# Smart Hire: AI-Driven Resume Screening for Smarter Recruitment Akarsh Lakshmana, Divakar Reddy Ravi, Gurvareddy Padigapati

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**Abstract**

In today’s competitive job market, organizations often receive hundreds or thousands of resumes for a single job posting, making manual screening both time-consuming and inefficient. This paper presents the design and implementation of an AI-powered Resume Screening Tool aimed at automating and enhancing the recruitment process. The proposed system uses Natural Language Processing (NLP) and machine learning techniques to evaluate the relevance of applicant resumes against a specific job description.

The model parses and preprocesses resumes by extracting key textual information, which is then vectorized using methods like Term Frequency-Inverse Document Frequency (TF-IDF) and Sentence-BERT embeddings. A similarity scoring algorithm, primarily based on cosine similarity, ranks resumes according to how closely they match the job requirements. The system provides recruiters with a ranked list of the most suitable candidates, significantly reducing the effort required for preliminary screening.

A publicly available resume dataset from Kaggle is used for testing and validation, with additional simulated job descriptions to measure matching accuracy (Dutta, 2021). The paper discusses preprocessing techniques, model evaluation metrics, and design decisions. A lightweight web interface is also developed to allow HR personnel to upload resumes and input job descriptions for real-time results.

This project demonstrates how AI can streamline talent acquisition, reduce human bias, and ensure consistent screening outcomes. Future enhancements may include domain-specific keyword extraction, experience quantification, and integration with existing applicant tracking systems (ATS).

**Keywords:** Artificial Intelligence, Resume Screening, Natural Language Processing, Cosine Similarity, Machine Learning, Job Matching, Sentence Embeddings, TF-IDF, Recruitment Automation, Candidate Ranking.

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