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## AI BASED PERSONALITY PREDICTION

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**Abstract-** Our Project shows that textual content of answers to standard interview questions related to past behaviour and situational judgement can be used to reliably infer personality traits. The ability to measure an applicant's personality in the selection process helps recruiters, hiring managers and the applicant make better hiring decisions. We'll be using data from over many job applicants who completed an online chat interview that also included a personality questionnaire based on the six-factor HEXACO personality model to rate their personality. Using natural language processing (NLP) and machine learning methods we've build a regression model to infer HEXACO trait values from textual content. We'll be comparing the performance of five different text representation methods and found that term frequency-inverse document frequency (TF-IDF) with Latent Dirichlet Allocation (LDA) topics performed the best with an average correlation. We've further validated our model candidates to those who used an agreement scale of yes/no/maybe to rate the individual trait descriptors generated based on the model outcomes. The ability of algorithms to objectively infer a candidate's

personality using only the textual content of interview answers presents significant opportunities to remove the subjective biases involved in human interviewer judgement of candidate personality.

**Index Terms :-** HEXACO personality traits, linguistic analysis, personality prediction, natural language processing.

### INTRODUCTION

Organizational psychologists have long hypothesised that one's personality is closely related to his job performance, job satisfaction and tenure intention. The research outcomes suggest that the work is more enjoyable and thus engaging to the individual and beneficial to the employer and the society at large when there is congruence between one's personality and career. However, conducting a personality test adds an extra cost to the recruitment process and also tend to diminish candidate experience as personality tests are less favoured by candidates compared to other methods such as job interviews. Hence personality tests are not as present as the employment interviews, the most widely used selection method in the past years.

The AI based personality detection projects helps to predict the personality of the candidate through some of the open ended questions. The personality is detected through the use of artificial intelligence by using the Naive Bayes algorithm and the TF-IDF with

LDA function available in artificial intelligence only. The system will have three basic modules which are the Company's login module, the HR's login module and the Candidate's login module. We hypothesized that the textual content of answers given by candidates to questions of past behaviour and situational judgement to include patterns that are correlated with their personality.

The widely accepted approach to testing for personality in the recruitment process is to use a personality inventory such as NEO-PI-R, HEXACO-PI-R or a similar personality question based on either the five or six factor model of personality.

The questions asked in a structured interview are derived using a job analysis as opposed to interviewer preference and are typically based on past behaviour and situational judgement. Company has the authority to post the job vacancies and add the HR while viewing the selected candidates after the HR has shortlisted them based on their performance. HR can then view the candidate details ie. the form which the candidate has filled and the score of the candidate. Whereas in the Candidate login, the candidate has to initially sign up and then has to select the position for which he/she has to apply and accordingly fill the form. after the form is being filled, he /she has to attempt the personality prediction test and his score is evaluated automatically. This score is then visible at the HR's end and he/she has the right to select or deselect the candidate. and the selected candidates can be seen at the company's login. This system helps companies to hire expert candidates which result in the growth of the company.

It saves a lot of time of the Human resource department by simplifying the hiring process. Helps HR to shortlist resumes quickly based on the job description. Based on a meta-analysis of

multiple studies on application reaction to selection methods, We found that compared to job interviews and work sample tests, personality tests fall short of making a positive impression with candidates in areas of face validity, opportunity to perform, interpersonal warmth and respect for privacy. These indicate candidates' preference to express themselves and not be

restricted to self-rating themselves on a pre-defined set of multiple-choice questions as found in the personality tests.

## IDENTIFY, RESEARCH AND COLLECT IDEA

### Summary of articles

1 .Name of paper-the big five personality dimension and job performance: a metaanalysis

Technology used-AI and NLP

Limitations-This model was able to guess the personality in terms of extraversion, conscientiousness, and openness to experience only

Paper by barrik and mount in (2009)

2 .Name of paper-big five personality traits and turnover intentions among employees

Technology used-AI and NLP

Limitations-This model lacks to predict the potential while just judging the companies employee

Paper by phongs and marican (2015)

3. Name of paper-predicting personality using answer to open ended questions.

Technology used-AI

Limitations-this system lags to predict the nature of the candidate but was able to predict his skills.

## CONCLUSION

In this project we have presented how open-vocabulary approaches in natural language processing alongside machine learning can be utilized to infer one's personality from their language use in a recruitment interview setting. Using data from individuals who answered open-ended interview questions and a HEXACO based personality assessment, we built regression models for each each trait and thus the personality got predicted and pupil's recruitment is decided. Given the well-established relationship between one's personality and job satisfaction, performance and tenure intention we find the above outcome to be significant in at least two ways. Firstly the ability of algorithms to objectively infer a candidate's personality using only the textual content of interview answers could remove the subjective biases involved in human interviewer judgement of personality. Secondly, algorithmic inference of personality can enable every job applicant to respond to open-ended interview questions, regardless of the applicant volume, and their personality profiles

generated at scale. This is near impossible if a human is to interview each applicant in roles where large volumes apply. Giving every candidate an opportunity to express themselves and being assessed as equals by the same algorithm significantly elevate the individual fairness of the selection process.

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