

PROJECT TOPIC

AI-Powered Resume Analysis and Candidate Ranking System

Abstract:

In today's competitive job market, efficient candidate selection is crucial for organizations seeking the best-fit talent. This project presents a comprehensive AI-powered solution for automating the resume analysis and candidate filtering process. Leveraging Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP) with Language Models (LLM), and Generative AI, the system streamlines the time-consuming task of manual resume screening.

The project begins with data collection and preprocessing, extracting vital information from a diverse dataset of resumes in various formats. We use NLP techniques for parsing the resumes, extracting structured information such as name, contact details, education, skills, and experience. Entity recognition tags specific entities, aiding in skill extraction and categorization. To understand the candidate's expertise, we implement text embedding using Word2Vec. Skills and experiences are analyzed, providing a deeper understanding of the candidate's profile.

Integration of Generative AI, such as GPT-3, enables the system to generate summaries or responses based on the parsed information, enhancing automated interactions. Skill extraction is refined by categorizing skills into predefined categories, further facilitating efficient analysis. The system ranks candidates based on job requisites and candidate suitability, employing ML classifiers to filter resumes effectively.

The user interface allows users to interact with the system by inputting job requirements and visualizing the filtered and ranked candidates. By seamlessly integrating the ML, DL, LLM, and Generative AI components, this project offers a scalable, adaptable, and efficient solution for talent acquisition. Future enhancements may include continuous model refinement, expanding the dataset for improved accuracy, and incorporating real-time candidate interaction for a seamless recruitment process.

The proposed system addresses the burgeoning need for automated candidate screening, saving valuable time and resources for organizations. Its potential to enhance and expedite the hiring process demonstrates the significant impact of AI in revolutionizing traditional recruitment practices. Through this project, we envision a future where AI-powered tools play a central role in optimizing talent acquisition, fostering a more streamlined and productive workforce for organizations across diverse industries.

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