



Graduation Project Proposal

Project title:

Video Interview Analysis

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Problem Definition:

In today's era of digital transformation, Video interviews, also known as virtual interviews, have become a common step in recruitment processes. Instead of meeting face-to-face in an office. Pre-recorded video interviews are one of main types of virtual interviews where applicants are asked to record their responses to a set of pre-defined questions without the interviewer being present, which are then evaluated by HR personnel to assess their suitability for the position they applied for. As part of the massive growth in today's market, the potential of video interviews is rapidly increasing, with many companies facing challenges in managing evaluating these videos manually of the overwhelming number of applicants, leading to inefficiencies in evaluating candidates and making timely hiring decisions. Besides, manual video interview assessments are often influenced by human bias, subjectivity, and discrimination, which can affect the hiring decisions.

One key approach to help address this challenge is the implementation of AI-driven video interview analysis system, which can automate the evaluation process by assessing both verbal and non-verbal cues, ensuring quicker, more consistent, and unbiased assessments of candidates, while significantly reducing the time and effort required by HR teams. Where this automated system will be an initial stage to evaluate the candidates responses, then provides comprehensive evaluation reports for HR personnel, and as a result if the candidate is successful in the previous stage, HR reviews the reports as well as the video for final decision.

By leveraging AI, companies can scale their recruitment processes, handle large volumes of applicants efficiently, and mitigate human bias, all while maintaining high-quality candidate evaluations.



Motivation:

Traditional recruitment processes often involve lengthy interviews that can take 45 to 90 minutes, making them impractical for companies facing high volumes of applicants. This time-consuming approach can hinder the ability to select the right candidates efficiently, leading to delays and increased costs. Additionally, manual assessments are subject to human bias and subjectivity, resulting in inconsistent evaluations and potential legal risks related to fairness and discrimination.

In response to these challenges, many companies have begun to adopt video screening as a more efficient method for candidate evaluation. Video interviews allow for a quicker exchange of information, making them much faster than traditional phone interviews. Statistics reveal that 60% of hiring managers utilize video interviewing in their processes, highlighting its growing popularity. Video screening significantly reduces hiring times; while traditional methods can take approximately 52 days to fill a position, video interviews can decrease screening time by up to 80% and reduce overall time-to-fill by 57% (Goldbeck, Spark Hire). This efficiency enables HR teams to manage larger applicant pools without compromising the quality of their assessments.

While the vast development of AI right now, many companies have begun to go for the usage of it further in the analysis and evaluation of the candidates video interviews for better evaluation and decision-making. Existing tools like Talview and HireVue offer automated screening, customizable question sets, and advanced analytics that assess candidates on verbal responses, body language, and tone of voice.



This project aims to build on these capabilities a web-based system, with proposed enhancements that will include further analysis of non-verbal cues, such as personality traits and English proficiency, alongside the integration of AI-driven chatbots for assessing technical skills through interactive conversations and evaluating candidate responses. Finally based on all these evaluation metrics a comprehensive report will be generated per candidate, providing a detailed score for each metric with an overall score that evaluates all aspects of their performance, ensuring a thorough and unbiased assessment.

Objectives:

- 1- Improve selection of candidates through AI-Powered Video Interviews.
 - Implement AI models to evaluate 'English level, assess personal traits, and rate the answer of each question'.
- 2- Save the time of selection process.
 - Automate the selection process and select our candidates for the next process based on our predefined criteria.
- 3- Ensure the best candidates are chosen without human intervention.
 - Prevent human bias by utilizing AI to ensure that the most qualified candidates are selected.
- 4- Implement Chatbot to engage with applicants and select outstanding candidates.
 - This option is available on the website for users who want to skip the initial phases. Our chatbot will engage with applicants and evaluate their responses to technical questions.



Work Plan:

1- Research.

- Surveying related works.
- Analyzing relevant datasets.

2- Selecting the appropriate datasets and techniques to be used.

3- Gathering requirements and designing the system architecture.

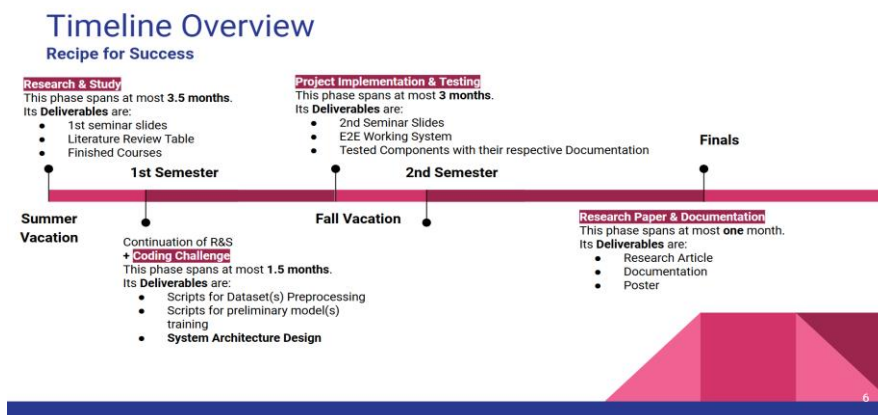
4- Implementation:

- Video Analysis Module.
 - Body language
 - Personality traits and English proficiency
 - Verbal response and tone of voice
 - Text extraction and analysis
- Chatbot Module.

5- Testing.

6- Integration of the individual modules into a complete system.

7- Documentation.





References:

- [1] IEEE - 56998 Smart recruitment tool with AI Technology.

[Smart recruitment tool with AI Technology | IEEE Conference Publication | IEEE Xplore](#)

- [2] Intelligent video interview agent used to predict communication skill and perceived personality traits Hung-Yue Suen¹, Kuo-En Hung¹ and Chien-Liang Lin.

[Intelligent video interview agent used to predict communication skill and perceived personality traits | Human-centric Computing and Information Sciences \(springer.com\)](#)

- [3] Human Sales Ability Estimation Based on Interview Video Analysis.

[Human Sales Ability Estimation Based on Interview Video Analysis \(researchgate.net\)](#)

- [4] Novel Framework for Job Interview Processing Automation Based on Intelligent Video Processing.

[Novel Framework for Job Interview Processing Automation Based on Intelligent Video Processing \(researchgate.net\)](#)

- [5] Comparing job applicant deception in asynchronous vs synchronous video interviews, with and without AI-assisted assessments.

[Comparing job applicant deception in asynchronous vs synchronous video interviews, with and without AI-assisted assessments | Request PDF \(researchgate.net\)](#)



[6] Can Large Language Models Assess Personality From Asynchronous Video

Interviews? A Comprehensive Evaluation of Validity, Reliability, Fairness, and Rating Patterns

[Can Large Language Models Assess Personality From Asynchronous Video Interviews? A Comprehensive Evaluation of Validity, Reliability, Fairness, and Rating Patterns | Request PDF \(researchgate.net\)](#)

[7] IEEE - Deep Bimodal Regression of Apparent Personality Traits from Short Video Sequences

[Deep Bimodal Regression of Apparent Personality Traits from Short Video Sequences | IEEE Journals & Magazine | IEEE Xplore](#)