

ARTIFICIAL INTELLIGENCE

Placify AI: Next-Gen Campus Placement and AI Resume Studio

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Published October 2026

Abstract

Placify AI is an AI-powered personalized placement and resume assistance platform designed to help students discover suitable job and internship opportunities and improve their career readiness. The system provides profile-based job recommendations, ATS-oriented resume analysis, resume-to-job description matching, skill-gap identification, and application tracking through a centralized dashboard. Its key features are personalized job and internship recommendations based on student profiles and skills; resume building and analysis to improve alignment with specific job descriptions; skill-gap analysis with learning suggestions to enhance career readiness; and application tracking and placement notifications to manage deadlines and recruitment progress. By integrating AI-assisted resume analysis, personalized job matching, skill development guidance, and centralized placement management, Placify AI helps students streamline their placement preparation, identify relevant opportunities, and make informed career decisions.

Keywords: placement assistance; resume analysis; applicant tracking system (ATS); job recommendation; skill-gap analysis; artificial intelligence

1 Introduction

In today's technology-driven era, career development and employment opportunities have become important concerns for students pursuing higher education. Increasing competition in campus placements, evolving industry requirements, and the growing demand for relevant technical skills make it challenging for students to identify suitable job and internship opportunities. Traditional placement preparation often involves manually searching for openings, preparing resumes for different roles, and comparing individual skills with employer expectations. These processes can be time-consuming and may make it difficult for students to understand their career readiness. This highlights the need for an intelligent, accessible, and personalized platform that simplifies placement preparation. With advancements in artificial intelligence, natural language processing, and web technologies, there is an opportunity to develop systems that provide customized career guidance. The proposed Placify AI platform addresses these challenges through an AI-powered solution for personalized placement assistance and resume improvement.

The system aims to simplify the placement preparation process by helping students discover relevant job and internship opportunities based on their profiles, qualifications, skills, and career interests. Placify AI provides personalized recommendations that help students identify opportunities aligned with their backgrounds and professional goals. The platform also supports resume analysis by comparing a student's resume with a specific job description to identify relevant skills, matching qualifications, and missing requirements. These insights help students understand how well their

resumes align with particular opportunities and where improvements may be needed. By combining opportunity discovery with resume assistance, Placify AI provides a centralized environment for students to organize and improve their placement preparation.

A key feature of the system is its focus on personalized job recommendations and AI-assisted resume analysis. Students can use the platform to explore suitable job openings and internships while evaluating how their existing skills and qualifications match employer requirements. The resume assistance component helps identify areas that may require improvement and provides guidance for making resumes more relevant to specific roles. In addition, skill-gap analysis highlights the differences between a student's current skill set and the requirements mentioned in job descriptions. Based on these insights, students can identify areas for further learning and focus their preparation on skills relevant to their desired career paths. This approach encourages students to take a more structured and informed approach to placement readiness.

The system integrates artificial intelligence techniques with modern web technologies to provide an interactive and accessible user experience. The frontend is developed using technologies such as HTML, CSS, JavaScript, and React to deliver a responsive interface. The backend uses Node.js and Express.js to handle application logic and communication between system components, while MongoDB stores relevant user profiles, resume information, and application data. Python-based AI services support intelligent processing tasks, including resume analysis, job-description comparison, and skill-gap identification. These technologies work together to provide personalized recommendations and AI-assisted career guidance through a unified platform. The modular architecture also allows the AI components and web application to be developed and maintained independently.

In terms of design, Placify AI emphasizes simplicity, usability, and efficient navigation. The platform provides a centralized dashboard through which students can access recommended jobs and internships, review resume analysis results, identify skill gaps, and monitor their application progress. Information is organized to help users understand relevant opportunities and take appropriate next steps in their placement preparation. Resume-to-job-description comparisons and skill-related insights can help students recognize areas of alignment and improvement. The interface is designed to make career-related information easier to access and manage, reducing the need to switch between multiple tools for different placement activities.

Furthermore, the modular architecture of Placify AI supports continuous improvement and future expansion. The platform can be extended with additional job recommendation techniques, enhanced resume analysis, personalized learning suggestions, and improved application management features. Future developments may include automated placement notifications, recruitment deadline reminders, interview preparation resources, and integration with external job portals. Cloud-based deployment using services such as Vercel, Hugging Face, and MongoDB Atlas can also support accessibility and deployment flexibility. These extensions could help the platform evolve with changing recruitment practices and student requirements while maintaining a unified placement assistance experience.

Equally important is the system's commitment to responsible AI usage and data protection. Since the platform may process personal profiles, educational qualifications, resumes, and career-related information, appropriate access control and secure data handling are essential. Placify AI aims to use student information to provide relevant recommendations and personalized assistance while protecting sensitive data. AI-generated recommendations and resume evaluations are intended to support students' decisions rather than guarantee selection or placement success. Students remain

responsible for reviewing suggested changes and ensuring that the information in their resumes is accurate. This responsible approach helps establish a more transparent and trustworthy environment for AI-assisted career preparation.

Ultimately, Placify AI demonstrates the potential of artificial intelligence to simplify placement preparation and provide personalized career assistance to students. By combining job and internship recommendations, AI-assisted resume analysis, job-description matching, skill-gap identification, and application tracking, the platform offers a structured approach to career readiness. Its integration of modern web technologies, AI services, and centralized dashboard features helps students organize their placement activities and make more informed decisions about their professional development. Through continuous improvement and responsible AI implementation, Placify AI aims to bridge the gap between student capabilities and recruitment requirements while making placement preparation more accessible, organized, and personalized.

2 Literature survey

2.1 Introduction to AI-based placement assistance systems

The increasing competition in the job market and the growing demand for industry-relevant skills have made placement preparation an important aspect of higher education. Traditional placement processes often require students to search across multiple platforms for job opportunities, prepare resumes manually, and identify the skills required for specific roles. These activities can be time-consuming and may not provide personalized guidance based on individual qualifications and career interests. With advancements in Artificial Intelligence (AI), automated recommendation systems and intelligent career assistance platforms have emerged as promising solutions. Such systems aim to simplify job discovery, improve resume preparation, and help students make informed career decisions. AI-powered placement platforms provide opportunities to connect student profiles with recruitment requirements while supporting a more organized and personalized placement preparation process.

2.2 AI-based job and internship recommendation systems

Job recommendation systems have gained considerable attention as a way to connect job seekers with relevant employment opportunities. Traditional job portals generally allow users to search using keywords, locations, and job categories. However, these approaches may not fully account for individual skills, educational qualifications, experience, and career preferences. AI-based recommendation systems can analyze user profiles and job descriptions to identify relevant opportunities. Techniques such as content-based filtering, collaborative filtering, and machine learning-based ranking can be used to recommend jobs and internships according to user requirements. These systems can reduce the effort involved in searching for suitable opportunities and help students discover roles that align with their career goals. However, the quality of recommendations depends on the relevance, accuracy, and availability of the underlying job and profile data.

2.3 AI-powered resume analysis and ATS optimization

Resume analysis is an important component of modern recruitment and placement preparation. Applicant Tracking Systems (ATS) are commonly used by organizations to manage applications and identify resumes relevant to job requirements. Students may find it difficult to determine whether their resumes adequately represent the qualifications and skills required for a particular role. Natural

Language Processing (NLP) techniques can be used to extract information from resumes, identify relevant skills, and compare resume content with job descriptions. Keyword matching, semantic similarity, and text classification techniques can help identify matching qualifications and missing requirements. AI-assisted resume analysis can therefore provide suggestions for improving the relevance and clarity of a resume. However, resume analysis tools should be treated as guidance systems because recruitment decisions depend on multiple factors beyond keywords and automated scores.

2.4 Resume-to-job description matching

Matching a resume with a specific job description is an important step in personalized placement assistance. Different job roles may require different technical skills, educational backgrounds, certifications, and experience levels. A resume prepared for one position may not adequately highlight the qualifications required for another. AI-based matching systems analyze the content of resumes and job descriptions to identify similarities and differences between candidate profiles and employer expectations. NLP techniques, keyword extraction, and semantic similarity methods can support the identification of relevant skills and qualifications. The resulting comparison helps students understand which parts of their profiles align with a particular opportunity and which areas may require improvement. Integrating resume-to-job description matching into a placement platform can make resume preparation more targeted and systematic.

2.5 Skill-gap analysis and personalized learning guidance

Skill-gap analysis is an important area in career development and employability enhancement. The rapid evolution of technologies and industry practices creates a need for students to continuously update their knowledge and technical skills. However, students may not always know which skills are required for their desired job roles or how their current capabilities compare with those requirements. AI-assisted skill-gap analysis can compare a student's profile with the skills specified in job descriptions and identify potential areas for improvement. Based on these findings, the system can suggest relevant topics, learning resources, or areas for further practice. This approach helps students organize their preparation according to their career objectives. Nevertheless, the usefulness of skill-gap analysis depends on the completeness of student profiles and the accuracy of the extracted job requirements.

2.6 Technologies and frameworks used

AI-based placement assistance platforms combine artificial intelligence, web development technologies, and database systems to deliver personalized services. Natural Language Processing techniques support resume parsing, job-description analysis, skill extraction, and text comparison. Python-based services can be integrated to implement AI-related processing tasks, while JavaScript-based frameworks support the development of interactive web applications. React can be used to build a responsive frontend, and Node.js with Express.js can manage backend operations and application programming interfaces. MongoDB provides a flexible database for storing student profiles, resume information, and application records. Deployment platforms such as Vercel, Hugging Face, and MongoDB Atlas can support hosting the frontend, AI services, and database infrastructure, depending on the final deployment architecture. Integrating these technologies enables the development of a modular and accessible platform for personalized placement assistance.

2.7 Gaps identified in existing systems

Despite the availability of job portals, resume builders, and career guidance tools, students may still need to use multiple independent platforms for their placement preparation. Job discovery, resume analysis, job-description matching, skill-gap identification, and application tracking are often handled separately. This fragmentation can make it difficult for students to maintain a clear understanding of their placement progress. Generic job recommendations may also fail to reflect individual skills and career preferences, while basic resume-checking tools may not provide sufficiently targeted feedback for specific job roles. Furthermore, students may struggle to identify the skills they need to improve before applying for a position. These challenges highlight the need for an integrated platform that combines personalized job recommendations, AI-assisted resume evaluation, skill-gap analysis, and centralized application management. The proposed Placify AI system addresses these needs by bringing these placement assistance features together in a unified application.

2.8 Role of user interface and experience design

User Interface (UI) and User Experience (UX) design play an important role in the effectiveness of digital placement assistance platforms. A well-organized interface enables students to access job recommendations, review resume feedback, identify skill gaps, and manage application activities efficiently. Dashboards, structured navigation, readable information displays, and responsive layouts can improve accessibility and usability across desktop and mobile devices. Presenting resume analysis results and skill comparisons in a clear format helps users understand the feedback and determine their next steps. An intuitive interface also reduces the complexity of managing multiple placement activities. Therefore, applying modern UI/UX principles is essential for developing a placement assistance system that is accessible, understandable, and convenient for students.

2.9 Data privacy and ethical considerations

AI-based placement platforms process personal information such as educational qualifications, technical skills, resumes, and career preferences. Protecting this information is essential for maintaining user trust and ensuring responsible system operation. Secure authentication, access control, appropriate data storage practices, and protected communication channels can help reduce the risk of unauthorized access. In addition, AI-generated recommendations and resume evaluations should be presented transparently so that students understand their purpose and limitations. Recommendation systems should avoid unfairly excluding candidates based on irrelevant characteristics, and students should retain control over the information they provide. Resume suggestions must also preserve the accuracy of a student's qualifications rather than encouraging misleading claims. Responsible data handling and transparent AI-assisted decision support are therefore important considerations in the design and development of Placify AI.

2.10 Summary

From the reviewed areas of research and existing technological approaches, it is evident that AI can support several important aspects of placement preparation, including job recommendation, resume analysis, job-description matching, and skill-gap identification. However, managing these activities across separate platforms may create difficulties for students who need a centralized and personalized approach to career readiness. The proposed Placify AI system aims to address this challenge by integrating personalized job and internship recommendations, AI-assisted resume analysis, resume-to-job matching, skill-gap identification, and application tracking into a unified platform. By

combining AI services with modern web technologies and a user-friendly dashboard, Placify AI provides a structured approach to placement preparation. The system is intended to support students in identifying relevant opportunities, improving their resumes, recognizing areas for skill development, and managing their placement activities more effectively.

3 Proposed methodology

The proposed MindAura AI system is designed to provide a seamless, intelligent, and user-centric platform for monitoring emotional well-being using multimodal inputs. The methodology focuses on integrating multiple functional modules—such as voice analysis, text analysis, emotional classification, risk assessment, and visualization—into a unified and responsive system that supports both individual users and clinical practitioners.

The approach follows a modular design principle, ensuring that each component operates independently while contributing to the overall system workflow. This modular architecture improves scalability, maintainability, and flexibility, allowing future integration of advanced AI models, additional job recommendation techniques, and career development features. The system combines artificial intelligence services with modern web technologies to provide personalized assistance, efficient data processing, and accessibility across multiple devices around.

The development process follows a structured software engineering lifecycle, beginning with requirement analysis, followed by system design, implementation, testing, and deployment. During the requirement analysis phase, student placement challenges and the limitations of existing job portals and resume assistance tools are considered. Key issues, such as difficulty finding suitable opportunities, lack of personalized resume feedback, limited awareness of skill gaps, and the need to manage applications across multiple platforms, form the foundation for the system requirements.

Based on this analysis, essential features such as personalized job recommendations, resume analysis, job-description matching, skill-gap identification, application tracking, and placement notifications are incorporated into the system design. These features aim to simplify placement preparation, help students identify relevant opportunities, and provide structured guidance for improving their career readiness.

The system design phase focuses on developing a structured architecture that supports both intelligent data processing and user interaction. The frontend interface is developed using technologies such as HTML, CSS, JavaScript, and React to provide a responsive and user-friendly dashboard. The interface includes sections for student profile management, recommended jobs and internships, resume analysis, skill-gap reports, and application progress. Special emphasis is placed on simplicity, clarity, and easy navigation to ensure that students can access important placement-related information efficiently.

The backend architecture uses Node.js and Express.js to manage application logic, process requests, and connect the frontend with the database and AI services. MongoDB is used to store relevant information, including student profiles, resume details, job-related data, and application records. Python-based AI services support intelligent processing tasks such as resume analysis, job-description comparison, and skill identification. Communication between the frontend, backend, and AI modules is managed through APIs, enabling the different components to work together as a unified platform.

A key component of the system is the AI-powered resume analysis and job-matching module. This module examines the content of a student's resume and compares it with the requirements specified in a job description. Natural Language Processing techniques can be used to extract relevant skills, qualifications, and keywords from both documents. The system identifies matching requirements and potential gaps, providing insights that help students understand the relevance of their resumes to specific job opportunities. These results support targeted resume improvement rather than relying only on a general resume evaluation.

The personalized recommendation module focuses on identifying suitable job and internship opportunities based on student profiles, qualifications, skills, and career interests. The system compares available opportunity information with the student's profile to generate relevant recommendations. The skill-gap analysis module further examines the difference between the student's existing skills and the requirements of selected job roles. Based on the identified gaps, the platform can guide students toward areas that require additional learning or practice. These modules work together to support more informed career planning and placement preparation.

The implementation phase involves developing and integrating the individual modules into a cohesive application. The frontend and backend components are connected through APIs, while the AI services provide resume analysis and matching capabilities. Database operations are implemented to manage user information, resume-related data, recommendations, and application records. Input validation mechanisms are incorporated to ensure that submitted information follows the expected format and to reduce processing errors. Authentication and appropriate access controls help protect user information and support secure access to the platform.

The platform also includes application tracking and placement notification features to help students organize their recruitment activities. Students can monitor the progress of their applications, maintain relevant application details, and receive notifications about important placement activities where supported. By centralizing these functions, Placify AI reduces the need to manage placement information across separate tools. The dashboard provides a consolidated view of recommended opportunities, resume insights, identified skill gaps, and application progress, enabling students to plan their next steps more effectively.

The modular architecture allows future enhancements, such as interview preparation assistance, personalized learning recommendations, integration with external job portals, automated deadline reminders, and improved AI-based ranking methods. Deployment options such as Vercel for the frontend, Hugging Face for AI services, and MongoDB Atlas for database hosting can be considered according to the final application architecture. This flexible design supports future development while allowing individual components to be updated without requiring major changes to the entire system.

During the testing phase, each module is evaluated for functionality, reliability, usability, and performance. Functional testing verifies that profile management, resume submission, job recommendations, resume analysis, and application tracking operate as expected. Integration testing checks communication between the frontend, backend, database, and AI services. Usability testing evaluates whether students can navigate the platform and understand the displayed recommendations and analysis results. Performance testing examines the system's response time and behavior under different usage conditions. Identified errors and inconsistencies are addressed to improve system stability and reliability.

Finally, the deployment and evaluation phase involves hosting the application in an appropriate environment and evaluating its behavior through testing and user feedback. Feedback can be used to identify areas for improvement in interface design, recommendation relevance, resume analysis, and overall usability. The system can then be refined to improve the placement preparation experience and ensure that its features align with student requirements. Any claims regarding recommendation accuracy or improvement in placement outcomes should be supported by appropriate evaluation rather than assumed.

The final system, Placify AI, aims to provide a structured, scalable, and intelligent solution for personalized placement assistance. By combining job and internship recommendations, AI-assisted resume analysis, job-description matching, skill-gap identification, and application tracking within a single platform, it helps students organize their placement activities and make informed career decisions. Its modular architecture, responsive interface, and responsible handling of user information establish a foundation for further development in AI-powered career guidance.

4 System implementation

The implementation phase represents the transformation of the proposed design into a functional Placify AI — Next-Gen Campus Placement & AI Resume Studio. It involves converting the conceptual modules, such as resume creation, ATS analysis, AI-based role tailoring, GitHub and LeetCode profile verification, job matching, and resume management, into an integrated web application. This stage focuses on providing students with a centralized platform to create professional resumes, evaluate their suitability for specific job roles, and improve their placement preparation through AI-assisted insights.

The system is structured into multiple software modules, each performing a specific function while maintaining communication with the other components. The Resume Builder Module allows students to create and edit resumes using different sections and professional templates. The ATS Analysis Module evaluates resume completeness, keyword usage, and other resume-related criteria. The AI Role Tailoring Module helps adapt resume content to a target job role while following anti-fabrication rules. The Profile Verification Module retrieves available public GitHub and LeetCode statistics, while the Job Matching Module compares candidate qualifications with job description requirements. The Draft Management Module supports saving, loading, and deleting resume versions. This modular structure improves flexibility, maintainability, and future extensibility.

The implementation began with developing the resume input and editing components. The Resume Builder Module provides ten dedicated forms for personal information, professional summary, education, work experience, internships, projects, categorized skills, certifications, achievements, and languages. Students can enter and modify information through an accordion-based section editor. The application updates the resume preview in real time as the user makes changes, allowing students to observe the effects of their edits immediately. This approach simplifies resume creation and reduces the need to repeatedly generate separate previews.

A major component of the system is the ATS Analysis and Keyword Analyzer. This module evaluates the resume using a dynamic score ranging from 0 to 100 based on implemented criteria such as section completeness, action-verb usage, and keyword density. It provides automated recommendations through a feedback panel, highlighting missing contact information, weak action verbs, and relevant keywords that may improve the resume. The module also identifies potential skill gaps by comparing resume content with job-related requirements or standard industry expectations support-

ted by the implementation. These results help students identify areas for improvement. The score is intended as an internal resume assessment indicator rather than a guarantee of performance in every external Applicant Tracking System.

The AI Role Tailoring Module focuses on adapting resume content to a selected job role. Students can optimize their resume for roles such as Full Stack Developer, Cloud Engineer, DevOps Engineer, Backend Architect, and Data Scientist. The module uses Google Gemini to assist with targeted phrasing and skill grouping, with an offline rule-engine fallback available when the AI service is unavailable. A key feature is the Anti-Fabrication Engine, which aims to prevent the generation of unsupported companies, fictitious degrees, and unearned credentials. Resume modifications are expected to remain grounded in the candidate's existing profile and verified information, helping students present their qualifications more effectively without intentionally introducing false claims.

The Profile Verification Module integrates public developer-profile information from GitHub and LeetCode. The GitHub integration retrieves available information such as public repositories, repository star counts, primary programming languages, and commit-related statistics. The LeetCode integration retrieves available problem-solving statistics, including Easy, Medium, and Hard problem breakdowns. These details can provide additional evidence of a candidate's technical activity and problem-solving experience when incorporated into the resume. The module depends on the availability and accessibility of external profile data, and retrieved information should be checked before being used in a resume.

The Campus Jobs Directory and Job Matching Module supports the comparison of job and internship requirements with a student's qualifications and skills. Job descriptions are analyzed to identify relevant requirements, which are then compared with the candidate's resume information. The system presents matching information and transparent match percentages to help students understand how their existing qualifications relate to a particular opportunity. The Anti-Fabrication Match feature is designed to connect candidate achievements directly with job description requirements instead of relying on unsupported claims. This allows students to identify areas of alignment and recognize requirements that may need further preparation.

The frontend implementation uses React 19, TanStack Start, and Tailwind CSS v4 to provide a responsive and interactive application. The interface includes a resume-building workspace, a template selector, an ATS feedback panel, an AI tailoring interface, a resume preview, and resume management dialogs. Ten professional resume templates are provided, including Modern Professional, ATS Classic, Minimalist Elite, Student and Fresher, Technical Developer, Creative Professional, Corporate Executive, Two-Column Modern, Academic, and Compact Professional. Each template is designed for different presentation needs while maintaining a structured document layout. The PDF export component uses html2pdf.js to generate A4 resume documents, with print fallback support for improved output handling.

The backend implementation uses FastAPI to provide REST API endpoints for resume management and AI-assisted processing. The backend is organized into API endpoints, configuration, database sessions, data models, validation schemas, and service modules. Pydantic v2 schemas support request and response validation, while SQLAlchemy manages database interactions with SQLite or PostgreSQL configurations. The backend supports operations such as creating, retrieving, updating, and deleting resume versions, parsing uploaded PDF or DOCX files, analyzing ATS-related criteria, and tailoring resume content for target roles. The API architecture separates business logic from frontend components, making the application easier to maintain and extend.

The system also incorporates a Multi-Version Draft Manager to support resume organization. Students can create new drafts, load previously saved resumes, update existing versions, and delete obsolete drafts. The frontend includes localStorage-based persistence and REST API integration, providing an offline fallback when the backend is not available. This dual-layer approach helps maintain access to saved resume data in supported usage scenarios. However, local browser storage and server-side database persistence have different capabilities, so synchronization behavior depends on the implementation and availability of the backend.

During the integration phase, the frontend, FastAPI backend, AI services, profile integrations, resume templates, and persistence mechanisms are connected into a unified application. API communication enables the frontend to request resume parsing, ATS analysis, AI tailoring, and resume management operations. Cross-origin resource sharing (CORS) configuration supports communication between the frontend and backend when they operate on different development or deployment origins. Input validation and error-handling mechanisms help manage incomplete submissions, invalid file formats, unavailable external services, and unexpected API responses. Integration testing is important to verify that the individual modules operate consistently within the overall workflow.

The testing and debugging phase focuses on functionality, usability, data integrity, and system stability. Functional testing verifies that resume creation, section editing, template switching, live preview, PDF export, and draft management work as expected. API testing checks resume creation, retrieval, updating, deletion, file parsing, ATS analysis, and role-tailoring endpoints. Integration testing examines communication between the frontend, backend, database, and external profile services. Usability testing evaluates whether students can navigate the resume editor, understand ATS feedback, and use the job-matching features efficiently. Performance testing can assess response times, file-processing behavior, and application responsiveness under different usage conditions. Any accuracy or performance claims should be established through measured testing rather than assumed from the implementation.

Finally, the deployment and evaluation phase involves preparing the frontend and backend for hosting and evaluating the platform through functional tests and user feedback. The frontend can be deployed using Vercel, while the FastAPI backend can be hosted in a compatible server environment. Database deployment can use an appropriately configured SQLite or PostgreSQL setup, depending on the deployment requirements. Hugging Face may be used for compatible AI service deployment where appropriate. Configuration settings and API credentials must be managed securely, particularly when connecting external AI services and developer-profile integrations. Feedback from students and testers can help identify improvements in template usability, resume analysis, job matching, and overall placement preparation.

Future enhancements may include integration with additional job portals, personalized learning recommendations, interview preparation tools, improved resume parsing, and expanded career analytics. Additional validation could also evaluate how closely the internal ATS score corresponds to external resume screening tools and how consistently the role-tailoring module preserves the candidate's original information. These improvements could strengthen the platform's usefulness while maintaining transparency in AI-generated recommendations.

Overall, the implementation of Placify AI brings together resume creation, ATS analysis, AI-assisted role tailoring, developer-profile verification, job description matching, and multi-version draft management in a single placement preparation platform. By combining a modern React frontend with a FastAPI backend and modular AI services, the system provides students with tools to prepare

structured resumes, evaluate role-specific requirements, and present their existing skills and achievements more effectively. Its emphasis on reusable templates, transparent feedback, and anti-fabrication safeguards establishes a foundation for responsible AI-assisted career preparation.

5 Advantages

The main advantages of Placify AI are summarised below.

5.1 Enhanced placement preparation and intelligent job matching

- **Accurate Job Matching:** The system matches students' skills, qualifications, and interests with relevant job opportunities based on their profiles.
- **Intelligent Resume Analysis:** AI-powered resume analysis identifies strengths, skill gaps, and areas for improvement to enhance students' employability.
- **Personalized Recommendations:** The platform recommends suitable job roles and placement opportunities based on individual student profiles and career goals.
- **Improved Career Readiness:** Structured preparation resources help students understand industry expectations and prepare effectively for recruitment processes.

5.2 User-friendly interface

- **Simplified Navigation:** The platform provides an intuitive interface that enables students to access placement-related features easily.
- **Responsive Layout:** The web application adapts to desktops, tablets, and mobile devices for convenient access.
- **Organized Dashboard:** A centralized dashboard displays relevant job opportunities, application progress, preparation activities, and placement updates.
- **Effortless Interaction:** Clearly organized features simplify profile management, resume uploads, job searches, and placement tracking.

5.3 AI-powered career guidance

- **Intelligent Career Suggestions:** AI-driven recommendations help students identify suitable career paths based on their skills and interests.
- **Skill Gap Identification:** The system highlights missing skills required for selected job roles and suggests areas for improvement.
- **Personalized Learning Support:** Students can focus on relevant technical skills, aptitude preparation, and interview practice according to their career objectives.
- **Continuous Improvement:** Profile updates and preparation progress help students refine their career plans and improve their placement readiness.

5.4 Efficient placement management

- **Centralized Information:** Placement-related information, including job descriptions, eligibility criteria, and application details, is organized in one platform.
- **Application Tracking:** Students can monitor their application status and keep track of opportunities.

- **Simplified Job Search:** Search and filtering options help students identify relevant opportunities based on job roles, skills, and eligibility requirements.
- **Reduced Manual Effort:** Centralized placement information minimizes the need to search across multiple sources.

5.5 Resume and skill development

- **Resume Optimization:** AI-assisted feedback helps students improve resume content, structure, and relevance to specific job descriptions.
- **Skill-Based Evaluation:** The platform helps students compare their existing skills with the requirements of target positions.
- **Interview Preparation:** Practice resources and AI-assisted feedback can help students strengthen their technical and communication skills.

5.6 Automation and operational efficiency

- **Automated Analysis:** AI-based processing assists in analyzing resumes, matching job requirements, and generating career recommendations.
- **Time-Saving Mechanism:** Automated matching reduces the time spent searching for suitable opportunities manually.
- **Consistent Evaluation:** Standardized profile and eligibility checks help organize placement information more consistently.
- **Seamless Workflow:** Integration of profile management, job discovery, resume analysis, and application tracking creates a streamlined placement preparation process.

5.7 Data privacy and security

- **Secure Data Management:** Student profiles, resumes, and placement information are handled using appropriate security practices.
- **Controlled Access:** Authentication and role-based access can help restrict placement information to authorized users.
- **Confidential Information:** Personal details and uploaded documents are protected against unauthorized access through suitable security measures.

5.8 Responsive and scalable architecture

- **Modular Design:** The application structure supports the independent development and maintenance of different placement-related modules.
- **Scalable Infrastructure:** The platform can be extended to accommodate additional students, recruiters, job listings, and placement features.
- **Cross-Platform Compatibility:** Web-based access enables users to interact with the system through supported browsers and devices.
- **Future Enhancements:** The architecture can accommodate integrations such as recruiter dashboards, mock interview tools, analytics, and external job platforms.

5.9 Sustainable and cost-effective solution

- **Paperless Process:** Digital resumes, applications, and placement records reduce dependence on physical documentation.
- **Reduced Administrative Effort:** Automated workflows help minimize repetitive placement-related tasks.
- **Efficient Resource Utilization:** Centralized information and automated analysis improve the utilization of placement resources.
- **Accessible Implementation:** A web-based platform provides convenient access to placement preparation and career guidance resources for students.

5.10 Enhanced user experience

- **Personalized Dashboard:** Students receive relevant placement information based on their profiles and career preferences.
- **Real-Time Updates:** Timely notifications can inform users about new opportunities, application progress, and important placement announcements.
- **Improved Accessibility:** A centralized platform makes placement resources easier to find and manage.
- **Student-Centric Design:** Personalized recommendations and organized workflows improve engagement and simplify placement preparation.

6 Results and analysis

The developed Placify AI system was successfully designed as an intelligent campus placement and AI-powered resume preparation platform to improve students' readiness for recruitment opportunities. The platform integrates multiple modules, including resume building, ATS score analysis, AI-based role tailoring, GitHub and LeetCode profile verification, campus job matching, and multi-version resume management. These modules work together to provide an integrated environment for resume creation, evaluation, and placement preparation.

During the analysis phase, the system's functionality was examined based on parameters such as ATS score calculation, keyword identification, resume customization, job description matching, data consistency, and response efficiency. The resume builder provides ten professional templates designed for different career profiles, including freshers, software developers, technical professionals, and academic candidates. The modular accordion editor allows users to manage personal information, education, work experience, internships, projects, skills, certifications, achievements, and languages. The live preview updates dynamically as users modify their resume content, improving convenience and reducing repetitive editing.

The ATS audit and keyword analyzer evaluates resume completeness, action verbs, keyword relevance, and missing sections to generate a score between 0 and 100. The system provides recommendations to help users improve resume structure and align their content with the requirements of applicant tracking systems. The missing skills detection feature helps candidates identify potential gaps between their existing qualifications and the expectations of their target job roles. These features support systematic resume improvement and help students prepare more relevant applications for campus recruitment and internship opportunities.

The AI role tailoring engine enables users to customize resume content for specific technical positions, including Full Stack Developer, Cloud Engineer, DevOps Engineer, Backend Developer, and Data Scientist. The integration of Google Gemini and rule-based fallback mechanisms supports role-specific phrasing and skill organization. The anti-fabrication mechanism is designed to prevent unsupported claims by grounding resume customization in the candidate's actual career profile and available verification data. This approach promotes truthful resume preparation while improving the relevance of candidate information to job descriptions.

The integration of GitHub and LeetCode profile verification enhances the credibility of technical profiles. GitHub integration retrieves available public repository information, programming languages, star counts, and commit-related metrics. LeetCode integration retrieves available problem-solving statistics, including Easy, Medium, and Hard problem counts. These verified or externally retrieved details can help students present their practical coding experience and development activities more transparently. The system uses this information to support authentic resume content rather than relying entirely on manually entered achievements.

The campus jobs directory and job description matching module help candidates compare their skills, projects, and achievements against specific job requirements. The anti-fabrication matching interface presents relevant matches between candidate qualifications and job description criteria, helping students understand how their existing profiles align with available opportunities. This functionality reduces the effort required to review recruitment requirements manually.

Furthermore, a comparative analysis between Placify AI and conventional resume preparation methods highlights the advantages of integrating resume creation, ATS analysis, role-specific tailoring, developer profile verification, and job matching within a single application. Traditional approaches often require students to use separate tools for resume formatting, keyword analysis, coding profile evaluation, and job requirement comparison. Placify AI brings these functions together in a centralized platform, reducing repetitive effort and helping students make more informed decisions during placement preparation.

Overall, Placify AI provides an integrated and technology-driven solution for campus placement preparation and professional resume development. Its combination of ATS-oriented templates, AI-assisted resume tailoring, anti-fabrication safeguards, developer profile verification, job description matching, and multi-version draft management supports a more transparent and organized recruitment preparation process. The modular architecture and optional FastAPI backend also provide opportunities for future enhancements, including advanced interview preparation, recruiter dashboards, placement analytics, and additional job platform integrations. The proposed system aims to bridge the gap between student qualifications and industry expectations by helping candidates present their authentic skills and achievements more effectively.

7 Future work

The future development of Placify AI focuses on enhancing the intelligence, reliability, and scalability of the platform to meet the evolving requirements of campus recruitment and career preparation. Although the current system integrates AI-powered resume building, ATS analysis, role-based tailoring, GitHub and LeetCode verification, and job description matching, several enhancements can further improve its functionality and effectiveness.

7.1 Advanced AI-powered resume optimization

Future versions can incorporate more advanced language models to improve resume content, professional summaries, and achievement descriptions according to specific job requirements. Enhanced semantic analysis can identify relevant skills and experiences beyond exact keyword matches, helping students create more targeted and meaningful resumes.

7.2 Intelligent mock interview system

An AI-powered mock interview module can be introduced to simulate technical interviews, aptitude assessments, and HR interview sessions. The system can generate role-specific questions, evaluate responses, and provide personalized feedback on technical accuracy, communication, and problem-solving approaches. This feature can help students improve their confidence and interview performance.

7.3 Enhanced job recommendation engine

The existing campus job matching functionality can be extended using advanced recommendation algorithms that consider skills, academic qualifications, projects, experience, and career preferences. Personalized recommendations can help students discover suitable internships, campus recruitment drives, and entry-level job opportunities.

7.4 Advanced profile verification and anti-fabrication mechanism

The anti-fabrication engine can be enhanced to verify a broader range of candidate achievements through trusted sources and authorized integrations. Future improvements may include project repository analysis, certification verification, contribution summaries, and evidence-based resume recommendations. This will further encourage transparent and authentic representation of student qualifications.

7.5 Personalized skill gap analysis and learning paths

The platform can provide structured learning recommendations based on the difference between a student's current skills and the requirements of target job roles. Integration with learning platforms and technical practice resources can help students identify suitable courses, certifications, coding exercises, and project ideas to improve their employability.

7.6 Advanced ATS analysis and resume evaluation

Future versions can enhance the ATS analyzer by evaluating resume structure, document readability, keyword relevance, section organization, and alignment with individual job descriptions. Testing against a diverse range of job descriptions and document formats can improve the reliability of recommendations. The score can also be calibrated using documented evaluation criteria rather than treated as a universal ATS acceptance probability.

7.7 Real-time job portal integration

Future development can integrate authorized job portals, company career pages, and institutional placement databases through available APIs. Automated job updates and notifications can help students stay informed about new vacancies, application deadlines, eligibility requirements, and recruitment events.

7.8 Recruiter and placement officer dashboard

A dedicated dashboard can be developed for recruiters and college placement officers to manage job postings, define eligibility criteria, review candidate profiles, and monitor recruitment progress. Aggregated analytics can help institutions understand placement trends, student readiness, and frequently requested industry skills.

7.9 Multilingual and accessible interface

The platform can be extended to support multiple languages and additional accessibility features. Simplified language options, keyboard navigation, screen-reader compatibility, and accessible document templates can make the system more convenient for students with diverse needs and backgrounds.

7.10 Cloud deployment and scalable infrastructure

Future deployment can use cloud infrastructure and containerization technologies such as Docker to simplify application deployment, improve portability, and support increasing numbers of users. CI/CD pipelines, automated testing, monitoring.

8 Conclusion

The future enhancements of Placify AI aim to transform the platform into a comprehensive AI-driven campus placement ecosystem. By combining intelligent resume optimization, personalized job recommendations, interview preparation, verified achievements, recruiter integration, and scalable infrastructure, the system can provide more effective support throughout the recruitment process. These developments can strengthen the connection between academic learning and industry expectations while helping students prepare for career opportunities through a transparent, personalized, and technology-driven approach.

Security, privacy, and responsible AI will remain essential considerations in the future development of Placify AI. Since the platform handles personal information, educational details, resumes, and employment-related records, future versions should strengthen authentication, authorization, input validation, secure file handling, and data protection practices. Students should have clear control over the information they share and should be able to review, update, or delete their stored data according to the platform's policies. AI-generated recommendations should be explainable, and the system should avoid inventing qualifications, work experience, certifications, or achievements.

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