NeuroHire - AI-Enhanced Resume and Mock Interview Evaluation System Using SBERT and TF-IDF

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Abstract:
The modern-day job market requires candidates to produce neatly formatted resumes and perform in interviews, but traditional preparation methods lack fairness, scalability, and personalization. Candidates tend to be uncertain regarding whether their resumes highlight relevant skills or their answers in interviews are good enough as per professional standards. This study proposes NeuroHire, an automated employability self-test platform using natural language processing (NLP) and machine learning (ML) algorithms for unbiased feedback. The platform has two modules: the Resume Analyzer with Sentence-BERT (SBERT) embeddings and cosine similarity to assess the fit of resumes to job postings and the Mock Interview Module with Term Frequency–Inverse Document Frequency (TF-IDF) scoring to match candidate responses with expert-pitched answers. Results are rolled into a Candidate Scorecard that delivers strengths, weaknesses, and action items for enhancement. We tested 200 resumes, 50 job postings, and 300 interview responses to see the system's average similarity score of 0.82 for resumes and strong correlation of 0.89 between expert and interview ratings. Candidate feedback indicated increased confidence in employability readiness. Future expansion encompasses blockchain-supported credential validation, multilingual processing and multimodal analysis with video and voice inputs. NeuroHire illustrates the way technology helps to make preparation for employability an inclusive, scalable, and effective process.

Keywords:
Resume Screening, Mock Interview Evaluation, Employability Readiness, Natural Language Processing (NLP), Sentence-BERT (SBERT), TF-IDF Scoring