

# **NLP-Based Resume Parser for Automated Candidate Screening**

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**Abstract:** *This project presents a comprehensive resume parsing and screening system this product makes use of the Natural Language Processing (NLP) and automation to make hiring process smoother. Optimized to process CV data in multi formats like PDF, DOCX, the system utilizes regular expressions and advanced NLP approaches to identify critical attributes such as education, professional experience, skill-sets and personal info etc. To understand the meaning behind job descriptions and resumes, the system incorporates contextual embeddings generated by pre-trained language models, including Hugging Face's BERT and Google's Gemini API. These embeddings allow the system to grasp the underlying context of each document. A similarity score is then calculated using methods are cosine similarity and generative semantic comparison, which helps find out how good a candidate's profile aligns with the job requirements. The system relies on these similarity scores to shortlist candidates efficiently. This score-driven approach supports real-time processing and scalability, making it suitable for dynamic hiring environments. Once shortlisted, candidate information is stored in a MySQL database and displayed through an easy-to-use dashboard. Only profiles that meet or exceed a set match threshold are highlighted and helping the recruiters to make more accurate decisions. Overall, the system offers a modern, automated solution that replaces traditional manual screening methods with a fair, fast, and scalable alternative based on semantic text matching and intelligent evaluation.*

**Keywords:** NLP, Resume Parsing, Candidate Screening, BERT, Gemini API, Semantic Similarity, Recruitment Automation, MySQL Database

