SkillBridge AI: An AI-Powered Academia–Industry Collaboration Platform for Skill Mapping, Internships and Placements

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Abstract — Students may find it difficult to identify industry-required skills and discover suitable internships or jobs. Employers need efficient ways to identify candidates whose skills match their requirements, while educational institutions need organized information about student skills and placement progress. SkillBridge AI is a proposed web-based platform connecting students, colleges, and industries. It is designed to support digital profiles, skill assessment, skill-gap analysis, internship and job recommendations, candidate matching, and placement tracking. AI and Machine Learning techniques may compare student skills with role requirements and suggest learning resources. The platform aims to strengthen academia–industry collaboration. Its effectiveness must be assessed through implementation, functional testing, and user feedback.

Keywords: SkillBridge AI, Skill Mapping, Skill-Gap Analysis, Academia–Industry Collaboration, Internships, Placements, Artificial Intelligence, Machine Learning

I. Introduction

Education helps students develop knowledge and technical abilities, while industries expect candidates to apply relevant skills in practical work. Students may be unsure which skills are needed for a chosen career, and employers may find it difficult to identify suitable candidates. Colleges also need organized information to monitor student skill development, internships, and placement outcomes.

SkillBridge AI proposes a centralized platform connecting students, educational institutions, and industries. It brings student skill profiles, assessment information, opportunity listings, and skill-based matching into one system.

II. Background and Review

Students commonly use separate platforms for professional profiles, online learning, internships, and job searches. Student information and applications may therefore remain spread across different systems. Colleges may maintain skill and placement records separately, while recruiters need to compare candidate information with job requirements.

SkillBridge AI addresses this coordination problem by proposing a workflow for student profiles, skill assessment, skill-gap identification, opportunity matching, and placement tracking.

Automated recommendations are intended as guidance, not a guarantee of employment.

III. System Design and Methodology

A. System Overview

The system serves three user groups: students, colleges, and industry representatives. Students create profiles, record skills and projects, complete assessments, and explore opportunities. Industry users publish jobs or internships and list required skills. College users monitor student skill information and placement-related activity.

B. Data Flow

The proposed workflow is Registration → Profile Creation → Skill Assessment → Skill Analysis → Skill-Gap Report → Opportunity Matching → Recommendations → Application Tracking. Relevant profile, assessment, opportunity, and application information is stored in a database and accessed according to user roles.

C. Skill-Matching Mechanism

The matching component compares skills listed in a student profile with skills required for an internship or job. For example, if a role requires Python, SQL, and Machine Learning, the system checks which skills are recorded in the student's profile. It may show matched skills, missing skills, and a match score based on the implemented method.

D. Main Modules

The Student Module manages profiles, skills, projects, certifications, resumes, and applications. The Skill Assessment Module records assessment results. The Skill Analysis Module identifies possible skill gaps. The Industry Module manages company profiles and opportunity postings. The College and Analytics Module supports monitoring and reports.

E. Proposed Technology

The frontend may use HTML, CSS, JavaScript, and React.js. Python with FastAPI or Flask may provide backend services. Pandas, NumPy, and Scikit-learn may support data processing and Machine Learning tasks. NLP may assist with resume skill extraction, and MySQL may store user and opportunity data. The final stack should reflect the technologies actually implemented.

IV. Results and Discussion

SkillBridge AI is expected to make student skills and opportunities easier to manage in one place. Prototype evaluation should test registration, profile updates, assessment records, opportunity posting, skill matching, and application tracking. Sample student profiles and job descriptions can be used to check whether the matching component identifies expected skill overlaps. No accuracy or performance result should be claimed until the system has been implemented and tested. Recommendation quality depends on profile completeness, job-description accuracy, and the matching method.

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V. ADVANTAGES

A. Centralized Platform

Students, colleges, and industries can access relevant functions through a common system.

B. Skill-Gap Awareness

Students can understand which required skills may be missing from their profiles and plan further learning.

C. Opportunity Discovery

Skill-based matching can help students discover relevant internships and jobs.

D. Recruitment Support

Industry users can compare candidate profiles with stated skill requirements.

E. College Monitoring

Colleges can organize student skill information and monitor internship and placement activities.

VI. LIMITATIONS

A. Data Quality

Incomplete or outdated student profiles and job descriptions can reduce matching quality.

B. Recommendation Limitations

A match score indicates profile overlap and cannot guarantee job suitability or selection.

C. Implementation Requirements

Resume parsing and personalized recommendations require suitable data, testing, and maintenance.

D. Privacy and Access

The platform must protect personal information and provide access only to authorized users.

VII. CONCLUSION

SkillBridge AI is a proposed AI-powered platform connecting students, colleges, and industries through skill mapping, internship and job recommendations, and placement tracking. By organizing student skill information and comparing it with industry requirements, the system aims to make career preparation more structured and support academia–industry collaboration. Future enhancements may include verified certificates, multilingual support, interview preparation, and improved learning recommendations. The system's practical value will depend on implementation quality, data reliability, usability, and evaluation.

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REFERENCES

[1] Smart India Hackathon, “Portal for Academia–Industry Collaboration for Skill Mapping, Internships and Placement,” Problem Statement SIH26044, Ministry of AYUSH.
[2] Government of India, Ministry of Skill Development and Entrepreneurship, “National Skills Qualification Framework (NSQF),” official resources.
[3] Python Software Foundation, “Python Documentation.”
[4] scikit-learn developers, “scikit-learn User Guide.”
[5] React team, “React Documentation.”
[6] FastAPI contributors, “FastAPI Documentation.”
[7] MySQL, “MySQL Reference Manual.”

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