



Skill2Hire – An Intelligent AI-Powered Career Assistance Platform

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ABSTRACT -

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Students preparing for technology-sector recruitment must manage resume preparation, job-description matching, vacancy discovery, interview practice, and industry updates. These activities are often spread over different platforms. This paper presents Skill2Hire, a modular AI-powered career assistance platform with five independent modules: an ATS-oriented Resume Builder, Resume Tailoring and Skill-Gap Analysis, Job Suggestions, a Mock Interview Simulator, and a Tech News Hub. The proposed system uses a React and TypeScript frontend, a Node.js and Express backend, MongoDB Atlas for persistent storage, and server-side large language model integration for selected language tasks. A rule-based ATS compatibility score estimates resume completeness, keyword alignment, skills coverage, structure, and formatting. Resume tailoring follows a “Zero Fake Skills” rule: missing qualifications are reported as skill gaps rather than inserted into the candidate’s resume. The interview module includes eligibility screening, aptitude assessment, technical interview, and behavioral HR stages.

The paper describes the design, workflows, architecture, responsible-AI safeguards, and evaluation plan. Claims of quantitative performance are not treated as findings unless measurements can be reproduced.

Keywords— Career assistance, Applicant Tracking System, resume tailoring, job recommendation, large language models, mock interview, skill-gap analysis.



I. INTRODUCTION

The growth of the technology industry has increased the importance of technical skills, effective resume preparation, and interview performance in the recruitment process. Students often face difficulties identifying suitable job opportunities, preparing resumes according to employer requirements, and practising for different interview rounds.

Traditional career preparation methods require students to use separate platforms for resume creation, job searching, interview practice, and industry updates. This may result in additional effort and make it difficult to manage the overall preparation process.

To address these challenges, Skill2Hire is proposed as an AI-powered career assistance platform that integrates five independent modules within a single web application. These modules provide resume creation, resume customization, job recommendations, mock interview practice, and technology news updates.

The main objective of Skill2Hire is to simplify career preparation by providing personalized assistance through AI-based processing and structured workflows. The platform is designed to help students improve their resumes, explore relevant job opportunities, identify areas for improvement, and stay informed about developments in the IT industry.

II. LITERATURE REVIEW

Previous research has explored the use of artificial intelligence and natural language processing for understanding text, comparing documents, and generating useful recommendations. Devlin et al. [1] introduced BERT, a language representation model that improved contextual text understanding. Such language models provide a foundation for applications that need to interpret resume content and job descriptions.

Reimers and Gurevych [2] introduced Sentence-BERT, which generates sentence embeddings

suitable for semantic similarity comparison. This approach is relevant to comparing candidate profiles with job requirements and identifying matching information beyond exact keyword matches.

Information retrieval techniques described by Manning et al. [3] provide methods for searching, ranking, and retrieving relevant documents. These methods can support job discovery by organizing and ranking opportunities according to candidate preferences and qualifications. Recommender system research by Ricci et al. [4] also provides a foundation for suggesting relevant opportunities based on user profiles and interests.

However, career preparation involves more than text processing and recommendations. Students also require interview practice, resume improvement, and access to current industry information. Skill2Hire addresses this broader requirement by combining these career-support functions within one platform. AI-generated recommendations should be reviewed carefully to avoid inaccurate information or misleading suggestions, consistent with responsible AI principles [5].

III. METHODOLOGY

Skill2Hire is developed as an AI-powered web application using React, TypeScript, Tailwind CSS, Node.js, Express.js, and MongoDB Atlas. It provides five independent modules: AI Resume Builder, Resume Tailoring, Job Suggestions, Mock Interview, and Tech News, accessible through a common user interface.

The Resume Builder generates ATS-friendly resumes, while Resume Tailoring compares resumes with job descriptions and suggests improvements without adding false qualifications. Job Suggestions recommends relevant opportunities based on user profiles, Mock Interview provides aptitude, technical, and HR practice with feedback, and Tech News displays the latest technology updates with source links.



The system undergoes functional testing to verify resume generation, job matching, recommendation links, interview stages, feedback, and news availability. Input validation, secure data handling, and database management are considered during development to improve reliability and provide students with an organized career preparation platform.

IV. RESULTS AND DISCUSSION

1) AI Resume Builder

The AI Resume Builder organizes candidate details into a structured resume. The generated document can be reviewed before export, helping students present their educational qualifications, technical skills, projects, and experience in a clear format.



Fig. 1. AI Resume Builder interface.

2) Resume Tailoring Modules

The Resume Tailoring module compares a candidate's resume with a target job description. It identifies relevant information, highlights potential skill gaps, and provides suggestions for improving the resume's alignment with the position.

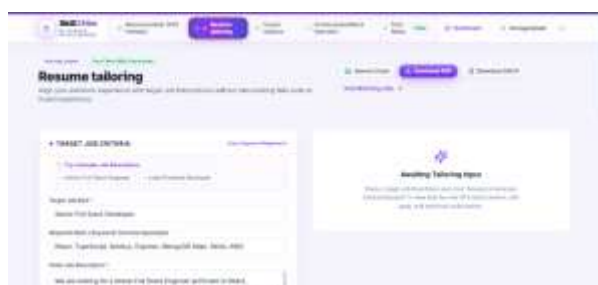


Fig. 2. Resume Tailoring and job requirement comparison interface.

3) Job Suggestions Modules

The Job Suggestions module displays employment opportunities relevant to the candidate's skills and preferences. Job details and original application links help students explore opportunities and decide which positions to apply for.



Fig. 3. Job Suggestions interface displaying relevant opportunities.

4) Mock Interview Module

The Mock Interview module supports aptitude, technical, and HR interview practice. It provides feedback based on the candidate's submitted answers and presents areas that may require further preparation.

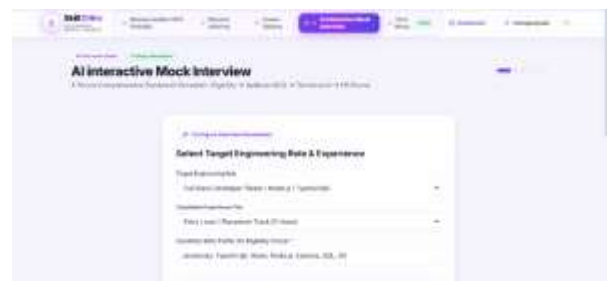


Fig. 4. Mock Interview interface and performance report.

5) Tech News Module

The Tech News module provides a snapshot of current developments in technology and the IT industry. It helps students follow topics such as artificial intelligence, cybersecurity, software development, and industry trends through news summaries and source links.



Fig.5. Tech News interface displaying technology updates

V. CONCLUSION

The Skill2Hire platform can be enhanced in several ways. Future development may include multilingual resume generation, additional resume templates, improved semantic job matching, and integration with more authorized job listing sources. The Mock Interview module can be extended with additional question categories, voice-based answers, and more detailed performance reports.

The platform may also include personalized learning recommendations based on identified skill gaps, interview performance, and career goals. Improved accessibility, user feedback mechanisms, and stronger evaluation of AI-generated content can further enhance usability and reliability. These enhancements can help make Skill2Hire more useful for students preparing for internships and full-time employment.

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