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SMART HIRE BASED SYSTEM

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1. Abstract:

An efficient and effective hiring process is a step-by-step process for hiring a new employee, whereby an organization identifies its talent needs, recruits from its talent pool and eventually hires the most qualified candidates. Most companies have their own hiring processes. What follows are the most common steps in the hiring process across industry and regardless of company size. Keep in mind, however, that the specific details of the hiring process are unique to each company. Our model is to Automate the interview process by using Machine learning in order to simplify the process by selecting the key words, skills, passions from the profile and sending the mails to the applicants. In most organisations, recruitment is a complex and time-consuming process, since they get a large number of job applications for openings that are called. managing those process applications manually would want a great amount of labour, time, and cash. further, the hr personnel or the recruitment group ought to manually shortlist the incoming candidates and time table interviews for them as a result. this lengthy technique makes the

organization's operations inefficient. therefore, we deliberate to build a web-
software with an aim to automate the interview system. the software consists of
following capabilities which includes candidate character prediction the use of device gaining knowledge of, computerized resume parser, coping with of the scheduling of interviews, video recording in browser, test self assurance degree and other character trends of the candidate the use of video (eye movements and face feelings) and tone (speech) evaluation, hold track of the recruitment data and send mail to chose/rejected candidates robotically in one-click. this machine will as a consequence make the hiring technique plenty faster & smoother, allow recruitments in larger numbers, generate concise insights and offer summary of the candidate's profile with a purpose to encompass the resume, responses to questions, technical competencies, character traits, video and tone evaluation end result.

2. Introduction:

In recent times, there has been a growing trend in the utilization of online video-based interviews within the recruitment processes, offering numerous advantages to both interviewers and candidates. One notable benefit is the flexibility it provides for off-line review and decision-making by Human Resources (HR) personnel, facilitating the assessment of multiple job applicants within a short timeframe. Additionally, it opens avenues for automated performance analysis, aiding initial HR decisions and potentially mitigating human biases.

Throughout these video interviews, candidates are required to effectively convey their enthusiasm and expertise through various multimodal behaviors, encompassing speech content, prosody, gaze direction, facial expressions, and other nonverbal cues, all within a limited time frame. Traditionally, the success or failure of these efforts is subjectively evaluated by the interviewer, either through a holistic impression or quantitative ratings, leading to ongoing debates regarding the validity and reliability of such assessments.

An emerging alternative to the conventional human-only assessment model involves integrating human judgment with automated evaluation of interview performance, specifically utilizing social signal processing (SSP). This paper makes several contributions. Firstly, we amassed a corpus of 1891 monologue videos, totaling 63 hours, employing a

crowd-sourcing approach. Secondly, we introduced a unified automatic rating approach to proficiently analyze multimodal behaviors.

3. Literature Survey:

Automated Personality Screening through Multimodal Video Processing

Authors: Jelena Gorbova, Iiris L?si, Andre Litvin, Gholamreza Anbarjafari

Summary:

- Automates the process of ranking and shortlisting candidates, reducing the time and effort required for manual review.
- Particularly beneficial when dealing with a large number of resumes, as it minimizes the need for additional manpower.
- Evaluates candidates based on their proficiency in preferred skills mentioned in their resumes, improving the likelihood of finding suitable candidates.
- Employs machine learning algorithms to rank candidates objectively, considering various factors related to the job's skill requirements.

This research endeavors to streamline pre-employment candidate selection by employing automated personality screening. The method integrates visual, audio, and lexical cues from brief video clips, generating a comprehensive score prediction. However, it is important to note that the study does not claim to reduce administrative burden, and the model's effectiveness relies heavily on the quality and representativeness of the training data, with potential biases leading to skewed predictions.

Machine Learning in Hiring and Recruitment Processes

Authors: Dahlia Sam, M. Ganesan, S. Ilavarasan, T. John Victor

Summary:

- It aims to reduce the time required for candidate selection in the pre-employment stage by automating personality screening.
- Utilizes multiple channels, including visual, audio, and lexical cues from video clips, to assess candidates' personality traits.
- Helps in estimating whether a person from the video clip should be invited for a job interview, aiding employers in the decision-making process.
- Combines the results from the visual, audio, and lexical channels to generate a final score prediction, potentially providing a more comprehensive evaluation of candidates.

This paper provides an overview of the application of machine learning algorithms in the recruitment process. It aims to objectively rank candidates based on various job-related factors. Nevertheless, it lacks an efficient screening mechanism, and the inherent biases in machine learning algorithms pose fairness concerns in the hiring process.

Recruitment Prediction using Machine Learning

Authors: D Jagan Mohan Reddy, Sirisha Regella, Srinivasa Reddy Seelam

- Modern parenting often involves mothers returning to work soon after childbirth, creating challenges in providing full-time care for infants.
- The paper introduces an IoT-based unified child monitoring and security system that eliminates the need for third-party involvement, addressing the concerns of parents.
- The system takes suitable actions to notify parents, including sending alert messages, providing live video streaming of the infant, and activating a motor to swing the cradle.
- For toddlers, the system employs GPS- and GSM-enabled wristbands to monitor their movements and continuously transmit their live locations.

The study focuses on predicting suitable candidates through statistical measures and various machine learning algorithms. However, it does not claim to enhance decision-making.

Job Recommendation System: Machine Learning, Regression, Classification, Natural Language Processing

Authors: Kevin Appadoo, Muhammad Bilaal Soonnoo, Zahra Mungloo

Summary:

- JobFit uses recommender system and machine learning techniques to expedite the candidate screening process, which can be particularly beneficial when dealing with a large number of applicants.
- By recommending candidates who are a better fit for a job, the system helps ensure that HR professionals focus on candidates more likely to perform well and find their roles meaningful. This, in turn, can lead to better hiring decisions and reduced turnover.
- jobFit utilizes past data to make recommendations, allowing HR professionals to leverage historical hiring information and improve decision-making.
- The system takes into account both job requirements and applicant profiles, offering a holistic approach to matching candidates with job roles.

The system recommends candidates better suited for specific jobs, aiming to improve HR professionals' focus on potential high-performing candidates. Nonetheless, it acknowledges limitations in potentially overlooking some talented individuals in recommendations.

Performance Prediction in Hiring Process and Appraisals Using Machine Learning

Authors: Ali A. Mahmoud, Tahani AL Shawabkeh, Walid A. Salameh, Ibrahim Al Amr

Summary:

- AI's ability to process large amounts of data and present it effectively equips employers with valuable insights to make more informed and effective hiring decisions.
- Employers are leveraging AI to modernize and streamline the hiring process, adapting to the demands of the fourth industrial revolution.
- The study proposes a conceptual model that uses AI in conjunction with performance management and social screening to predict the expected performance of new candidates.

The research analyzes and presents hiring process data to employers in a clear manner. Challenges include adherence to employment laws, particularly regarding discrimination and fair hiring practices, in the context of AI-driven hiring.

Innovative Hiring Process using Machine Learning and Natural Language Processing

Authors: Neha Sharma, Rigzen Bhutia, Vandana Sardar, Abraham P George, Farhan Ahmed

Summary:

- The ultimate goal of this approach is to minimize employee attrition by ensuring that job candidates are matched with roles that suit their abilities and interests, potentially leading to greater job satisfaction and retention.
- Providing hybrid recommendations using association rule mining can offer a more personalized job search experience, increasing the likelihood of a good fit between candidates and job opportunities.
- Clustering user profiles based on performance in aptitude/technical tests can help match candidates with jobs that align with their abilities and interests.

The paper proposes a novel hiring process involving domain classification on user-uploaded resumes, mapping profiles into clusters based on performance. Notably, limitations include the potential loss of human interaction, as fully automated processes may lack the personal touch of human interviewers.

4. System Architecture:

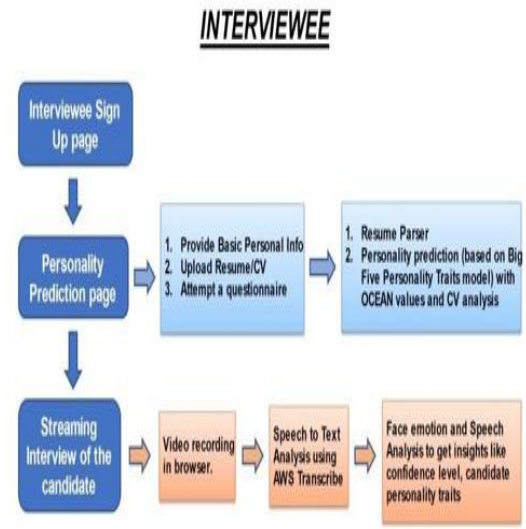

Fig: Architecture

5. Proposed System

The project entails the creation of a web-based platform to facilitate student interaction and assessment. Initially, students will undergo a registration process, providing unique usernames and passwords for secure access. Upon logging in, students will be prompted to upload their resumes, which will be processed to extract relevant information.

Subsequently, students will be directed to a section where they can input values corresponding to the Ocean personality traits. This data will be utilized to predict personality traits using a machine learning model specifically trained for this purpose.

Following the personality assessment, students will engage in video-based interactions. A questionnaire will be displayed alongside the video recording interface, prompting students to respond to pre-defined questions. These video responses and questionnaire answers will be recorded and stored for later analysis.

Overall, the system aims to provide a comprehensive platform for student engagement, combining elements of self-assessment, personality prediction, and video-based communication**.**

6. Conclusion:

In this present day method, we have measured the overall performance of man or woman and merged audio/visible fashions for human self belief classification and confirmed their feasibility. we've got additionally applied the independently built audio model on the audio extracts of the video records. we plan to construct a multimodal version by way of combining the raw information or the feature illustration of the 2 procedures. contemporary research focuses on the fundamental functions of the face which include the mouth and the attention. to be able to lessen the number of fake classifications, we plan to encompass greater functions to render it greater efficiently. the records collection technique is ongoing; subsequently, we're considering the possibility to increase the proposed approach with greater records as well. the approaching paintings have to additionally keep in mind the usage of a rnn-primarily based reminiscence community with multi-hop attention modeling. additionally, the capacity to visualise the eye can also deliver a feel of interpretability to the version, as it will permit us to analyze which utterances in the conversational records provide vital self assurance cues for the contemporary confidence degree of the applicants. we've got plans to use special contextual window sizes-primarily based recurrent neural community (dcws-rnns) to growth the performance of the model with present features. the cutting-edge work consists of picture-by means of-image analysis of video statistics. in destiny, we plan to work with time series nature of video information .

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