AUTOMATED RESUME SCREENING USING NATURAL LANGUAGE PROCESSING

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Abstract: *The most reliable candidates for the job should be in the careful attention to the job posting, completed during the evaluation of the CV that uses NLP in recruiting. Resume analytic is now more time efficient than manual analytic because of trends in deep learning and natural language processing (NLP). In this article, we look at some of the current computerized resume analysis methods. In order to increase the accuracy and efficiency of the analysis process, this method uses the spread of the method created by the deep method of deep learning, changing learning, genetic algorithms, and multiple recording environments. In addition, some studies investigate the use of descriptive methods to improve the validity of the analysis. The experimental results of this research show that the proposed strategy is more effective than traditional methods. The results of this study can help human resources workers and recruiters to adjust the recruitment process to accurately and fairly identify potential candidates.*

I INTRODUCTION

An important step in the hiring process is resume evaluation, which includes analyzing activities to find the best candidate for a job. This process is time-consuming and prone to human error, which can lead to a lack of qualified personnel. Automated resume scanning has recently gained popularity as a method to solve this problem. Automated resume scanning uses a variety of techniques to improve accuracy and efficiency, including deep learning algorithms, machine learning, and natural language processing (NLP).

Many studies have shown many ideas for automating resume screening. Lee et al. (2020) added a deep learning framework that uses short-term memory networks (LSTM) and constitutional neural networks (CNN) [6].

Project scope:

The main objective of the CV analysis using NLP methods such as S-BERT [9] and cosine similarity is to develop automated methods capable of efficiently removing and scoring jobs based on their overall similarity with the job description. CV resources are listed and then taken into account. With the CV parser package, important statistics from the CV are extracted.

Objective

The main goal of using NLP algorithms for CV analysis, along with Cosine Similarity and S-BERT, is to ensure that more qualified people make the decisions and pay more attention, even to the use of superficial processes. The particular dream of the recruitment process is to become more powerful through the work of the assessment process. Providing the best way to reduce the risk of bias in training analysis by using modern NLP algorithms such as cosine similarity and S-BERT to improve re-evaluation, fact-checking. Blow up numerous resumes while saving time and money by eliminating the need for human analysis. To improve the candidate experience, there is a faster and more powerful analysis. Improve the quality of employment.

II LITERATURE SURVEY

In 2021, Nandhini S, Gomathi S and Lavanya S published "Research on the Application of Questionnaire" in the International Journal of Advanced Research in Computer Science and Software Engineering. This study introduces a resume analysis program that extracts information from resumes using NLP techniques and aligns them according to their suitability for the job description.

"Resume Crimatization Using Natural Language Processing and Machine Learning" was published by Kondapalli Sai Pranay in the International Journal of Current Technology and Engineering in 2020. The process described in this article uses NLP and machine learning to display the text back on the screen. and convert them to job descriptions.

In 2019, "Exploratory Research on Technology-Based Learning and Effectiveness" of Shweta Agrawal and Sumit Gupta was published in the International Journal of Innovative Technology and Exploratory Engineering. This study describes the use of cognitive and NLP tools to evaluate CVs and rate them according to their suitability for the job description.

The article "Research on Mobile Computing" by Aditi Kaushik and Shruti Jain was published in the International Journal of Computer Science and Mobile Computing in 2018.

Pradeep Kumar Mishra and Sanjay Kumar published "Resume Parsing and Analysis Using Natural Language Processing" in the International Journal of Innovative Research in Computing and Communication Engineering in 2017. resume using NLP techniques to extract true information, including intelligence and take advantage of them.

"Automatic CV filtering using machine learning," by Anindya Sarkar and Debajyoti Mukhopadhyay, was published in the International Journal of Engineering and Technology in 2016. The algorithm outlined in the paper examines CVs for using machine learning techniques and classify them according to their success. of the care with which they wrote the descriptive works.

III OVERVIEW OF THE SYSTEM

The system

Resume review technology tools use a coaching process in which recruiters or HR managers compare resumes based on their qualifications, interests, etc. Among the dominant methods are:

Taleo: This system is a cloud-based recruitment system that evaluates resumes and selects the right candidates for the given process using AI-based algorithms. Using herbs as language and learning, it compares text and the process of description primarily based on similarity [10].

Jobscan: is an online resume scanner that uses Applicant Analysis System (ATS) generation to evaluate resumes based on specific descriptions [5]. It examines the content, intelligence, and other relevant information to determine whether it works or not and repeats similar work.

Now automatically reviews the job model for relevance to the job description using NLP delivery, which includes location analysis, search semantics, and insights. The accuracy of these algorithms, however, requires success, especially when it comes to identifying the best candidates for the job.

Disadvantages of the existing system

Inadequate customization: Many resume reviews now rely on predefined methods or methods that may not be optimal for a particular process or company. Since the

percentage of positive and negative results is low, qualified candidates can be bypassed by selecting a larger number of unqualified candidates.

Focus a little: Some background checks are better at remembering a few points, which include keywords or previous years, leaving important information about the candidate's abilities or accomplishments.

Language discrimination: Lack of diversity among applicants is due to back-testing material that may be closely related to certain languages, key phrases, or cultures [2].

Poor analysis accuracy: The accuracy of NLP algorithms used to analyze the returned data may be affected by the use of configuration or consistency issues, which may result in data deletion.

Lack of content: The current resume screening process may not be based on a candidate's educational content, artistic interests, or abilities, leading to testing errors.

Proposed system

The tracing tool can extract useful features from the description function, reset them, and map them to length vectors. using S-BERT and cosine similarity [4]. Cosine similarity and S-BERT similarity scores

will be used to determine how similar the application performance is to the described process. The approach under investigation is to improve screening accuracy, reduce bias and ensure that the most convenient recipients are selected to achieve the best possible outcome, e.g.

Advantages of the proposed system

Improved accuracy: NLP algorithms, including SBERT and cosine, are equally effective at identifying relevant resumes for job descriptions. These algorithms are designed to understand the context of text and determine the meaning of words.

A big step forward: NLP algorithms can evaluate hundreds or thousands of resumes in minutes, making them a bit faster than manual analysis. Job seekers will thus save a lot of money and time [3].

NLP algorithms, including SBERT and cosine similarity, can be customized for specific workplaces, jobs, or employers to perform better background checks.

More precise matches: S-BERT and cosine similarity algorithms are designed for healthy candidates with descriptive criteria based on the relevance and similarity of their abilities, willingness and value.

Linguistic Autonomy: Hiring managers will find that evaluating the resumes of

candidates with a background in only one language is not easy thanks to the ability of NLP algorithms to translate rewritten words in different languages.

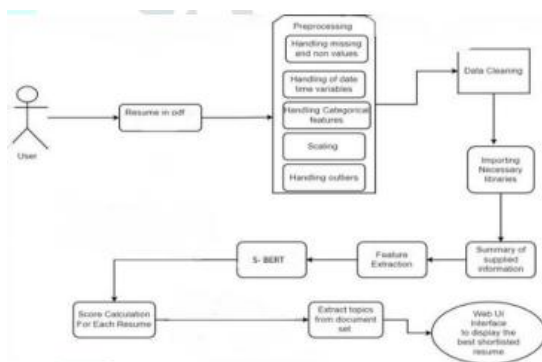Processing unstructured data: NLP algorithm.

IV ARCHITECTURE

Fig 1: Architecture of Automatic Review of Resumes

As shown in Figure 1. The automatic CV analysis method can be defined in the framework. Five steps lead to the entire CV evaluation process. We will now take a look at each step of the automatic resume review.

Five steps to automated resume review:

1. Collecting Information: There are many websites, including job boards, professional websites, and company websites, that can be used to collect resumes. Also, write a job description or requirements for the main job.

2. Preparation: In the first stage, remove all empty sentences, punctuation marks

and unnecessary information from CVs and process descriptions. Lemmatization, radicalization and tokenization are used at this stage to provide content tokens.

3. Search Features: Create word embedding from prepossessed resumes and job descriptions by extracting key features using NLP techniques like S-BERT. The corresponding semantic and normal meaning of the sentence is displayed in the embedding.

4. Ranking: Determine each job applicant's ranking as a candidate by calculating the cosine similarity score of their resume and job description. If the candidate has a similar cosine score, he will rank higher and perform better for the job.

5. Ineligible applicants: Applicants who do not get similar cosine scores shall be disqualified. Some applicants may have their services canceled or placed on a lower list for book review.

V RESULTS SCREEN SHOTS
Main page:

Fig 2: Main Page

The above image shows the main page of the Automated Resume Screening using

NLP.

Resume Screening:

Fig 3: Resume Screening

The above image shows the Resume Screening page of the Automated Resume Screening using NLP

Resume Upload:

Fig 4: Resume Upload

The above image shows the Resume Upload page of the Automated Resume Screening using NLP.

Resume Shortlist:

Fig 5: Resume Shortlist

The above image shows the Resume Shortlist page of the Automated Resume Screening using NLP.

View Resume:

Fig 6: View Resume

The above image shows the View Resume page of the Automated Resume Screening using NLP.

VI CONCLUSION

Marking this end, we will say that using NLP algorithms for regression analysis - such as SBERT and cosine similarity - gives more benefits than other methods. These algorithms are very special, efficient and flexible, and they are able to monitor false information, including texts rewritten in different languages. They can also

reduce discrimination of people and improve candidates, improve recruitment strategies. It is important to remember that algorithms have limitations and are not the best choice in all situations [11]. It is therefore important to use these algorithms as part of a broader recruitment process that also includes human decision-making and decision-making models. The use of NLP algorithms in recruiting, such as SBERT and cosine similarity, is a promising development that has the potential to improve the organization's candidate tracking and selection process.

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