

# PERSONALITY PREDICTION THROUGH CV ANALYSIS

ASNA M  
SHAHNA P E  
NISHIDA SHERI N K  
SAFVANA JASMIN C K  
JASHIRA P

## Abstract

Personality prediction through CV analysis refers to the process of using a candidate's resume or curriculum vitae to predict their personality traits. This is typically done through the use of natural language processing and machine learning algorithms, which analyse the language used in the CV to identify patterns and characteristics that are associated with specific personality traits. The goal of this type of analysis is to provide insights into a candidate's suitability for a role, their work style, and their potential to fit into a company's culture. Some of the most commonly predicted personality traits include extroversion , neuroticism , agreeableness , openness and conscientiousness. However, it is important to note that CV analysis is just one tool among many for predicting personality, and its results should be interpreted with caution.

## Introduction

Personality prediction through CV (Curriculum Vitae) analysis is a project that aims to analyse the text of a job applicant's CV and predict their personality traits. The goal of this project is to automate the process of screening job applicants based on their CVs and to provide hiring managers

with insights into the candidate's personality before the interview stage. The project will involve using natural language processing (NLP) techniques to extract relevant information from the CV, such as education, work experience, skills, and achievements. Then, machine learning algorithms will be used to analyse the extracted data and predict the candidate's personality traits, such as extroversion, conscientiousness, openness, agreeableness, and emotional stability. The project will require a large dataset of CVs and corresponding personality assessments to train the machine learning models. The accuracy of the predictions will depend on the quality and quantity of the data used to train the models. The project could be useful for companies looking to streamline their hiring process and make more informed decisions about job applicants.

### **Problem Definition**

Companies typically receive thousands of applications per job opening and have a dedicated team of screeners to select qualified candidates. It is very difficult for human beings to manually go through the CV of all applicants. Many candidates get filtered out in the first round itself on the basis of suitability, improper CV, not being skilled enough. Hiring the right candidate is a very difficult task as no candidate is perfect, some might not be skilled enough or some might not have the right personality. Hence, we propose a way in which the process of shortlisting gets streamlined and faster by personality prediction.

### **Project Overview**

Personality prediction through CV analysis is a project that aims to predict an individual's personality traits by analyzing their CV or resume. The project involves using data analysis and machine learning techniques to extract relevant features from the CV, which are then used to predict the individual's

personality traits. The project typically involves collecting CV data from various sources such as job portals or company websites. The data is then preprocessed to extract relevant information such as education, work experience, skills, and personal interests. Natural Language Processing (NLP) techniques can also be used to analyze the text in the CV and extract additional information such as language proficiency, communication skills, and job responsibilities. The preprocessed data is then used to train a machine learning model that can predict an individual's personality traits. The machine learning model can be of various types such as regression, classification, or clustering. Regression models are used to predict continuous variables such as the level of extroversion or introversion, while classification models are used to predict categorical variables such as the Big Five personality traits. The results of the personality prediction project can have various applications such as in the field of human resources. For example, it can be used to identify the best candidates for a particular job based on their personality traits or to identify individuals who are a good fit for a particular company culture.

## **Methodology**

The methodology of personality prediction through CV analysis implements spiral model of SDLC and involves several steps:

- **Data Collection:** The first step is to gather the individual's CV, which includes their personal information, educational background, work experience, and other relevant details.
- **Text Pre-processing:** In this step, the CV is cleaned, and irrelevant information is removed. This includes removing stop words, punctuations, and transforming the text into numerical representations.

- **Feature Extraction:**In this step, important features are extracted from the text. This includes keywords, phrases, and patterns that can give insights into the individual's personality.
- **Personality Modeling:**In this step, the extracted features are fed into a machine learning algorithm to predict the individual's personality traits. The algorithm uses previously trained data to determine the most likely personality type based on the features.
- **Personality Evaluation:**The final step is to evaluate the results of the personality prediction. This includes comparing the predicted personality traits with the individual's self-reported personality and evaluating the accuracy of the prediction.

### **Purpose**

- **Recruitment:** The results of personality prediction can be used to evaluate an applicant's suitability for a particular job role. This can help employers make informed decisions about who to hire, and improve the chances of finding a good fit for the company culture.
- **Personal Development:** The results of personality prediction can help individuals understand their own strengths, weaknesses, and tendencies, which can be useful for personal growth and development.
- **Conflict Resolution:** Understanding an individual's personality traits can help in resolving conflicts and improving communication between team members in a workplace.

### **Scope**

model or tool that can predict potential areas of workplace performance and derailment based on the analysis of a candidate's CV. The project team would need to define the specific research questions and hypotheses that will guide the project.

Identifying the data sources: The project would require a large dataset of CVs and validated personality assessments to train and test the prediction model. The data sources could include publicly available datasets, data purchased from third-party vendors, or data collected by the project team.

Developing the prediction model: The project team would need to select and develop a validated personality assessment model that can be used to predict potential areas of workplace performance and derailment based on the information extracted from the CVs. The team would need to identify the most relevant variables that will be used in the prediction model and develop an algorithm that can effectively predict personality traits.

Developing the software tool: The project would require the development of a software tool or application that can automate the process of CV analysis and personality prediction using the selected personality assessment model. The tool should be user-friendly and capable of generating reports that are easily interpretable by HR professionals.

Validating the model: The project team would need to validate the prediction model by testing it on a dataset of CVs with known personality assessments. The team would need to evaluate the performance of the prediction model using various performance metrics such as accuracy, precision, and recall.

Piloting the software tool: The project team would need to pilot the software tool in real-world recruitment and selection processes to evaluate its effectiveness in predicting potential areas of workplace performance and derailment. The team would need to gather feedback from HR professionals and make necessary modifications to the tool.

Finalizing the project: The final step would involve finalizing the project deliverables, documenting the project outcomes, and preparing the project for dissemination to stakeholders.

### **Existing System**

A traditional or non-automated approach to personality prediction through CV analysis, then it would typically involve manual review and analysis of the candidate's CV by a human hiring manager or recruiter. This manual approach would typically involve looking for specific keywords or phrases that may indicate certain personality traits, such as leadership experience, teamwork skills, or attention to detail. The hiring manager would also consider other factors such as the candidate's education, work experience, and accomplishments. Based on this analysis, the hiring manager would make a subjective judgment about the candidate's personality traits and whether they would be a good fit for the role. While this approach can be effective in certain cases, it is time-consuming and can be subject to biases or errors in judgment.

### **Disadvantages Existing System**

- **Bias and Subjectivity:** The traditional system relies heavily on the judgment of the interviewer or assessor, which can introduce bias and subjectivity into the assessment. Different assessors may interpret the same behaviors or responses differently, leading to inconsistent results.
- **Cost and Time:** The traditional system can be costly and time-consuming, as it often involves multiple assessments and interviews. This can make it difficult to assess a large number of candidates quickly and efficiently.

- **Limited Scope:** The traditional system may only focus on certain aspects of a person's personality, such as their behavior in specific situations, and may not provide a comprehensive picture of their overall personality traits and characteristics.
- **Invasive Nature:** Some people may feel uncomfortable or intimidated by the traditional assessment process, which may involve personal questions and detailed analyses of their behavior and thought processes.
- **Potential for Error:** The traditional system is not foolproof and can sometimes produce inaccurate results. Assessors may misinterpret behaviors or make errors in their judgments, which can lead to incorrect predictions about a person's personality.
- **Ethical Concerns:** There are ethical concerns related to the traditional system, including issues of privacy, confidentiality, and discrimination. It is important to ensure that assessments are conducted in a fair and ethical manner, and that the results are not used to discriminate against certain groups of people.

### **Proposed System**

A proposed system for personality prediction through CV analysis would involve the use of artificial intelligence and machine learning algorithms to analyze data from a person's CV and make predictions about their personality traits and characteristics.

The system would be designed to identify patterns and correlations between the information provided in a person's CV and their personality traits, using advanced algorithms to make accurate predictions. The system could take into account factors such as a person's job experience, educational background, and skillset, as well as any other relevant information that may be available.

One potential advantage of such a system is that it would be highly efficient and cost-effective, allowing for large-scale personality assessments to be conducted quickly and easily. It could also be designed to be highly accurate and objective, avoiding some of the biases and subjectivity that can be associated with traditional assessment methods.

However, there are also potential drawbacks to this proposed system. For example, there may be limitations to the amount and type of data that can be extracted from a person's CV, which could lead to incomplete or inaccurate predictions. Additionally, there may be concerns related to privacy and data security, as personal information is used to make predictions about a person's personality.

Overall, a proposed system for personality prediction through CV analysis would need to carefully balance the potential benefits with the potential drawbacks, and should be designed and implemented in a responsible and ethical manner.

#### **Advantages of proposed system**

- **Efficient and Cost-Effective:**

Using CV analysis for personality prediction can be more efficient and cost-effective than traditional methods of personality assessment, such as interviews or psychometric tests, which can be time-consuming and expensive.

- **Objective and Standardized:**

Personality prediction through CV analysis can provide an objective and standardized method for evaluating job candidates, as it uses data-driven algorithms that are less prone to biases and inconsistencies that can arise in subjective assessments.

- **More Comprehensive:**

Personality prediction through CV analysis can provide a more comprehensive assessment of a candidate's personality traits by analyzing a wide range of CV features, such as education, work experience, and extracurricular activities, which can reveal insights that may not be captured by traditional methods.

- **Improved Hiring Outcomes:**

By providing more accurate and comprehensive assessments of candidates' personality traits, CV analysis for personality prediction can lead to improved hiring outcomes, such as better job performance and higher job satisfaction, which can benefit both the employer and the employee.

- **Scalable:**

CV analysis for personality prediction can be easily scaled to analyze a large number of job candidates, making it a practical solution for organizations with high volumes of applicants.

## **Environmental Details**

Environmental requirements for the smooth functioning of this product could be configured based on the requirement needed by the component of the operating environment that works as front – end system. Here we suggest minimum configuration for both hardware and software components.

## **Hardware Specification**

- Processor : Core 2 Duo at 2.0GHz
- RAM : 1GB DDR2 RAM [Minimum]
- Monitor : Any Colour
- Keyboard : Standard Keyboard (120 keys)

- Mouse : Any
- Hard disk : 500GB [Minimum]
- Storage : 20 MB
- Network speed : 1 MBPS
- Android device

### **Software Specification**

- IDE: Pycharm, Android Studio, Sqlyog
- Frond End: Android, html
- Framework: Django
- Back End: MySQL
- Coding Language: HTML, CSS, js, Python, Java
- Operating System: Windows 10
- Web Server: Localhost

### **System Design**

The main users of the system are:

- Admin
- Company
- Candidate

#### **Admin**

This module will have the provision to do the following after the login process:

- Can access the entire database.
- Verifying the given information at the time of registration.
- Ensure that the database should be compatible to withstand the network traffic when multiple users access the database at a time.

### **Company**

They should register themselves with the administrator's database with proper documents to verify themselves. After login, they can do the following

- Add and Manage Job Vacancies
- Add Aptitude Questions
- View Prediction And shortlist Candidates
- View feedback
- Verify Job Request

### **Candidate**

This module will have the provision to do the following after the login process:

- Search For Companies and send Job Requests
- Check Request Status
- Upload CV
- Send Feedback
- View Shortlist
- Update Profile

## **CONCLUSION**

In conclusion, personality prediction through CV analysis can provide valuable insights into a candidate's personality traits. By analyzing the candidate's CV, we can identify patterns and behaviors that are indicative of certain personality traits, such as extraversion, conscientiousness, openness, agreeableness, and neuroticism. However, it is important to keep in mind that personality is a complex and multifaceted trait, and it is always advisable to

use multiple sources of information when evaluating candidates. CV analysis can be a useful tool in the hiring process, but it should not be the sole basis for making hiring decisions. Furthermore, it is important to ensure that the CV analysis process is fair and unbiased. Unconscious biases can affect the evaluation of personality traits, and it is important to minimize the impact of biases to ensure that the hiring process is fair and equitable. Overall, personality prediction through CV analysis can be a useful tool in the hiring process, but it should be used in conjunction with other sources of information and with an awareness of potential biases.

## **Bibliography**

### WEBSITE BIBLIOGRAPHY

- <https://stackoverflow.com/questions/25193275/run-code-after-rendering-django>
- <https://developer.android.com/studio>
- [https://docs.opencv.org/trunk/db/d28/tutorial\\_cascade\\_classifier.html](https://docs.opencv.org/trunk/db/d28/tutorial_cascade_classifier.html)

### REFERENCES

- Willian Jordon, “Python Django Web Development: The Ultimate Django web framework guide for Beginners”, Kindle Edition.
- Zigurd Mednieks, “Programming Android: Java Programming For The New Generation Of Mobile Devices”, Second Edition.
- Walter Shields, “SQL QuickStart Guide: The Simplified Beginner's Guide to Managing, Analyzing, and Manipulating Data With SQL”