

# AI Resume Score Checker

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**Abstract:** In today's competitive job market, organizations receive a massive number of job applications for each vacancy. Manually reviewing every resume is time-consuming and inefficient. To overcome this challenge, many companies use Applicant Tracking Systems (ATS) that automatically scan, filter, and rank resumes based on predefined criteria such as keywords, skills, education, and work experience. While ATS significantly improves recruitment efficiency, it also introduces new challenges for job seekers. Many highly qualified candidates fail to pass ATS screening because their resumes are not optimized according to ATS requirements. Missing keywords, improper formatting, and lack of relevant skills often result in rejection before the resume even reaches a human recruiter. This project presents an ATS Resume Score Checker that helps job seekers evaluate their resumes and improve their chances of selection. The system uses Artificial Intelligence (AI) and Natural Language Processing (NLP) techniques to analyze resumes and compare them with job descriptions. The system extracts important information such as technical skills, work experience, and education from uploaded resumes. It then compares the extracted information with requirements. By providing automated analysis and actionable feedback, the system enables job seekers to improve their resumes and increase their chances of being shortlisted in automated recruitment systems.

## 1. INTRODUCTION

The rapid growth of online recruitment platforms has transformed the way companies hire employees. Organizations now receive hundreds or even thousands of applications for a single job position. Reviewing such a large number of resumes manually is inefficient and time-consuming. To solve this problem, many companies have adopted Applicant Tracking Systems (ATS) that automate the resume screening process. An ATS is a software system designed to collect, organize, and analyze job applications. These systems scan resumes and identify relevant keywords, skills, and qualifications related to a specific job description. Based on this analysis, the system ranks candidates and filters out resumes that do not meet the required criteria. Although ATS improves the efficiency of the requirements specified in a job description. Based on this comparison, the system generates an ATS compatibility score that indicates how well the resume matches the job requirements. Additionally, the system identifies missing or weak skills and provides recommendations for improvement. These recommendations may include learning resources, courses, or suggestions to add specific keywords to the resume. The proposed system acts as a career assistance tool that helps candidates optimize their resumes according to industry. To address these challenges, the ATS Resume Score Checker system was developed. The main objective of this system is to help job seekers evaluate their resumes before submitting them to companies. The system analyzes resumes using Natural Language Processing (NLP) techniques to extract key information such as skills, education, and experience. The extracted information is then compared with job descriptions to determine how well the resume matches the requirements. Based on this analysis, the system generates an ATS compatibility score and provides suggestions for improvement. This project demonstrates how modern technologies such as Artificial Intelligence, NLP, and web development frameworks can be combined to create an intelligent career assistance platform. The system helps candidates understand their strengths and weaknesses, improve their resumes, and increase their chances of success in competitive job markets.

## 2. LITERATURE SURVEY

The use of automated resume screening systems has increased significantly in modern recruitment processes. Several researchers have studied the impact of Applicant Tracking Systems (ATS) and artificial intelligence technologies in recruitment.

One important study focused on how ATS systems use keyword matching algorithms to filter resumes. The research explained that most ATS. Recruitment processes, it also creates difficulties for job seekers. Many candidates are unaware of how ATS systems evaluate resumes. As a result, they submit resumes that may be well written but not optimized for ATS algorithms. For example, if a job description requires specific skills such as Python programming, machine learning, or data analysis, the ATS may reject resumes that do not contain those keywords explicitly. Another challenge is formatting. Some ATS systems fail to correctly parse resumes that use complex layouts, images, or unusual fonts. This can lead to incorrect extraction of information and lower ranking of the candidate's profile. Another research study explored the use of Artificial Intelligence and Natural Language Processing in resume analysis. Instead of relying only on exact keyword matches, AI-based systems can understand context and semantic meaning. For example, if a resume mentions "developed web applications using JavaScript," an AI system may recognize that the candidate has experience in web development, even if the exact keyword is not present. Researchers have also investigated the role of machine learning models in recruitment systems. Machine learning algorithms can analyze large datasets of resumes and job descriptions to identify patterns that predict successful candidates. These systems can improve hiring decisions by providing more accurate candidate rankings. Despite these advancements, automated recruitment systems still have limitations. One major limitation is the inability to evaluate soft skills, creativity, and personality traits. These qualities are difficult to measure using automated algorithms. Additionally, concerns about algorithmic bias and data privacy have been raised in several studies. Recent research also emphasizes the importance of providing resume optimization tools for job seekers. Such tools allow candidates to analyze their resumes and make improvements before applying for jobs. These tools can identify missing platforms rely heavily on keyword detection to identify relevant candidates. If a resume contains keywords that match the job description, it receives a higher ranking. However, the study also highlighted that this approach can sometimes reject qualified candidates if their resumes use different wording or synonyms.

**(ATS) Requirements:** The main objective of this system is to analyze resumes automatically and provide meaningful feedback that helps candidates increase their chances of being shortlisted by recruiters. The system works as a web-based application that allows users to upload their resumes in commonly used formats such as PDF or DOCX. Once the resume is uploaded, the system processes the document using Natural Language Processing (NLP) techniques to extract key information such as skills, educational qualifications, work experience, and certifications. These extracted elements are essential for evaluating the relevance of the resume to a specific job role. The system also allows users to input a job description. This job description acts as the reference for comparison. By comparing the resume content with the job requirements, the system determines how well the resume matches the job criteria.

The core modules of the proposed system include:

- 1. Resume Parsing Module:** This module extracts textual information from the uploaded resume. NLP libraries such as SpaCy and NLTK are used to identify sections such as education, skills, experience, and projects.
- 2. Keyword Extraction Module:** Many ATS tools are costly or not this module identifies important keywords present in the job description and checks whether they appear in the resume.
- 3. ATS Scoring Engine:** The system calculates an ATS compatibility score ranging from 0 to 100. The score is calculated based on factors such as keyword matching, keywords, formatting issues, and skill gaps. The proposed ATS Resume Score Checker builds upon these research findings by combining keyword analysis, skill extraction, and job description matching to provide comprehensive resume evaluation.

### 3. EXISTING SYSTEM

In the existing system, resume screening is mostly done either manually by recruiters or through basic ATS software used by companies. Manual screening takes a lot of time and effort, especially when there are many applications for a single job role. It is also possible for good resumes to be rejected if the recruiter misses important details. In many existing ATS platforms, resumes are filtered based on keyword matching, formatting, and relevance to the job description. However, most available systems are either part of paid recruitment software or are not easily accessible for students and freshers who want to check their resume score before applying. Another drawback of the existing system is that users usually do not get clear feedback about why their resume score is low. They may only know that their resume is weak, but they do not know which keywords, skills, or sections are missing.

So, the existing system has the following limitations:

- Manual checking is time-consuming Recruiters may miss important information user-friendly
- Limited feedback is provided to users
- Resume rejection happens due to missing keywords

### 4. PROPOSED SYSTEM

The proposed system, ATS Resume Score Checker, is designed to assist job seekers in evaluating and improving their resumes according to the Applicant Tracking System. The system compares the candidate's skills to the required skills mentioned in the job description and identifies missing or weak skills.

### 5. RECOMMENDATION SYSTEM

Based on the identified gaps, the system provides suggestions such as adding certain keywords, improving resume structure, or learning new skills.

The system architecture follows a three-layer structure:

- Presentation Layer (Frontend) – Provides the user interface for uploading resumes and viewing results.
- Application Layer (Backend) – Performs analysis and scoring using AI algorithms.
- Data Layer (Database) – Stores user data, resumes, job descriptions, and analysis results.

By integrating these modules, the system provides a comprehensive solution that helps users optimize their resumes effectively.

## 6. SOFTWARE REQUIREMENTS

The development and implementation of the ATS Resume Score Checker system require a combination of software technologies that support web development, artificial intelligence, and data. The project also demonstrates the practical processing. These technologies work together to create a robust and efficient platform for resume evaluation. The primary operating system used for development is Windows, which provides compatibility with various programming tools and development environments. The system can also be deployed on other operating systems such as Linux if required. The frontend of the application is developed the creation of a scalable and intelligent resume evaluation system.

## 7. HARDWARE REQUIREMENTS

Although the ATS Resume Score Checker is primarily a software-based system, certain hardware specifications are required to ensure smooth development, deployment, and operation of the application. The system can be developed and executed on a standard personal computer with moderate hardware specifications. A computer with a minimum Intel Core i5 processor or an equivalent processor is recommended for efficient processing of data and execution of AI algorithms. The system requires 8 GB to 16 GB of RAM to ensure smooth multitasking and faster processing of resume files. Since Natural Language Processing operations involve text parsing and analysis, sufficient memory is necessary to avoid performance issues. In terms of storage, a 512 GB Solid State Drive (SSD) is recommended. SSD storage ensures faster data access speeds compared to traditional hard drives. This improves the performance of the system, especially when processing large numbers of resumes. A dedicated GPU is optional but can be beneficial if advanced machine learning models are integrated into the system in the future. GPUs accelerate complex computations involved in deep learning and AI applications. Together, these software technologies enable libraries and accessing online resources. These hardware components provide the necessary computing power and infrastructure required to develop and run the ATS Resume Score Checker system effectively.

## 8. RESULTS AND DISCUSSION

The ATS Resume Score Checker system was tested using multiple resumes from different domains such as software development, data analysis, and web development. The purpose of the testing process was to evaluate the accuracy of resume analysis, ATS scoring, and skill gap detection. During testing, several resumes were uploaded to the system along with corresponding job descriptions. The system successfully extracted important information such as skills, education, work experience, and project details from the resumes. The ATS scoring engine generated compatibility scores based on keyword matching and resume structure. Resumes that contained relevant industry keywords and properly structured sections received high scores, typically above 85 out of 100. These resumes demonstrated strong alignment with job requirements. On the other hand, resumes that lacked important keywords or contained poor formatting received lower scores, usually below 60. The system identified these weaknesses and provided suggestions for improvement. The Skill Gap Predictor module effectively identified missing skills by comparing the candidate's skills with the job description requirements. For example, when analyzing a resume for a Front-End Developer position, the system detected missing technologies such as ReactJS or JavaScript frameworks and suggested relevant skills to learn. The proposed system uses Artificial Intelligence and Natural Language Processing to analyze integration of web development technologies, AI algorithms, and database systems to create a user-friendly career assistance platform.

Future improvements to the system may include:

- Support for multiple languages
- Integration with LinkedIn and GitHub
- Other hardware requirements include:
  - Keyboard and mouse for user interaction
  - Monitor for viewing application interface and results
  - Internet connectivity for downloading

The system also generated actionable recommendations, including:

- Adding missing keywords to the resume
- Improving resume formatting
- Highlighting relevant projects and achievements
- Learning additional technical skills

User feedback indicated that the system was easy to use and provided valuable insights for resume improvement. The results confirm that integrating AI and NLP technologies can significantly improve the accuracy and usefulness of automated resume analysis systems.

## 9. CONCLUSION

The ATS Resume Score Checker project provides an effective solution for addressing the challenges faced by job seekers in modern recruitment systems. With the increasing use of Applicant Tracking Systems by companies, many candidates fail to pass the initial screening stage due to poorly optimized resumes. Evaluate their compatibility with job descriptions. By extracting key information from resumes and comparing it with job requirements, the system generates an ATS compatibility score that helps candidates understand how well their resumes match industry expectations. In addition to scoring resumes, the system identifies missing skills and provides personalized recommendations for improvement. These suggestions help candidates enhance their resumes and improve their chances of being shortlisted by profiles.



- Real-time AI-powered resume editing
- Predictive career recommendation systems

By continuously improving the system, the ATS Resume Score Checker can become a comprehensive tool for helping job seekers succeed in competitive recruitment environments.

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