Resume Analyser and Job RecommendationSystem Based on NLP

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This paper introduces a novel system for resume analysis and job recommendations, aiming to improve the efficiency and accuracy of the recruitment process.

1.1 Motivation

The rise of digital platforms is a challenge for recruiters. Traditional parsing methods lack the ability to handle diverse resume formats and extract distinct information. This research proposes a solution that uses NLP techniques to address these limitations.

1.2 Contribution

The key contribution lies in the system's architecture, which combines BERT's contextual understanding for named entity recognition (NER) with spaCy's advanced linguistic analysis capabilities. This hybrid approach aims to achieve more accurate information extraction from resumes.

1.3 Methodology

The system follows a structured approach:
Requirement Analysis and Data Collection: Analysing desired functionalities like resume parsing and job recommendations, followed by collecting a diverse set of resumes.
Data Preprocessing: Cleaning and preparing the resumes (details not elaborated on in the paper) for compatibility with BERT's requirements.
BERT Fine-tuning: Fine-tuning the pre-trained BERT model on the prepared resume data to specialise it for NER tasks on resumes.
Evaluation and Deployment: Rigorously evaluating the system's performance using metrics like precision, recall, and F1 score. The system is designed for scalability and can be deployed in cloud or on-premise environments.
spaCy NLP Integration: After BERT performs NER, spaCy is employed for deeper linguistic analysis of the resumes, enhancing the system's understanding of the content.

1.4 Conclusion

The initial results show promising accuracy (94-95%) in named entity recognition tasks for computer science and information technology resumes. The authors acknowledge the need for further development, including expanding the dataset to encompass various fields and incorporating support for different file formats.

2.1 First Limitation/Critique

The current implementation focuses on a limited domain (computer science and information technology). For broader applicability, the dataset needs to be significantly expanded to include resumes from diverse industries.

2.2 Second Limitation/Critique

A more detailed explanation of how the system handles variations in resume formats (e.g., PDF, Word documents with different layouts) would strengthen the understanding of its robustness.

Synthesis

This paper presents a promising approach for utilising NLP to enhance talent acquisition processes. The system has the potential to improve information extraction accuracy and provide relevant job recommendations for both candidates and recruiters. Future work on expanding the system's capabilities, including multi-language support and real-time job market analysis, could further broaden its reach and effectiveness. Additionally, exploring techniques to mitigate potential biases in the training data is crucial for ensuring fair and ethical recruitment practices.

By addressing the limitations and continuing research efforts, the proposed system holds significant promise for revolutionising how technology can facilitate efficient and effective recruitment in a diverse job market.

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