

# AI-Based Resume Screening And Enhancement Platform

Mr. G. KARTHIK<sup>1</sup>, Mrs. V. MAGESHWARI<sup>2</sup>

<sup>1</sup>Dept of , M.C.A.

<sup>2</sup>Assistant Professor, Dept of , M.C.A.

<sup>1,2</sup> Christ College of Engineering & Technology, Puducherry – 605 010, India.

**Abstract-** *In recent years, companies have been overwhelmed by the sheer number of resumes they receive for every job posting. Many of these resumes never even get seen. The truth? Recruiters just don't have time to read through all of them. This means that even qualified candidates sometimes get filtered out, just because they didn't use the right format*

*To fix this problem, our project introduces an AI-based Resume Screening and Enhancement Platform. It's a smart tool that can read resumes, understand job descriptions, and automatically decide how well the two match. It uses powerful Natural Language Processing (NLP) algorithms and machine learning models to do this comparison. But that's not allit also suggests improvements to the resume, so the candidate has a better chance of getting noticed.*

*The system assigns a compatibility score and offers real-time, friendly help through an AI chatbot. It's like having a virtual HR assistant 24/7. With this platform, hiring becomes smarter, quicker, and fairerfor everyone involved.*

**Keywords-** Resume Screening, NLP, GPT, Matching, Resume Score, AI Bot, SBERT, TF-IDF, PDF Parsing, SVM, BERT Embeddings, HR Tech.

## I. INTRODUCTION

Let's face it. Job hunting is hard. And hiring is harder. Every job opening attracts tons of resumes—sometimes in the hundreds or thousands. Recruiters try their best, but it's impossible to go through every single application with care. In this chaos, some of the most talented applicants never get the chance they deserve.

Why does this happen? Because traditional resume screening depends heavily on how a resume looks and whether it contains “keywords” from the job description. That means the system isn't really judging people—it's judging words on paper.

This project offers a smarter way. It introduces an AI-powered Resume Screening and Enhancement Platform that automates the entire process. It reads resumes,

understands what the job requires, and compares the two. If there's a mismatch, it suggests what to improve—right there, right then. The best part? It uses modern AI tools like GPT and Sentence-BERT to generate suggestions that actually make sense.

On top of that, a chatbot is integrated to provide instant feedback, answer questions, and even help rewrite sections of the resume. No more guessing. No more templates. This system brings personalization, intelligence, and fairness into the hiring pipeline.

## II. OVERVIEW [1][2][3][4][5]

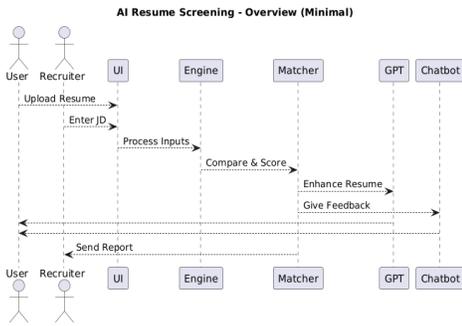
The platform is built with a very clear goal in mind: to help recruiters and job seekers both. Here's how it works, step by step:

First, the user uploads their resume in PDF format. The system parses it—pulls out key information like skills, education, work experience, and certifications. Then, it reads the job description and breaks it down into required qualifications, skills, and role expectations.

Using powerful NLP algorithms, it compares both documents and calculates how closely the resume matches the job. This isn't just about keywords—it's about meaning, context, and structure. The result is a compatibility score, which tells the candidate how suitable their resume is for that particular job.

But it doesn't stop there. Using GPT models, the system can also rewrite parts of the resume to better align with the job. It can add missing details, improve phrasing, and even adjust formatting to make it more appealing.

And finally, users get detailed reports on what's good, what's missing, and how to fix it. It's feedback that's personalized and practical. A built-in chatbot makes this interaction even smoother—helping users navigate the system and make changes instantly.



### III. ALGORITHM EXPLANATION [1][2][3][4][5]

#### TF-IDF (Term Frequency-Inverse Document Frequency)

This algorithm helps identify which words in a document (like a job description) are most important. It looks for terms that are frequent in one document but rare across many, giving you keywords that really matter. These are then matched with the resume to see if the candidate mentions them.

#### CosineSimilarity

Once both the resume and the job description are turned into numerical vectors, this formula measures the angle between them. If the angle is small (the cosine value is close to 1), the documents are similar. It's a core part of measuring textual similarity.

#### SBERT (Sentence-BERT)

This is a transformer-based model that encodes entire sentences or paragraphs into fixed-size vectors. It helps in understanding the semantic meaning of text, not just words. So if a resume says “developed backend APIs” and the job wants “REST API experience,” SBERT can tell they’re related.

#### Support Vector Machine (SVM)

SVM is a supervised learning model that classifies inputs into categories. In this system, it's used to learn from past data and predict whether a resume is a good fit or not. This adds an extra layer of intelligence beyond just similarity scores.

#### GPT (Generative Pre-trained Transformer)

This is where the magic happens. GPT models are used to suggest improvements to the resume. They can reword sentences, add better phrasing, or even generate new content

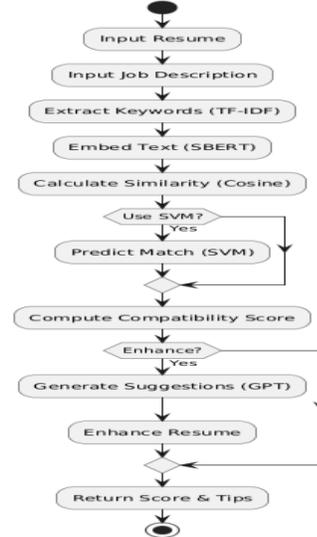
tailored to a job description. It's smart, fast, and actually sounds human.

### IV. FUTURE ENHANCEMENTS [4][5]

The current system already performs well—but there's room to grow. Here's what's coming next:

- **Multilingual Support:** Today's workforce is global. So the tool will soon support multiple languages—allowing resume parsing and generation in Spanish, French, Hindi, and more.
- **Video Resume Analysis:** Some companies now ask for short intro videos. The system will be able to watch, summarize, and score those as well.
- **Browser Extension:** Imagine applying for a job on LinkedIn or Indeed and getting real-time suggestions from this platform. That's the goal.
- **Interview Feedback Module:** After a candidate's interview, the system can generate a performance report using their resume and interview feedback.
- **Voice-Enabled Chatbot:** A voice interface will be added to support users with visual impairments or anyone who wants hands-free help.

Algorithm Flow - Resume Screening



### V. CONCLUSION [1][2][3][4]

The AI-powered Resume Screening and Enhancement Platform is not just another tool. It changes how recruitment works. By bringing together NLP, machine learning, and GPT-powered generation, it creates a system that's smart enough to understand context, fast enough to analyze thousands of resumes, and helpful enough to guide users toward real improvement.

Recruiters can focus on interviewing. Candidates can focus on presenting their best selves. No more guesswork. No more missed opportunities. Just better hiring—for everyone.

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