.	Address robustness and fairness when applying facial-expression recognition to interviews.

IV. CONCLUSION

The AI Mock Interview Analyzer brings together question selection, speech-to-text conversion, Natural Language Processing, and audio-visual analysis in a single platform for interview practice. Candidates can take part in simulated interviews, review their answers, and receive structured feedback on relevance, clarity, fluency, and organization. By showing what they did well and what they could improve, the system aims to help students and job seekers prepare more deliberately for recruitment interviews.

The platform offers a convenient way to practice repeatedly and assess progress at one's own pace, alongside study materials and occasional mock interviews. Its feedback, however, depends on speech-recognition accuracy, the quality of answer evaluation, and the limits of audio-visual analysis. Future work could compare automated assessments with human evaluations, improve personalized question generation, and strengthen data privacy. Overall, the system is intended to make interview preparation more accessible and interactive while complementing the advice of mentors and interviewers.

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