AI Career Assistant: An Intelligent Mobile Platform for Resume Analysis and Interview Preparation

Harsh Kashyap[1], Ishansh Sharma[2], Abhishek Raj[3], Divyanshu Singh Bisht[4]
[1,2,3,4]*Department of Computer Science and Engineering, MGM College of Engineering and Technology, Noida, India*

Abstract*—Finding a suitable job can be difficult for students and fresh graduates because a resume alone does not always show whether a candidate is prepared for a particular role. To address this problem, this work presents AI Career Assistant, a mobile application designed to bring resume analysis and interview preparation into one platform. The application allows users to create an account, upload their resumes, and receive an analysis based on the information extracted from the document. It also provides an ATS-oriented evaluation, highlights possible skill gaps, and supports job matching based on the candidate's profile. Along with resume-related features, the application includes a basic interview practice module to help users prepare for placement interviews. The current prototype was developed using React Native with Expo for the mobile interface, supported by Node.js-based backend services and MySQL for data storage and persistence. A dashboard is provided so that users can view their latest analysis and related career information in one place. The present implementation covers the main application workflow, including authentication, resume processing, analysis, skill-gap identification, job matching, and basic interview practice. More advanced AI-based evaluation, interview-history tracking, stronger authentication, production deployment, comprehensive testing, and final Android packaging are planned as further development. The project demonstrates how resume assessment and interview preparation can be combined within a single mobile platform for placement-oriented career preparation.

***Index Terms*—Artificial Intelligence, Resume Analysis, Applicant Tracking System, Skill Gap Analysis, Job Matching, Interview Preparation, Mobile Application.**

I. INTRODUCTION

The process of applying for jobs has become increasingly dependent on digital resumes and automated screening systems. For students and fresh graduates, this creates a challenge because having a resume is not enough; they also need to understand whether their skills match the requirements of the roles they are applying for. Many candidates are unsure which skills are missing from their resumes, how well their resumes may perform in an Applicant Tracking System (ATS), or how they should prepare for an interview.

Resume screening is often one of the first stages of recruitment. Organizations may receive a large number of applications for a single position, making automated methods useful for identifying candidates whose qualifications are relevant to a particular job description. Techniques such as resume parsing, keyword analysis, and semantic matching can help extract useful information from resumes and compare it with job requirements. Previous research has explored approaches based on language models, sentence embeddings, keywords, and named entities for improving resume-job matching [1], [2]. More recent work has also investigated the use of large language models and structured prompting for this task [3].

However, resume analysis by itself does not address the complete preparation process faced by students and early-career candidates. A candidate may receive information about missing skills but still need guidance on how to improve the resume, identify suitable job opportunities, and prepare for interviews. Research has therefore also considered systems that combine resume-based job matching with interview-related features [4]. Automated interview approaches have further shown potential for supporting candidate assessment and practice [5].

Based on these requirements, this work presents AI Career Assistant, a mobile application that combines resume analysis and interview preparation within a single platform. The application is intended for students and early-career job seekers who want to

evaluate their resumes and better understand their readiness for job opportunities. Users can register and log in, upload a resume, and access information generated from the uploaded document. The system supports resume processing, ATS-oriented analysis, skill-gap identification, job matching, and basic interview practice.

The application was developed as a mobile solution using React Native with Expo, with Node.js-based backend services and MySQL for persistent data storage. A dashboard brings the main career-related information together so that users can review their latest analysis and other relevant results without moving between separate tools. The current implementation focuses on establishing the core workflow of the platform, while more advanced AI evaluation and additional production-level features remain part of the planned development.

The main objective of this project is to provide a single, accessible platform that connects resume assessment with interview preparation. Instead of treating resume improvement and interview practice as separate activities, the proposed application provides both within one workflow. This approach can help users identify areas that need improvement and use the resulting information as a starting point for their placement preparation.

II. RELATED WORK AND LITERATURE REVIEW

A. Resume Parsing and Information Extraction

Resume parsing is an important step in systems that analyze candidate profiles for job opportunities. It extracts information such as skills, education, and experience from resumes so that it can be compared with job requirements.

Bhatia et al. proposed an approach that combines resume parsing with candidate ranking using BERT-based sentence pair classification [1]. Kulkarni et al. also discussed a system where resume parsing supports job recommendation and interview-question generation [4]. These studies show that structured resume information can be used for multiple career-related tasks. In this work, the parsed resume data is used for resume analysis, skill-gap identification, and job matching.

B. Resume-Job Matching and Semantic Similarity

Resume-job matching is used to determine how well a candidate's profile corresponds to the requirements of a particular job. Traditional matching methods mainly depend on keywords, but they may not capture the relationship between different terms or the overall meaning of the resume and job description.

Vanetik and Kogan studied resume-vacancy matching using a combination of keywords, named entities, summaries, and sentence representations [2]. Their approach uses different textual features to represent both resumes and job vacancies and applies similarity measures to identify relevant opportunities. Skondras et al. explored zero-shot resume-job matching using structured prompting and semantic embeddings [3]. Their work shows how semantic representations can improve the comparison between candidate profiles and job requirements.

These studies indicate that combining textual information with semantic similarity can provide more meaningful job matching than relying only on exact keywords. In the proposed system, resume information is used to identify job opportunities that are relevant to the candidate's skills and profile.

C. Interview Preparation and Automated Assessment

Interview preparation is another important part of the placement process, especially for students and early-career candidates. Automated systems can support this process by generating interview questions and evaluating candidate responses.

Kulkarni et al. reviewed a system that combines a resume parser, mock interviewer, and job recommender [4]. Their work shows how information extracted from a resume can also be used to support interview preparation. Callwood et al. studied an automated interview system based on natural language processing and evaluated its reliability and usability for assessing interview responses [5]. Their findings also highlight the importance of suitable evaluation methods and human involvement when using automated interview systems.

Based on these studies, the proposed application includes a basic AI interview practice module along with resume analysis and job matching. This provides users with a single platform where they can work on both their resume and interview preparation.

III. PROPOSED SYSTEM

A. System Overview

The proposed system is an intelligent mobile application designed to help students and early-career job seekers with resume analysis and interview preparation. It combines several placement-related functions within a single platform, including user authentication, resume upload and parsing, ATS-oriented evaluation, skill-gap analysis, job matching, dashboard-based information display, and basic AI interview practice.

The mobile interface is developed using React Native and Expo, while MySQL is used for storing user and resume-related information. The application follows a modular structure in which the mobile interface communicates with backend services responsible for authentication, resume processing, analysis, and database operations.

The current implementation supports the main workflow from user registration and resume upload to analysis, skill-gap identification, and job matching. Advanced AI-based evaluation, interview history, production deployment, comprehensive testing, and final application packaging are planned for further development.

B. System Architecture

The system follows a modular architecture consisting of three main components: the mobile application, backend services, and database. The mobile application is developed using React Native and Expo and provides features such as registration, login, resume upload, resume analysis, skill-gap analysis, job matching, dashboard access, and interview practice.

The backend manages application requests, authentication-related operations, resume processing, analysis workflows, and communication with the database. MySQL is used as the persistent database for storing user information and resume-related data. The architecture allows these components to work together while keeping the user interface, application logic, and data storage responsibilities separate.

The current architecture supports the core workflow of the application. Advanced AI-based processing and additional production-level services can be integrated into the architecture as the system is further developed.

C. Core Functional Modules

The application consists of several modules that work together to support the user's placement preparation. The main modules are:

User Authentication: Provides registration and login functionality for users.

Resume Upload and Parsing: Allows users to upload their resumes and extract relevant information from them.

Resume Analysis: Evaluates the resume using ATS-oriented criteria and provides useful information about the candidate profile.

Skill Gap Analysis: Identifies skills that may be missing when compared with the requirements of relevant job roles.

Job Matching: Uses the candidate's resume information to identify suitable job opportunities.

Dashboard: Displays the user's latest resume analysis and related career information in one place.

Interview Practice: Provides a basic AI-based module for practicing interview questions.

Together, these modules provide a single workflow for resume evaluation, career exploration, and interview preparation.

D. System Workflow

The system follows a step-by-step workflow that connects resume processing with career preparation. First, the user creates an account or logs into the mobile application. After login, the user uploads a resume through the application interface.

The uploaded resume is then processed to extract relevant information. This information is used to perform resume analysis and generate an ATS-oriented evaluation. The system next identifies relevant skills and possible skill gaps based on the user's profile and career requirements.

Using the available resume and job-related information, the application provides suitable job-matching information. Finally, the latest analysis and career-related information are displayed on the user's dashboard. This workflow provides the foundation for the subsequent interview-practice and other career-preparation features.

E. Technology Stack

The application uses a combination of mobile, backend, database, and development tools. The main technologies used in the system are:

Mobile Application: React Native with Expo Programming Language: JavaScript Backend: Node.js-based backend services Database: MySQL
Database Management: MySQL Workbench
API Testing: Postman
Development Environment: Visual Studio Code
This technology stack supports the development of the mobile interface, backend operations, data storage, API testing, and overall development of the AI Career Assistant.

IV. IMPLEMENTATION

A. Mobile Application Implementation

The mobile application is developed using React Native with Expo to provide a cross-platform interface for placement preparation. It includes the main features required by the system, such as user registration and login, resume upload, resume analysis, skill-gap analysis, job matching, dashboard access, and basic interview practice.
The application is organized into separate screens and functional components so that users can access each activity through a consistent workflow. The mobile interface communicates with the backend services for user-related operations, resume processing, analysis, and data retrieval.
The current implementation allows users to access their latest resume analysis and related career information through the dashboard. The architecture also provides a foundation for integrating additional AI-based functionality as the remaining backend and AI service components are developed.

B. Resume Processing and Analysis

The resume processing module allows users to upload their resumes directly through the mobile application. After upload, the resume content is processed to extract useful information such as candidate details and relevant skills. This information is then used by other modules of the system for career-related analysis.
The extracted resume data is stored in the MySQL database, allowing the application to retrieve the information when required. The resume analysis module uses this processed information to provide an ATS-oriented evaluation of the resume. The analysis results are displayed through the mobile application and are also saved in the database for later access.
This module forms the basic processing layer for the next stages of the system, particularly skill-gap analysis and job matching. By converting the uploaded resume into structured information, the system can use the same data across multiple career-preparation features.

C. Skill Gap Analysis and Job Matching

The skill gap analysis module is designed to help user understand the difference between the skills present in their resume and the skills expected for relevant job roles. The module uses the information obtained during resume processing and analysis to identify areas where the candidate may need improvement.
The identified skill gaps are presented through the mobile application so that users can understand which areas require further attention during their placement preparation. This information can also support the job-matching process by providing a clearer view of the candidate's current profile and areas that may need development.
The current implementation provides the basic skill-gap identification workflow. More advanced AI-based evaluation and deeper skill assessment are planned as part of the future development of the system.

D. Dashboard Implementation

The dashboard provides a centralized view of the user's career-related information within the mobile application. It brings together the latest resume analysis, skill-related information, job-matching results, and other relevant career details so that users can review their results from a single location. This reduces the need to navigate through multiple sections of the application to access important information generated during the resume analysis process.
The dashboard also acts as an entry point to the main career-preparation features of the system. After completing the resume analysis workflow, users can return to the dashboard to review their available results and continue with other activities such as skill-gap analysis, job matching, and interview practice. The current implementation focuses on presenting the available information in an organized manner and providing users with convenient access to the major features of the application.

E. Basic AI Interview Module

The AI interview module provides users with a dedicated environment for practicing interview

questions as part of their placement preparation. It complements the resume analysis features by allowing users to prepare for the interview stage after reviewing their resume and career-related information. The module is integrated into the overall application workflow along with features such as resume analysis, skill-gap identification, and job matching. The current implementation focuses on establishing the basic interview-practice workflow through the mobile application.

At the present stage, advanced response evaluation and interview-history features are still under development. Future improvements can include more detailed evaluation of user responses, storage of previous interview attempts, and analysis of interview performance over time. These features would help users track their preparation and identify areas that require further improvement, while the current implementation provides the foundation for expanding the interview module in future versions.

F. Database Implementation and Data Persistence

The backend services connect the mobile application with the MySQL database and handle the main data-related operations. User information, processed resume data, and analysis results are stored in the database so that they can be accessed when required.

The backend also manages requests related to authentication, resume processing, analysis, and retrieval of career-related information. This integration allows the different modules of the application to work together and provides a consistent flow of data between the mobile interface and the database.

V. RESULTS AND DISCUSSION

A. Implemented System Functionality

The implemented system provides the main functionality required for resume-based career preparation. Users can create an account and log in to the application before accessing the available career-related features. After authentication, users can upload their resumes through the mobile interface, and the uploaded content is processed to extract relevant information. The processed resume information is then used for further analysis and can be accessed through the application when required.

The system also includes resume analysis with an ATS-oriented evaluation, along with skill-gap identification and job-matching functionality. These features use the information obtained from the user's resume to provide relevant career-related results. The dashboard brings the main results together in one place, allowing users to review their resume analysis and related information without moving between multiple sections of the application. A basic interview module is also included to support interview practice as part of the overall placement-preparation workflow.

The implemented prototype demonstrates the core workflow of the proposed AI Career Assistant, from user authentication and resume upload to analysis and career preparation. The major modules have been integrated to provide a continuous user experience within the mobile application. However, the current implementation is still at the prototype stage, and advanced AI-based evaluation, interview-history features, stronger authentication, production deployment, comprehensive testing, and final Android packaging remain planned for future development.

B. Current System Status

The current system is implemented as a working prototype that covers the main workflow of the proposed AI Career Assistant. The implemented features include user authentication, resume upload and processing, resume analysis, ATS-oriented evaluation, skill-gap identification, job matching, dashboard access, and basic interview practice.

The mobile application is connected with the backend services and MySQL database for handling user and resume-related information. The core modules have been integrated to provide a continuous workflow from resume submission to career-related analysis and interview preparation.

Some components are still under development. Advanced AI-based evaluation through the planned Python/FastAPI service, interview result history, stronger authentication using mechanisms such as bcrypt/JWT, production deployment, comprehensive testing, and final Android packaging have not yet been completed. Therefore, the present version should be considered a functional prototype rather than a production-ready application.

C. Discussion of the Current Implementation

The current implementation demonstrates the feasibility of combining resume analysis and interview preparation within a single mobile application. The

implemented modules work together to provide a continuous workflow from user authentication and resume upload to resume analysis, skill-gap identification, job matching, and interview practice.

The use of React Native with Expo provides the mobile interface, while Node.js-based backend services and MySQL support application processing and data persistence. This structure allows the major components of the system to communicate with each other and provides a foundation for adding further functionality.

Although the core workflow is functional, the current implementation is still at the prototype stage. Advanced AI-based evaluation and some production-level features are yet to be completed. The present implementation therefore provides a foundation for further development and testing of the proposed AI Career Assistant.

D. Limitations and Remaining Development

The current implementation has some limitations that need to be addressed in the next development stage. The advanced AI-based evaluation service using Python/FastAPI is still under development and has not been fully integrated into the system. The interview module currently provides basic practice functionality, while interview result history and more detailed response evaluation are yet to be implemented.

Other remaining tasks include improving authentication with stronger security mechanisms such as bcrypt and JWT, carrying out comprehensive system testing, deploying the application in a production environment, and completing the final Android application packaging. These improvements will help make the system more reliable, secure, and suitable for wider use.

VI. CONCLUSION

The AI Career Assistant presented in this work is designed to support students and early-career job seekers in their placement preparation by combining resume analysis and interview practice within a single mobile platform. The system brings together important functions such as user authentication, resume upload and processing, ATS-oriented evaluation, skill-gap identification, job matching, dashboard access, and basic interview practice. This integrated approach provides users with a structured workflow for understanding their resume and preparing for suitable job opportunities.

The current prototype successfully implements the major components of the proposed system. The mobile application is developed using React Native with Expo, while Node.js-based backend services manage application operations and MySQL is used for persistent data storage. These components work together to process user and resume-related information and present the results through the application. The dashboard provides a centralized view of the user's latest career-related information, making the main functions accessible through a common interface.

The implementation also demonstrates the potential of connecting resume assessment with skill-gap analysis, job matching, and interview preparation. Instead of using separate tools for each stage of placement preparation, the proposed platform provides these functions within one workflow. However, the current version is still a functional prototype. Advanced AI-based evaluation using the planned Python/FastAPI service, interview result history, detailed response evaluation, stronger authentication, comprehensive testing, production deployment, and final Android packaging remain to be completed.

Overall, the developed system provides a foundation for an integrated mobile-based career preparation platform. The present implementation demonstrates the feasibility of combining resume-related analysis with interview preparation and career-oriented information in one application. Future development can focus on completing the remaining modules and improving the system's intelligence, security, reliability, and usability so that it can become more suitable for practical use by students and early-career job seekers.

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