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AI-Powered Interview Evaluation and Resume Analysis System

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Abstract: *Traditional recruitment processes take a lot o[time, e(ort and consistency because they rely on manual resume screening, subjective interview judgment rind multiple evaluation stages. Recruiters often difficult to compare large numbers of candidates fairly, verify identity before online assessments, and produce structured hiring decisions, which leads to delay, bias end increased workload. To solve these problems, an Al-powered interview evaluation and resume analysis system is developed. Candidates con upload resumes, verify identify using ID card end live selfie matching, and appear (or role-based interviews containing MCQ, theory and coding questions. The system automatically extracts resume details, matches skills with job requirements, evaluates answers, and generates ranked reports with recommendations. This makes recruitment [aster, fairer, more secure and easier for recruiters, HR teams end academic evaluators.*

Keywords: *Artificial Intelligence, Resume Analysis, Job Matching, Identity Verification, Interview Evaluation, Automated*

I. INTRODUCTION

AI-Powered Interview Evaluation & Resume Analysis System is an AI-driven recruitment intelligence platform designed to improve the efficiency, consistency, and fairness of candidate screening and interview assessment. The system processes candidate resumes and job descriptions to extract and organize relevant information such as skills, education, experience, projects, and role requirements into structured representations. It enables recruiters and academic evaluators to assess qualification alignment with specific roles, verify candidate identity before assessment, and evaluate interview performance using role-based MCQ, theory, and coding questions. The platform also supports structured scoring, recommendation generation, and downloadable evaluation reports, providing an integrated environment for managing resume analysis, identity verification, interview evaluation, and hiring decision support within a single workflow. The motivation for developing this system arises from the need for a more transparent, reliable, and scalable approach to modern recruitment processes. Recruiters and evaluators require better support in interpreting resume content, relating candidate qualifications to job requirements, confirming candidate identity before online assessments, and evaluating technical responses in a consistent manner. Manual screening remains time-consuming and often inconsistent across reviewers, while many digital hiring workflows lack integrated identity verification and structured interview scoring. These challenges highlight the need for a unified system that supports informed hiring decisions while maintaining fairness, authenticity, and credibility of candidate evaluation information.

Problem Statement:

Modern recruitment relies a lot on automated systems to handle resumes, screen candidates, and assess interviews. However, there are some challenges. First, resumes come in many different formats, making it hard to accurately pull out and organize candidate information. Second, matching a candidate's qualifications to job requirements is tricky because the words used in resumes and job descriptions don't always match exactly, so simple keyword searches aren't enough. Third, when assessments happen online, it's difficult to be sure the person taking the test is really who they say they are. Fourth, interview scoring can be inconsistent because it depends on different interviewers' opinions, so there's a need for fair and consistent evaluation methods. Finally, the recruitment process is often split across several different tools, which can make it hard for recruiters to keep everything connected and organized.

Objectives:

• Develop a resume intelligence system to extract and organize candidate information, and analyze job descriptions for accurate skill and requirement matching.
• Verify candidate identity through ID-card upload and live selfie comparison before assessments.
• Generate role-based interview questions (MCQ, theory, coding) and evaluate responses with structured scoring to provide detailed, interpretable results.
• Provide dashboards for recruiters and candidates to track progress and rankings, compute overall scores, and generate downloadable evaluation reports for data-driven hiring decisions.

II. MATERIAL AND METHODS

Existing System

The existing recruitment ecosystem comprises Applicant Tracking Systems (ATS), online job portals, resume processing platforms, interview platforms, and reporting tools. These systems support different stages of the recruitment process and are generally provided as separate services rather than as a unified candidate-evaluation workflow.

Proposed System

The AI-Powered Interview Evaluation & Resume Analysis System is proposed as an integrated recruitment-intelligence platform designed to address the limitations identified in existing hiring workflows. The system combines resume analysis, job matching, identity verification, role-based interview assessment, automated scoring, and report generation within a unified platform.

System Architecture

The system follows a modular layered architecture consisting of the user interface, backend API, core processing modules, and data and service layers. The architecture separates user interaction from application processing, persistent data storage, optional AI services, and file storage. This structure enables the different functions of the system to operate as coordinated modules while maintaining separation between presentation, processing, and data management.

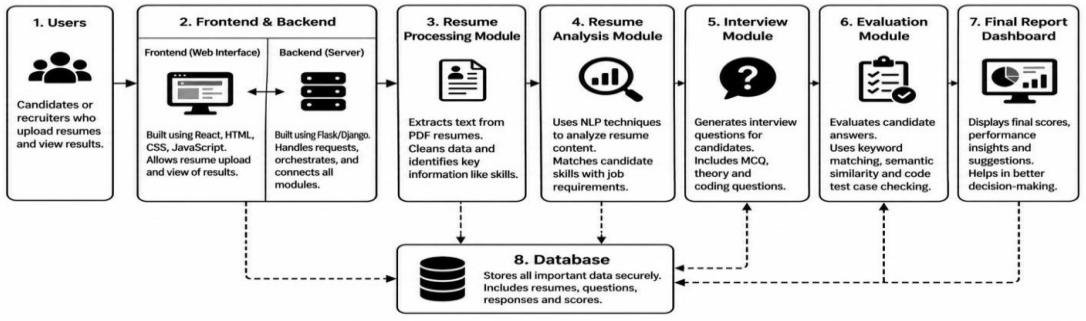
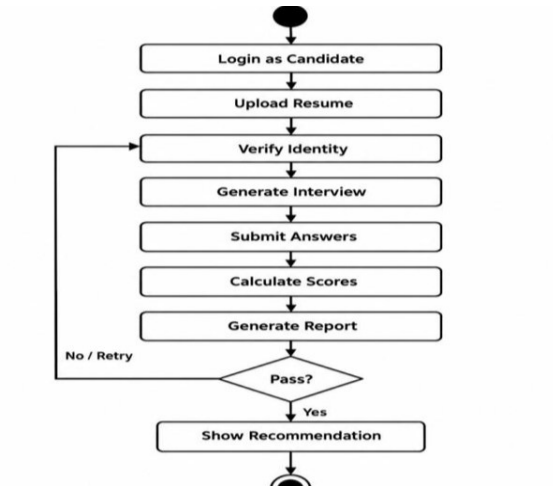


Fig. 1. System Architecture.

The system follows a layered architecture consisting of the user interface, frontend, backend API, core processing modules, and data and optional service layers. The user interacts with the system through the web interface to log in, upload resumes, verify identity, take interviews, and access reports. The frontend, developed using React, sends user requests to the FastAPI backend.

Workflow

The activity diagram represents the major activities and decision points involved in using the system. It shows how the user accesses the system, provides the required input, performs resume or interview-related analysis, and selects the appropriate recruitment-support function



Technology Stack

Table 2: Technologies used

Technology	Role
React 18, axios, reactrouter-dom	User interface and role-based navigation
Python, FastAPI, Uvicom	REST APIs and evaluation logic
SQLite/MySQL, optional MongoDB	Users, veñfications, reports, files
Rule-based NLP, optional Ollama	Resume enrichment and analysis support
JWT, bcrypt/passlib	Authentication and access control

Implemented Modules

- **Authentication and User Access Module**: Manages user login, JWT authentication, password verification, and role-based access for candidates and recruiters.
- **Resume Analysis Module:** Extracts candidate details, education, experience, projects, certifications, and skills from resumes and calculates a resume quality score.
- **Job Matching Module:** Compares candidate skills and resume details with job requirements to calculate match scores and identify strengths and missing skills.
- **Identity Verification Module:** Verifies candidate identity by comparing an uploaded ID card with a live selfie and records the verification status.
- **Interview Generation Module:** Generates role-based MCQ, theory, and coding questions according to the selected role and question-count preferences.
- **Evaluation Module:** Evaluates candidate answers, executes coding test cases, calculates section-wise and overall scores, and provides recommendations and feedback.
- **Report Generation Module:** Stores evaluation results, manages candidate reports, and generates downloadable PDF evaluation summaries.

III. RESULT

Snapshots

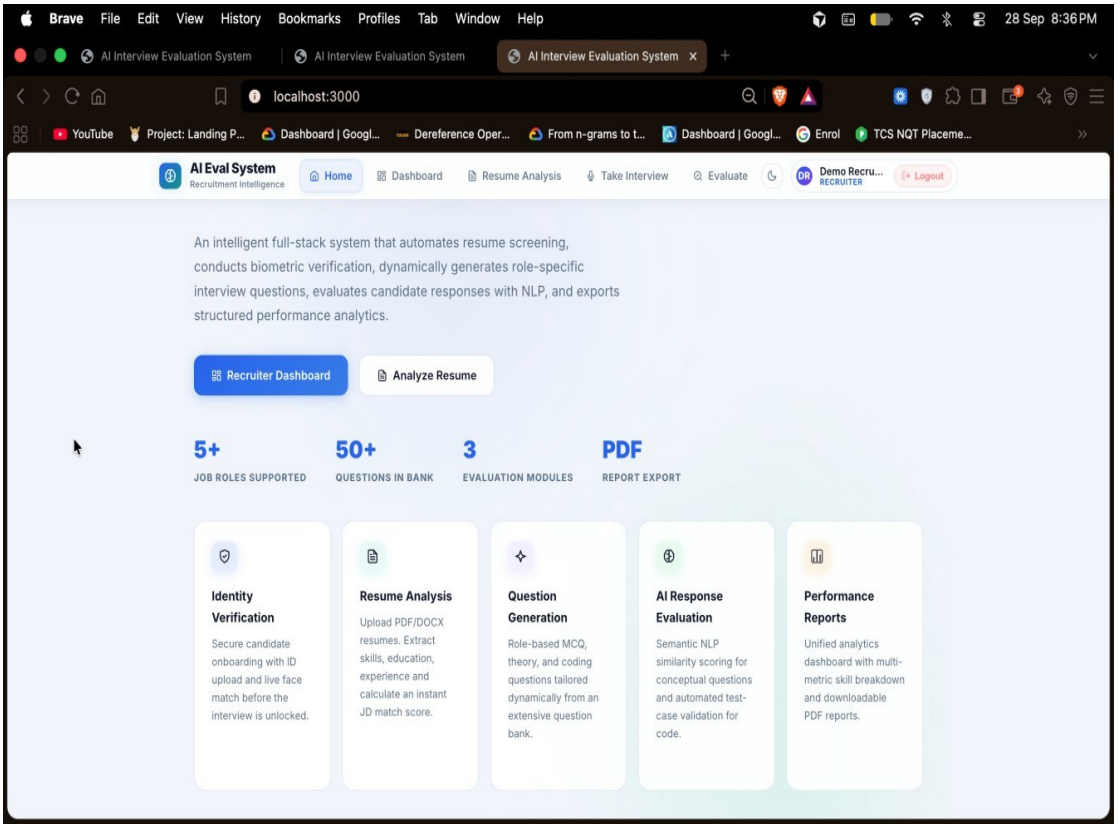


Fig. 3. Home page

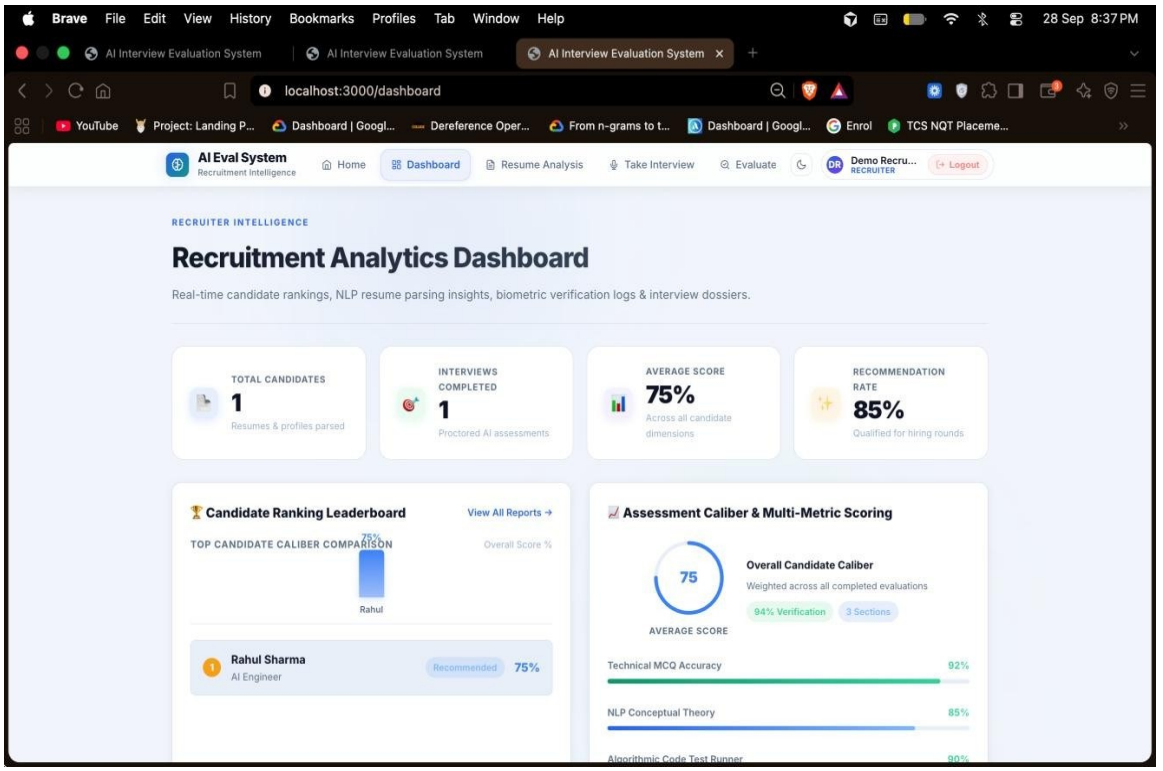


Fig. 4. Recruitment Analytics Dashboard

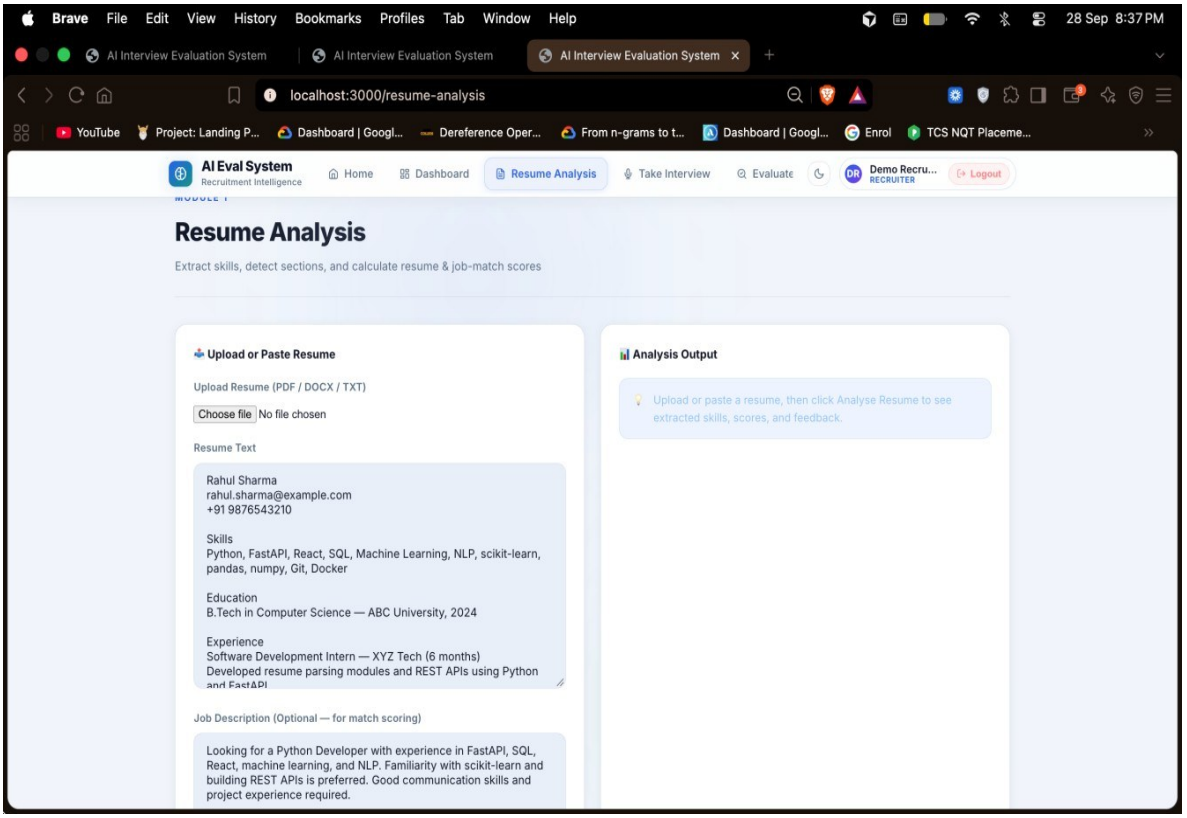


Fig. 5. Resume Analysis

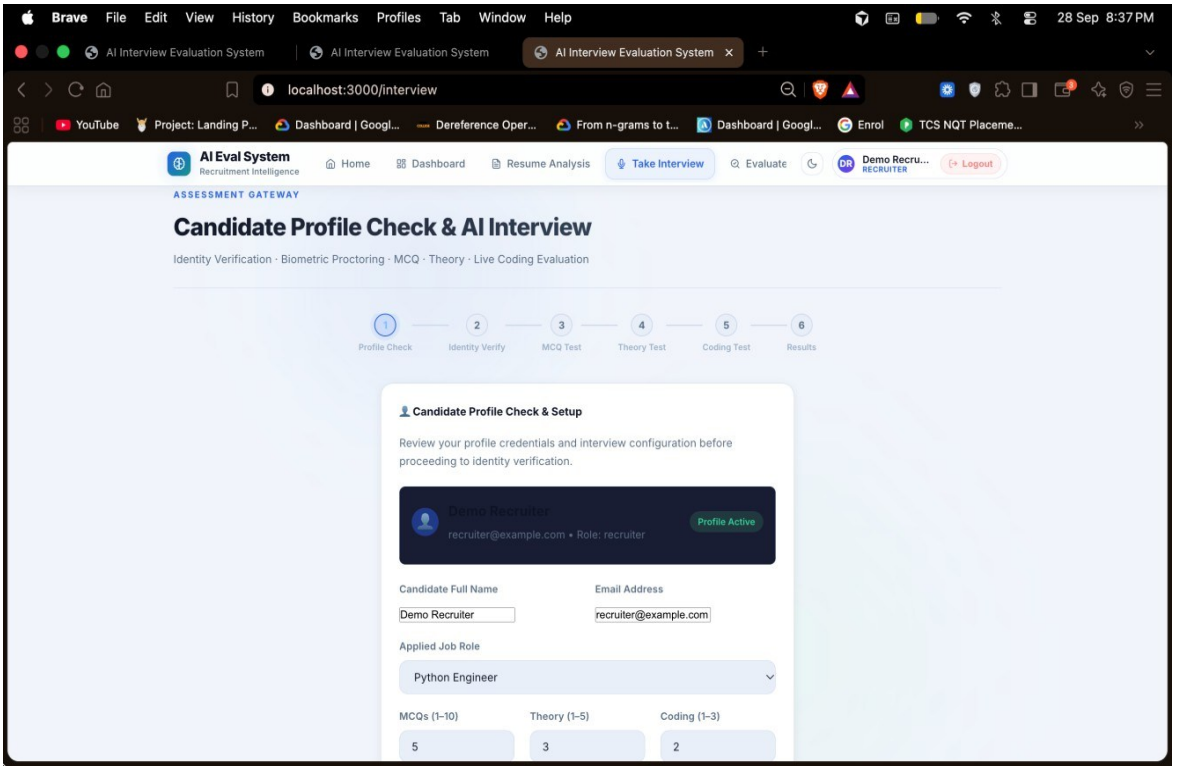


Fig. 6. Candidate Profile Check & AI Interview

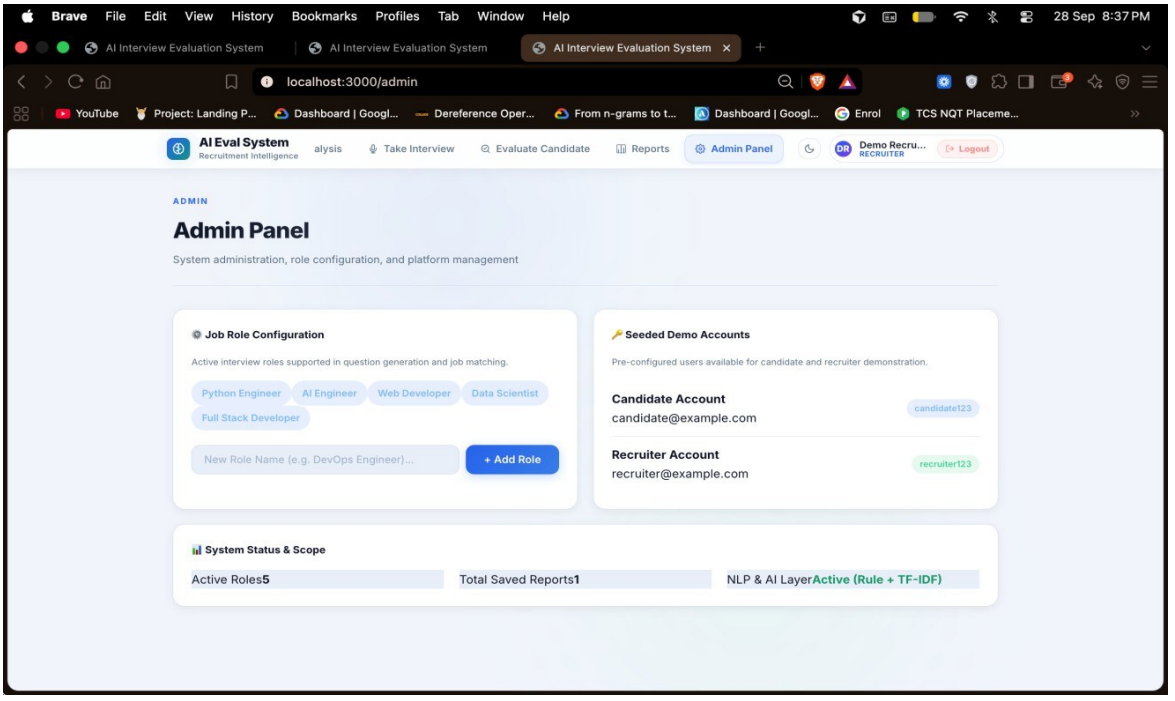


Fig. 6. Admin Panel

Results Summary

The system successfully generated resume analysis results, identity verification outcomes and interview evaluation reports based on user inputs, producing accurate and structured outputs. User interactions such as login, resume upload, verification, interview submission and report retrieval performed smoothly with quick response times. Overall, the system delivered consistent and reliable results across multiple test cases. Performance evaluation showed that the system responded within seconds for major operations under local deployment, meeting the defined non-functional requirements. User testing indicated high satisfaction with interface simplicity, workflow clarity and output usefulness. The system demonstrated good stability, portability and scalability during functional and end-to-end workflow testing

Testing Methodology

Testing and validation in the AI-Powered Interview Evaluation & Resume Analysis System are performed to verify the correctness and consistency of the implemented system. The testing process covers the major backend processing functions, resume processing, identity verification, interview generation and evaluation, database operations, report generation, and frontend validation. Backend functions are validated through API testing and manual verification of individual processing workflows. Document-processing tests verify resume extraction and organization across supported document formats. Identityverification tests validate successful and failed matching scenarios. Interview and scoring tests validate question generation, answer evaluation, weighted scoring, and recommendation logic. Database-related functionality is tested using the configured SQLite or MySQL environment, while frontend validation includes browser-based workflow checks across candidate and recruiter roles. Integrated workflow testing is used to verify the interaction between multiple system components from login to report download.

Functional Testing

The following representative test cases were used to validate the major functional modules and supporting components of the system. The test cases include normal operations, invalid inputs, boundary conditions, and important edge cases.

Test ID	Scenario	Expected outcome	Actual result
TC01	Valid candidate/recruiter login	JWT issued and dashboard opened	Pass
TC02	Resumebupload (PDF/DOCX)	Skills and scores extracted	Pass
TC03	MatchingbbID and selfie	Verification accepted	Pass
TC04	Mismatched identity images	Verification rejected	Pass
TC05	Role-based interview completion	Section and overall scores generated	Pass
TC06	Report PDF download	Structured repon downloaded	Pass

Table I. Representative functional test cases

The table presents representative scenarios from the project's test plan. The expected outcomes are not evidence that tests passed. Actual results must be completed from testing records.

IV. DISCUSSION

The developed system demonstrates that AI-based recruitment assistance can significantly simplify the hiring process for users by automating resume analysis, identity verification and interview evaluation efficiently. The results show that the system is easy to use, delivers quick responses, and maintains stable performance across different test scenarios. Although the current model provides effective evaluation support, further improvements such as stronger biometric verification, advanced LLM-based answer scoring, voice/video interview analytics and cloud deployment can make the system even more powerful and user-centric. Compared with fragmented existing tools, the proposed platform provides an integrated candidate-to-report workflow. Deterministic scoring for MCQ and coding improves reproducibility, while optional Ollama enrichment offers flexibility for richer resume insights. The main limitations are dependence on resume formatting quality, lightweight facesimilarity verification, and controlled academic execution of coding answers. These limitations are acceptable for a finalyear demonstration and provide a clear roadmap for future enhancement.

V. CONCLUSION

The project effectively illustrates how automation in technology may make recruitment evaluation simpler. The system provides a contemporary method for analysing candidates by combining React, FastAPI, NLP-based scoring and imagebased identity checks. The procedure is made more participatory and effective by the ease with which candidates can upload a resume, verify identity and complete role-based interviews. Without depending only on subjective judgment, the system swiftly processes inputs and creates structured outputs that highlight scores, feedback and recommendations. It is appropriate for recruiters and academic evaluators who seek quick and consistent assessment support because of its user-friendly interface and dependable functionality. The entire evaluation process is accelerated and less manual labour is required thanks to the automated approach. Overall, the project's goals of increasing accessibility, reducing time, improving fairness and fostering innovation in recruitment evaluation are met. It offers a useful, clever and intuitive platform that makes it easy for organizations to experiment with Al-assisted hiring workflows. This interactive web application demonstrates how AI-powered tools can make interview evaluation and resume analysis more accessible and reliable for a larger audience.

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