

# MACHINE LEARNING-BASED CV ANALYSER

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## ABSTRACT

*In today's competitive job market, the efficiency of the recruitment process is crucial. This paper details the creation and deployment of a machine learning-driven CV analyzer, designed to automate the early phases of candidate selection. By utilizing Computational Linguistics. Techniques and machine learning algorithms, the system examines and assesses resumes to pinpoint top applicants for designated positions.*

*The proposed system employs a multi-step process beginning with data preprocessing, where resumes are converted into a standardized format. Key attributes like education, experience, skills, and certifications are Identified through named entity extraction and part-of-speech (POS) tagging. These attributes are subsequently employed to train a classifier model, which ranks candidates according to their suitability for the job description.*

*The performance of the model is evaluated using a dataset of resumes and corresponding job descriptions. Performance metrics such as precision, recall, and F1-score are utilized to evaluate the precision and reliability of the system.*

*This study highlights the potential of machine learning to enhance the recruitment process by making it quicker, more objective, and scalable. Future improvements could involve integrating the system with applicant tracking systems (ATS) and incorporating feedback mechanisms to continuously refine model performance.*

**KEYWORDS:** *Machine Learning , CV Resume Analysis , Recruitment Automation, Applicant Tracked System ( ATS )*

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## 1.INTRODUCTION

The recruitment process is a critical function in any organization, impacting its ability to acquire top talent and maintain a competitive edge. Traditional methods of resume screening are often labor-intensive, time-consuming, and prone to human biases. With the ever-increasing volume of

Utilizing these technologies enables the advancement of systems that can accurately and quickly analyze and evaluate resumes. A machine learning-based CV resume analyzer can greatly reduce the manual effort required in the early stages of candidate selection, allowing recruiters to concentrate on more strategic tasks.

By incorporating machine learning into the recruitment process, this research aims to advance the progression of more efficient, accurate, and scalable hiring practices. The study's results carry significant consequences for human resource management, providing a pathway to more effective talent acquisition in an increasingly competitive job market.

## 2.COMPONENTS RELATED TO THE PROJECT

The project revolves around developing a machine learning-based CV resume analyzer that automates and enhances the initial stages of candidate selection in recruitment processes.

### 2.1. Data Collection and Pre Processing

Gathering a diverse dataset of resumes and corresponding job descriptions from various sources. Cleaning and standardizing the resume data to ensure consistency in format and content. This involves as like text normalization, removing irrelevant information, and handling missing data.



### 2.2 Computational Linguistics.

**Techniques:** Identifying and extracting entities such as names, skills, education, and experience from resumes.

Assigning grammatical tags to words to understand their roles in sentences, which helps in extracting meaningful information.



**2.3 Feature Extraction:** Relevant features from resumes, including educational background, work experience, skills, certifications, and achievements, are extracted. This process involves converting textual information into formats that are suitable for machine learning algorithms.

Flexibility refers to the range of motion at a joint and can be improved through activities that stretch muscles. Effective methods include stretching exercises, yoga, Pilates, swimming, and cycling.

Developing algorithms that assign scores or rankings to resumes grounded in the similarity and relevance of extracted features to the job requirements.



### 3. DEPLOYMENT

#### 3.1 Deployment Environment

Choose between deploying the system on cloud infrastructure (e.g., AWS, Azure, Google Cloud) or on-premise servers based on scalability needs, security requirements, and cost considerations. Cloud deployment offers scalability, flexibility, and managed services, while on-premise deployment provides maximum control over data and compliance.

#### 3.2 Deployment Environment



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#### 3.3 Security and Compliance

Establish strong security protocols to ensure safety. protect candidate data stored and processed by the system. Use encryption techniques for data at rest and in transit, enforce access control mechanisms, and conduct regular security audits.

Guarantee adherence to data protection laws. (e.g., GDPR, HIPAA) and industry standards relevant to recruitment and HR practices. Implement policies and procedures for data handling, user consent management, and incident response.



## 5.CONCLUSION

In conclusion, the deployment of a machine learning-based CV resume analyzer represents a transformative step towards Improving efficiency and accuracy in recruitment processes is essential. The incorporation of these technologies allows for the automated extraction of essential candidate qualifications and their alignment with job criteria, promoting more informed and objective decision-making by recruiters.

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