

AI-Based Resume ATS Score Analyzer

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Abstract

The recruitment industry is using Applicant Tracking Systems (ATS) more and more to automatically screen resumes and select candidates. But many good candidates are not getting through the ATS filters because their resumes are not formatted correctly they are missing keywords and they do not match the job descriptions well.

This paper talks about an AI-Based Resume ATS Score Analyzer. It uses Artificial Intelligence (AI) Natural Language Processing (NLP) and Machine Learning to evaluate resumes. The system looks at the resume content. It compares it with the job descriptions. It finds matching keywords. It analyzes how similar the resume and job description are in meaning. It gives an ATS score that shows how suitable the candidate is for the job. The system also gives advice on how to make the resume

better and increase the chances of getting selected for the job. Tests show that the system is better at matching resumes with jobs. It also reduces the work recruiters have to do and makes the recruitment process more efficient. The solution helps both people looking for jobs and recruiters. It offers a easy-to-use and scalable platform, for evaluating resumes.

Keywords: Artificial Intelligence, Applicant Tracking System, Resume Analysis, Natural Language Processing, Machine Learning, Recruitment Automation

Introduction

When a company posts a job it gets thousands of resumes. This makes it really hard for people to look through all of them. That is why companies use computer programs called Applicant Tracking Systems to help sort through

resumes. Even though lots of companies use these systems many people who are looking for jobs do not know how they work. This means that some good candidates might not even get a chance for a human to look at their resume.

The AI-Based Resume ATS Score Analyzer is a tool that helps with this problem. It uses computer intelligence to look at resumes and figure out if they are a match for a job. It looks at things like the skills you have where you went to school and what you are certified in. This system is different from resume tools because it does not just look for certain keywords. It actually tries to understand what the words mean and how they fit with the job. It gives your resume a score. Tells you what skills you are missing. It even gives you advice on how to make your resume better.

The AI-Based Resume ATS Score Analyzer is like a helper for people looking for jobs and for the companies looking for employees. It helps companies find the right candidates for the job. The AI-Based Resume ATS Score Analyzer is a tool for both job seekers and recruiters and it really helps with the recruitment process and finding the best person, for the job, which is the AI-Based Resume ATS Score Analyzer.

Benefits of The System

The old way of looking at resumes is not as good as the AI-Based Resume ATS Score Analyzer. This new system is better because it uses Artificial Intelligence, Natural Language Processing and Machine Learning.

The AI-Based Resume ATS Score Analyzer can look at resumes and job descriptions. Compare them without anyone having to do it by hand. This means recruiters do not have to work hard and the hiring process is faster. The AI-Based Resume ATS Score Analyzer is very good at figuring out the ATS score for a resume. It can also find out what skills and keywords are missing from a resume. Then it tells the job seeker how to make their resume better.

The AI-Based Resume ATS Score Analyzer helps people make their resumes the way they should be so they can get a job in their industry. The AI-Based Resume ATS Score Analyzer is fast. It can match people with jobs very well. It also helps people make decisions about who to hire. It can be used with systems, like recruitment platforms and HR management systems.

This means any organization can use the AI-Based Resume ATS Score Analyzer, no matter how big or small it is.

Working of the System

The AI-Based Resume ATS Score Analyzer uses computer programs to evaluate resumes in a smart way. It accepts resumes in PDF, DOCX or TXT formats. The system then reads the text from these resumes. This text is cleaned up by breaking it down into parts removing common words like "the" and "and" and standardizing the words. The system finds information like skills, education, certifications, projects and work experience. It makes this information structured and easy to understand. The system then looks at the job description. It finds the important words and requirements for the job. The system compares the resume to the job requirements. It checks if the words in the resume match the words in the job description. It also checks if the resume makes sense in the context of the job. The system then gives a score. This score shows how good the candidate is, for the job. The system also gives feedback. It highlights skills that are missing, weak sections and formatting issues. This helps candidates make their resumes better and increases their chances of getting selected. The AI-Based Resume ATS Score Analyzer helps candidates improve their resumes. The system uses the resume and job description to provide this help. The feedback is based on the comparison of the resume and job description.

Objectives

The main goal of this project is to build a system that can automatically analyze resumes and give scores. This system will use simple language processing techniques to compare resumes, with job descriptions. It will check if a resume matches the job requirements. The system will find keywords skills that are not mentioned and formatting problems. It will also give suggestions on how to improve the resume. The other goals are: To make the recruiters work easier by automating tasks. To pick the candidates more accurately. To make the hiring process faster. To create a platform that educational institutions, job seekers, recruiters and companies can use easily.

Scope of the Project

The AI-Based Resume ATS Score Analyzer is a tool that helps make the recruitment and resume evaluation process better. It uses automation and intelligent analysis to do this. This project does a things like parsing resumes finding keywords identifying skills, generating ATS scores and matching job descriptions. Recruitment agencies, HR departments, career counseling centers, educational institutions and online job portals can use this tool. The system is designed in a way that makes it easy to add features later like job recommendation engines, cloud-based recruitment systems and professional networking platforms. The AI-Based Resume ATS Score Analyzer can be made better with things like support for many languages, AI-powered resume builders and advanced analytics. This will make the AI-Based Resume ATS Score Analyzer useful, in different industries and places.

Literature Survey

Jurafsky and Martin (2023) highlighted the importance of Natural Language Processing techniques in extracting meaningful information from unstructured textual data. Their research demonstrates how NLP methods can improve automated text analysis and information retrieval systems.

Devlin et al. (2019) introduced BERT, a transformer-based language model capable of understanding contextual relationships between words. Their work significantly improved text classification, semantic analysis, and natural language understanding applications.

Mikolov et al. (2013) proposed Word2Vec models for generating vector representations of words, enabling semantic similarity calculations and improving text processing efficiency in various machine learning applications.

Pedregosa et al. (2011) developed the Scikit-Learn framework, which provides efficient machine learning algorithms widely used for classification, clustering, and predictive modeling tasks.

Recent studies conducted by OpenAI (2024) and

industry researchers have demonstrated the effectiveness of AI-powered text analysis systems in recruitment, candidate evaluation, and intelligent recommendation generation.

Proposed System

The Resume Analyzer is made to fix the problems of systems that track job applicants. It uses ways of understanding language and learning from machines. The Resume Analyzer looks at resumes in a way by taking out important information and comparing it to job descriptions. It does not just look for words like old systems do. Instead it tries to understand what the words mean and how they are connected so it can find the skills even if different words are used.

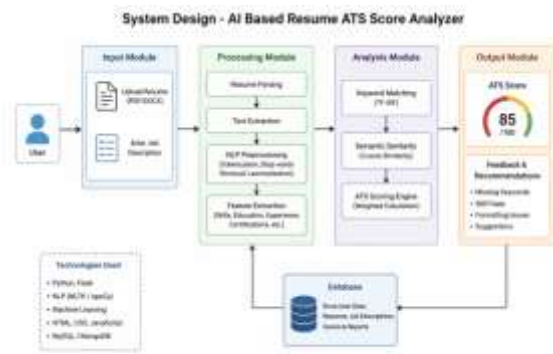
The system has parts, including uploading resumes parsing resumes, processing language, matching keywords analyzing meanings, generating scores generating feedback and managing the database. The backend of the system is built using Python and machine learning libraries. The frontend is easy to use. Allows people to upload resumes and see the results. The Resume Analyzer uses intelligence and language understanding to give accurate scores personalized suggestions and better ways to evaluate job candidates. The Resume Analyzer is a tool that helps with this process by using AI and language understanding to make things better. The Resume Analyzer does this by looking at resumes and job descriptions, in a way.

Software Requirement Specification (SRS)

The AI-Based Resume ATS Score Analyzer is a website that helps with finding the people for a job. It looks at resumes. Decides how good they are. This system has parts, including a website that people can use a tool that reads resumes a language tool, a scoring system, a recommendation system and a database. The website is made with HTML, CSS, JavaScript and React.js so it is easy to use. The backend is made with Python. Uses Flask or FastAPI to handle requests and look at resumes. The language tool uses libraries like spaCy and NLTK to understand what the words mean and find keywords. The system also uses machine learning to calculate how similar things are and to give scores. The information is

stored in a database like MongoDB or MySQL which's safe and secure. The AI-Based Resume ATS Score Analyzer is good because it can be made bigger it has parts it is safe and it can work with other recruitment websites. The AI-Based Resume ATS Score Analyzer is very helpful for people who are looking for a job and, for companies that are looking for the person.

System Design



Overview

The AI-Based Resume ATS Score Analyzer is a tool that helps with recruitment.

It has layers: User Interface Layer, Resume Processing Layer, NLP Analysis Layer, ATS Scoring Engine, Recommendation Module, Database Layer

When using it users upload their resumes. Provide job descriptions through the interface. The Resume Processing Layer then extracts the text from the resumes. Sends it to the NLP Analysis Layer for analysis. The NLP Analysis Layer finds skills, qualifications, certifications and experiences in the resume. It also pulls out keywords. The ATS Scoring Engine then checks how well the resume matches the job. It uses keyword matching and algorithms to understand the meaning of the text. Based on the score the Recommendation Module gives suggestions on how to improve the resume. The results are shown on a dashboard that works well on any device. This makes it easy and efficient for users to get feedback on their resumes. The AI-Based Resume ATS Score Analyzer helps users to improve their resumes and increase their chances of getting hired. The tool provides a user-

experience. Users get suggestions, for improving their Resume ATS Score.

Data Flow Overview

1. The user uploads their resume and job description. Then the Resume Parser takes out the words from the resume.
2. After that the NLP Engine looks at the words. Tries to understand what they mean.
3. The Keyword Matching Module finds the skills that match the job. The Semantic Analysis Module checks how well the words fit together.
4. The ATS Scoring Engine gives a score to show how well the resume matches the job.
5. The Feedback Generator gives the user some ideas to make their resume better.
6. The Result Dashboard shows the user their score and a report that explains everything, about their resume and the job description and how well they match.

Advantages

The AI-Based Resume ATS Score Analyzer is really helpful for people looking for jobs and for the people who hire them. This system looks at resumes automatically which saves time and makes the hiring process faster. It checks resumes carefully. Gives a score based on how well the resume matches the job. This helps the people hiring to find the candidates. The analyzer also shows what is missing from a resume and how it can be improved.

It is easy to use with hiring systems and websites. The AI makes sure the decisions are smart and the analysis is done quickly. This system is better than the ones because it is more accurate and easier to use.

Project Planning

To make the AI-Based Resume ATS Score Analyzer we follow a plan. First we figure out what we need to do then we design the system. After that we build it. We

test it to make sure it works well. Then we put it online. We also write down how it works so others can understand. The whole project should take about six to eight weeks.

Project Estimate

We think the AI-Based Resume ATS Score Analyzer project will take forty to forty-five days to complete. First we need a days to plan what we need to do. Then we design the system, which takes a few days. After that we start building the backend, which takes ten to twelve days. Finally we test it fix any problems and put it online which takes fifteen to twenty days.

Conclusion

The AI-Based Resume ATS Score Analyzer shows how Artificial Intelligence can help with hiring. It solves problems with looking at resumes by doing it and giving smart suggestions.

The system looks at resumes checks for words and meanings and gives a score that shows how good a candidate is for a job. It helps the people hiring to find the candidates and it also helps the candidates to make their resumes better.

Overall the project works well. Gives us a system that is easy to use and helps both the people hiring and the candidates. It shows how AI can make hiring faster and more accurate.

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