iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** IV **Month of publication:** April 2022

DOI: https://doi.org/10.22214/ijraset.2022.41359

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue IV Apr 2022- Available at www.ijraset.com

Personality Prediction with CV Analysis

Rutuja Narwade[1], Srujami Palkar[2], Isha Zade[3], Nidhi Sanghavi[4]
[1, 2, 3]*Student, Computer Engineering Department, Atharva College of Engineering, Mumbai University*
[4]*Assistant Professor, Computer Engineering Department, Atharva College of Engineering, Mumbai University*

Abstract: ***When it comes to demography, personality plays a crucial role in deciphering a person's caliber and work ethic. An individual's personality becomes a vital resource for the organization that he/she works for. One way to adjudicate an individual's personality is to frame a questionnaire or by analysis of their resume (CV). In the traditional sense, when it comes to hiring an individual, employers manually filter through the applicants' CVs as per the job description. In this paper, we render a system that motorizes the eligibility check and aptitude evaluation of a candidate in the shortlisting strategy. To overcome the predicaments encountered in the traditional procedure, a web application has been curated for aptitude analysis (personality evaluation) and CV analysis. The system's primary aim is to analyze the professional ability of the candidate based on the uploaded CV and the prepared questionnaire. The system employs Natural Language Processing (NLP) for the CV analysis and Machine Learning (ML) for the personality evaluation. The output of the curated system aids in applicant filtering. Further, the resulting scores help in evaluating the qualities of the applicant such as the kind of mindset he/she has and the skills he/she has accumulated over time. This approach has been proposed keeping in mind the hurdles encountered while analyzing an applicant during the hiring process and aims in providing a seamless system that will be able to aid in making a fair decision in the selection process.***

Keywords: Personality Prediction, CV Analysis, Machine Learning, Natural Language Processing, Big Five Personality Model, Psychometric Analysis, Hiring, and Selection.

I. INTRODUCTION

When the hiring and selection process comes into the picture, filtering through applicants and picking an individual who is apt for the job is a crucial and cumbersome process. Conduction of group discussions, aptitude tests, emotional quotient tests, and interviews were the traditional way to go about it. Due to the gradual rise of social media, more information about the employees has been made available on the internet. Such information, in general, is unperceived by employers. The traditional practices which have been employed in the selection of an applicant until date are tedious and do not always result in the fair selection of an applicant. As opposed to the traditional hiring strategy, if a web application is curated for the selection of an applicant, then the chances of a fair decision being made will increase marginally. Personality is a very important factor that comes into play while adjudicating an individual. An apt judgment about a person's mindset is difficult but we have put forward an approach that will evaluate an individual's personality and also aid in providing a recommendation concerning hiring and selection. In this paper, we propose an NLP (Natural Language Processing) and Machine Learning (ML) based method to get an individual's personality score as well as identify their work and interpersonal skills. The personality of the applicant would be identified using a personality questionnaire and their skills will be determined with the help of CV analysis. The administrator module of the web application is responsible to design, update and drop the questions and has complete control to customize the personality questionnaire as per the needs of the organization. The questionnaire curated is based on the Big Five Personality Model which aids in the psychometric analysis of an individual. The five traits to be measured are OCEAN: openness, conscientiousness, extraversion, agreeableness, and neuroticism. These traits remain relatively stable throughout an individual's timeline so the chances of them changing are negligible resulting in a stable output from the system. In the CV analysis module, the uploaded CV of the applicants is parsed line by line and the skills of the candidate are made known to the employers with the help of Natural Language Processing. The personality scores and the skills are then made available as outputs to both the candidate and the administrator. The scores will then aid in deciding whether the candidate is appropriate for the job role or not.

II. LITERATURE SURVEY

The Authors in [1] implemented a system wherein the candidate has to go through various aptitude tests as well as personality tests formulated by the organization. The system uses the Big Five Personality dataset and uses a multinomial logistic regression algorithm for predicting the personality of a candidate. The proposed system can be used for recruiting employees in an unbiased and transparent manner by companies.

©IJRASET: All Rights are Reserved

The Authors in [2] proposed a system wherein the system analyses vast user temperaments and behaviors and based on the patterns observed, it stores its user characteristics patterns in a database. This system uses the Naive Bayes algorithm, Support Vector Machines. This system is useful to predict new user personality on a large scale based on personality data stored by classification of previous user data.

The Authors in [3] presented a system that automates the eligibility screening and assessment of applicants in the process of recruiting, wherein the system goes through a candidate's CV and parses information from a CV. The proposed system uses Machine Learning Approach. The result of the system would help in shortlisting a candidate, rejecting, or asking for more information to assess the eligibility of the candidates.

The Authors in [4] propose several new research directions regarding the problem of Automated Personality Classification (APC). Firstly, we investigate possible improvements to the existing solutions to the problem of APC, for which we use different combinations of the APC corpora, psychological trait measurements, and learning algorithms. Afterward, we consider extensions of the APC problem and the related tasks, such as dynamical APC and detecting personality inconsistency in a text. This entire research was performed in the context of social networks and the related data mining mechanisms.

The Authors in [5] presented an automated resume evaluation tool called "Career Mapper" and illustrate how Career Mapper evaluates professional resumes. Further, it demonstrated key examples of how Career Mapper makes recommendations for different sections of the user's resume by scanning through and deriving insights from a large pool of other resumes. Using this automated resume evaluation tool, users can quickly have their resumes evaluated and appropriate recommendations displayed in a user-friendly web interface.

The Authors in [6] proposed a content-based recommendation Algorithm that extends and updates the Minkowski distance to address the challenge of matching people and jobs. The proposed algorithm FoDRA (Four Dimensions Recommendation Algorithm) quantifies the suitability of a job seeker for a job position in a more flexible way, using a structured form of the job and the candidate's profile, produced from a content analysis of the unstructured form of the job description and the candidate's CV. We conduct an experimental evaluation to check the quality and the effectiveness of FoDRA. Our primary study shows that FoDRA produces promising results and creates new prospects in the area of Job Recommender Systems (JRSs).

The Authors in [7] proposed a novel approach to predict the personality of a person in online hiring processes, to automate candidate pre-screening. It proposed a series of procedures and strategies that will make the recruiting process easier, more reliable, and more efficient. Our key goal is to restrict the rounds of interviews and background analysis of the applicants exclusively to those capable of being recognized by the organization in terms of their attributes and the criteria of the organization.

The Authors in [8] examine the five-factor model, a tool used for dimensionally studying personality. Aspects of the model given attention include the specific variables in the model, other related models, and clinical applications of the model. The quality of the model is then evaluated based on five criteria: compatibility, originality, application, taxonomy, and universality.

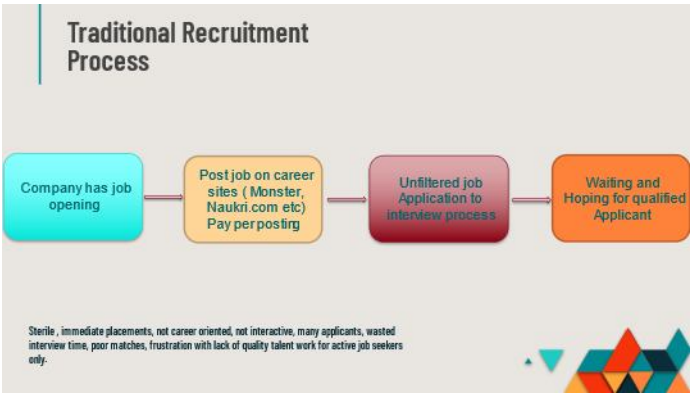
The Authors in [9] presented a protocol for advanced psychometric analysis that is based on the Standards of Educational and Psychological Testing (the Standards), considered "best practice" in instrument development and psychometrics. The authors illustrated the newly developed psychometric protocol using the Alberta Context Tool (ACT) as an exemplar survey to which it can be applied.

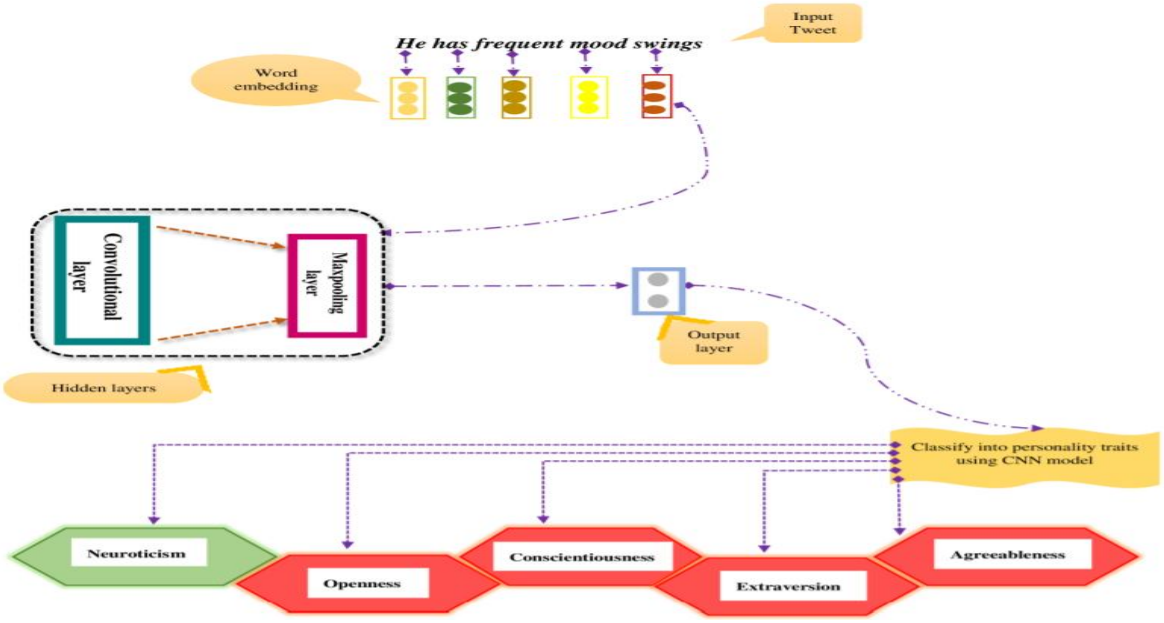
The Authors in [10] proposed an automated job recruiting process along with psychometric analysis. The focus had been given to automating the job application and CV processing system. The authors made a social networking website for the job seekers and employers are proposed to develop which will forward CV to the desired company or organizations automatically by matching the required criteria instead of the traditional job searching and application process.

The Authors in [11] revealed how the GFP, as a presumed social effectiveness factor, translates the day-to-day social experiences. Using an extensive diary design, high GFP individuals were found to experience fewer interpersonal conflicts and were less negatively influenced by potentially disruptive social events.

III.DISCUSSION

For every organization, it is imperative to have the right person for the right job. Recruitment and selection play a vital role in this situation. Shortage of skills and the use of new technologies are putting considerable pressure on how employers go about hiring and selecting the right staff. It is recommended to carry out a strategic analysis of the Recruitment and Selection procedure. A Formal definition states, "It is the process of finding and attracting capable candidates for employment. The process begins when recruits are sought and ends when their applications are selected. The system is needed for providing ease in the shortlisting process for the Recruitment and Selection process to be fair.





IV. CONCLUSIONS

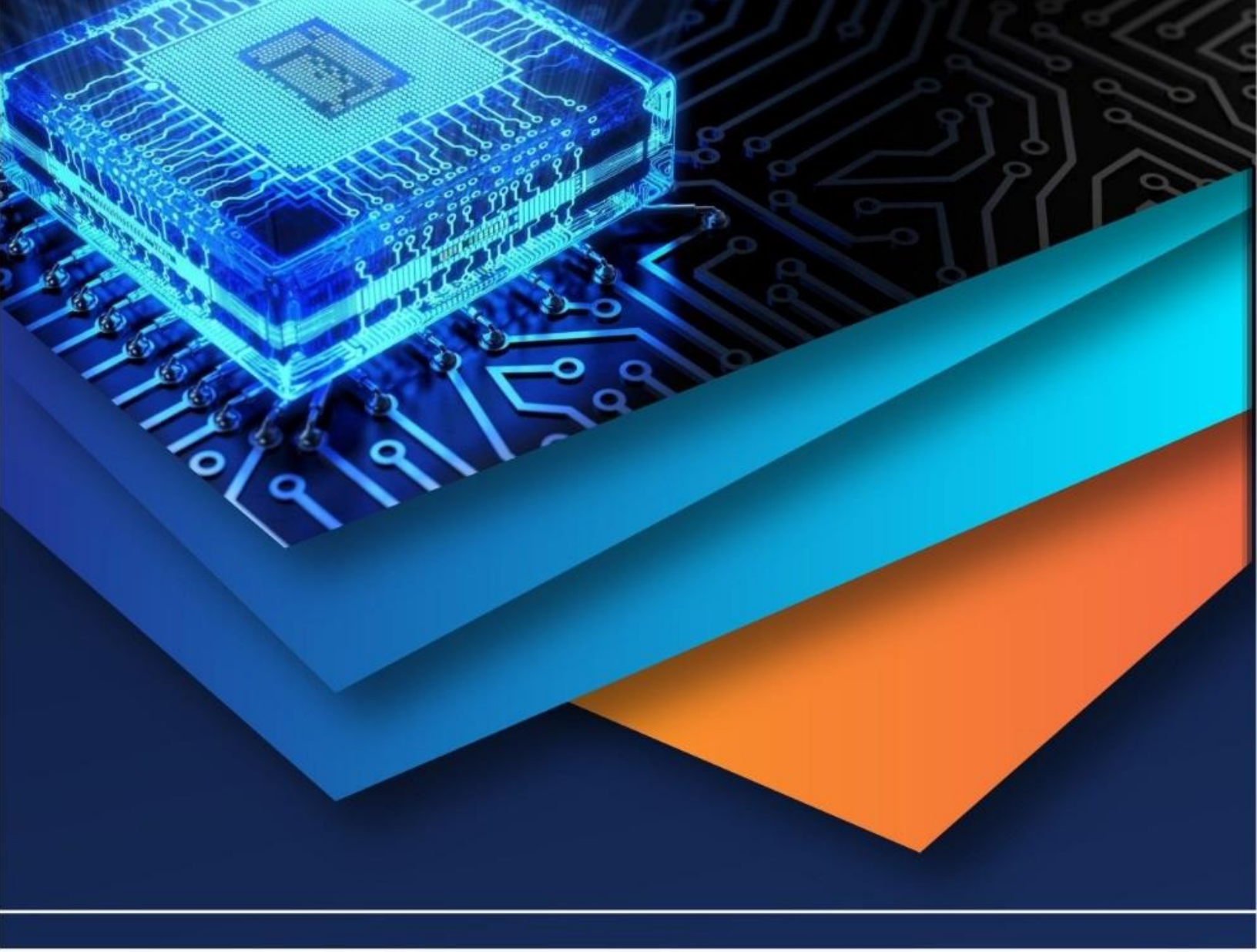
In the age of the internet, the applicants and the employers can easily go about the application and the recruiting process respectively. We put forward an online application-based recruiting approach to assist the employers' hiring committee in selecting the most appropriate applicant suitable for the job description. This framework can be used in a multitude of business sectors that need apt candidates, reducing the stressful workload on the hiring department while aiding in making the best possible decision. With the quantitative and qualitative analysis of the applicant, an NLP and ML-based method was used in the data analysis of the candidate. Furthermore, we can modify the existing system by integrating AI to provide added functionalities. We can also integrate more machine learning methods to add functionalities such as recommending a job to the applicant based on the skills the applicant has. This system has been curated keeping in mind the best interests of the candidates as well as the employers.

V. ACKNOWLEDGMENT

We would like to express our heartfelt gratitude to our college *Atharva College of Engineering* for giving us a platform to prepare a project on the topic "Personality Prediction through CV Analysis" and would like to thank our Principal Dr. Shrikant Kallurkar for providing us with the urge to research this topic and giving us the time and opportunity to conduct research and present the topic. We are deeply grateful for having Dr. Suvarna Pansambal, Head of the Computer Engineering Department, and our project coordinator Asst Prof. Nidhi Sanghavi provide us with their resourceful guidance. We are sincerely grateful to all our professors and college authorities who took out time amidst their busy schedules throughout the project for giving expert supervision, encouragement, and constructive criticism.

REFERENCES

[1] Aditi Chandrashekar, 2Santhini Nadar, 3Shreya Ganesh, 4Mrinal Khadse "Online Recruitment System and Personality Prediction" International Journal for Research in Engineering Application and Management (IJREAM), April 2021.
[2] Manasi Ombhas, Prajakta Gogate, Tejas Patil, Karan Nair "Automated Personality Classification Using Data Mining Techniques**",** April 2017.
[3] Rabih Haddad, Eunika Mercier-Laurent. "Curriculum Vitae Evaluation using Machine Learning Approach". Artificial Intelligence for Knowledge Management IFIP AICT 614, 2021. hal-03496596
[4] Aleksandar Kartelj; Vladimir Filipović; Veljko Milutinović." Novel Approaches to Automated Personality Classification: Ideas and their Potential".
[5] Vivian LAI, Kyong Jin SHIM, Richard J. OENTARYO, Philips K. PRASETYO, Casey VU, Ee-peng LIM, and David LO:" Career Mapper: An Automated Resume Evaluation Tool".
[6] Nikolaos D. Almalis Dept. of Informatics, University of Piraeus, Piraeus, Greece; George A. Tsihrintzis; Nikolaos Karagiannis; Aggeliki D. Strati:" FoDRA — " A new content-based job recommendation algorithm for job seeking and recruiting"
[7] Dhokley, Waheeda and Jehangir, Randeria and Sarwar, Shaikh and Rashid, Shaikh:" A Novel Approach to Predict Personality of a Person".
[8] Nathan C. Popkins: The Five-Factor Model: Emergence of a Taxonomic Model for Personality Psychology".
[9] Janet E. Squires, Leslie Hayduk, Alison M. Hutchinson, Lisa A Cranley, Mark Gierl, Greta G. Cummings, Peter G. Norton, and Carole A. Estabrooks, "A Protocol for Advanced Psychometric Assessment of Surveys", Nursing Research and Practice Volume 2013 (2013), Article ID156782,20 December 2012.
[10] Automated CV Processing along with Psychometric Analysis in Job Recruiting Process Firoz Ahmed, Mehrin Anannya 2, Tanvir Rahman 3, Risala Tasin Khan4Institute of Information Technology, May 2015.
[11] L D. van der, J te Nijenhuis, et al. The General Factor of Personality: A meta-analysis of Big Five intercorrelations and a criterion-related validity study. Journal of Research in Personality 2010; 44: 315-327.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)