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SkillNect: A smart career guidance and development platform

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Abstract

In the job market these days students and professionals have difficult finding the right career path. They also struggle to make a resume and learn the skills they need. The problem is that the tools available for this purpose are scattered across different platforms so it is tough to keep track of progress and get a personalized plan.

SkillNect is a platform that helps with this. It is a website and mobile app that puts everything in one place. This includes looking at resumes making a plan for your career tracking your skills and even practicing for interviews with a computer. It also has parts to help you develop as a person. The people who made SkillNect used React and React Native to build the parts you see. Node.js for the parts that do the work behind the scenes. They put it all on Amazon Web Services (AWS) so it can handle a lot of users.

The system uses computers to look at resumes and give advice on careers. This helps people get from school to a job. SkillNect gives people help with their careers that's just, for them, based on data and organized.

Keywords: Career Guidance; Resume Analysis; AI Mock Interview; Skill Tracking; AWS Cloud

1. Introduction

The IT industry is changing fast and there are a lot of people looking for jobs so you need to have a good plan for your career. Students usually have a time figuring out what skills they are missing making their resumes better and getting ready for interviews. Even though websites like LinkedIn have job listings and ways to meet people in your industry they do not have everything you need to plan your career in one place.

Most systems only focus on one thing like building a resume taking classes or practicing for interviews. This means you have to keep track of everything which can be confusing and does not help you plan your career very well.

SkillNect solves these problems by putting a lot of tools together in one place. These tools include checking your resume making a plan for your career practicing interviews with intelligence learning how to be a better person and keeping track of job openings. The application is made to be able to handle a lot of users. Is built using Node.js for the backend and cloud deployment so it is always available. SkillNect is a career development platform that helps you with things, like resume evaluation and career roadmap generation which're important parts of planning your career with SkillNect.

1.1. SkillNect enables users to

- Improve resume quality with AI suggestions
- Receive structured career roadmaps

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- Track technical and soft skill development
- Practice AI-driven mock interviews
- Monitor job applications and milestones

The platform ensures personalized, data-driven, and structured career development.

2. Literature Survey

- **“AI-Driven Real-Time Interview Simulation App** (Indian Journal of Science and Technology, 2025) This paper discusses AI-based mock interview systems that analyze speech to provide real-time feedback.
- **Placement Predictor and Course Recommender System** (IRJET, 2018) Proposes a recommendation engine to predict placement chances and suggest relevant courses.
- **Inferring Students’ Personality from Communication Behavior in Web-based Learning Systems** (International Journal of Artificial Intelligence in Education, 2019) Demonstrates how AI models can evaluate personality traits through user interaction data.
- **Intelligent ATS Optimization for Resume Development** (IJACTE, 2025) Focuses on improving resume compatibility with Applicant Tracking Systems (ATS). These studies support the need for integrating AI in career guidance systems. However, most systems address only one module (resume, interview, or recommendation). SkillNect integrates all modules into a unified platform.

These systems look at parts of the process. None of them bring everything together in one place. They do not combine looking at resumes helping with career choices developing personalities and practicing interviews. SkillNect puts all these things together in one system that can grow and adapt.

3. Existing System

3.1. Current career development solutions are fragmented and include

- Separate resume analyzers
- Learning platforms like Coursera/Udemy
- Video platforms for mock interviews
- Manual tracking using spreadsheets

3.1.1. Disadvantages

- No unified progress tracking
 - No centralized dashboard
 - Limited personalization
 - No integration of technical + soft skills
 - No real-time AI feedback system
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4. Proposed System

SkillNect is a unified web and mobile application that integrates multiple career development modules into one platform.

4.1.1. Modules

- Resume Analyzer & ATS Score
- Resume upload
- Keyword and format analysis
- ATS compatibility score
- Improvement suggestions

4.1.2. Career Roadmap Generator

- Personalized roadmap
- Course and project recommendations

- Milestone tracking

4.1.3. Personality & Communication Module

- Confidence evaluation
- communication exercises
- Personality assessment

4.1.4. AI-Powered Mock Interviews

- Simulated interview questions
- AI performance scoring
- Feedback on answers

4.1.5. Skill & Job Tracker

- Track applied companies
- Monitor skill progress
- Task reminders

4.1.6. Advantages

- Unified career development system
 - AI-powered recommendations
 - Real-time tracking
 - Mobile and web accessibility
 - Scalable cloud deployment
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5. Methodology

5.1. The system follows a modular architecture

5.1.1. User Authentication Module

- Handles secure login and registration using backend APIs.

5.1.2. Resume Analysis Module

- Uses AI-based keyword extraction and ATS scoring algorithms.

5.2. Resume Scoring Algorithm

The Resume Analysis Module follows a keyword-matching and scoring approach.

5.2.1. Algorithm Steps

- Extract text from uploaded resume.
- Identify relevant keywords using predefined job-role skill datasets.
- Compare extracted keywords with required skill database.
- Calculate ATS Score using matching ratio.
- Generate improvement suggestions.

5.3. Mathematical Model

- Matched Keywords = 18
- Required Keywords = 25

$$ATS\ Score = \frac{18}{25} \times 100 = 72\%$$

This score determines resume strength and generates targeted recommendations.

5.4. Career Recommendation Engine

Generates personalized learning paths based on selected job roles.

5.5. Mock Interview Engine

Evaluates responses and provides feedback using AI logic.

5.6. Dashboard Module

Displays performance metrics, progress charts, and recommendations.

5.6.1. Technology Stack

- Frontend: React (Web), React Native (Mobile)
- Backend: Node.js (REST APIs)
- Database: MySQL / MongoDB
- Cloud: AWS (EC2, S3, RDS)
- Version Control: Git & GitHub

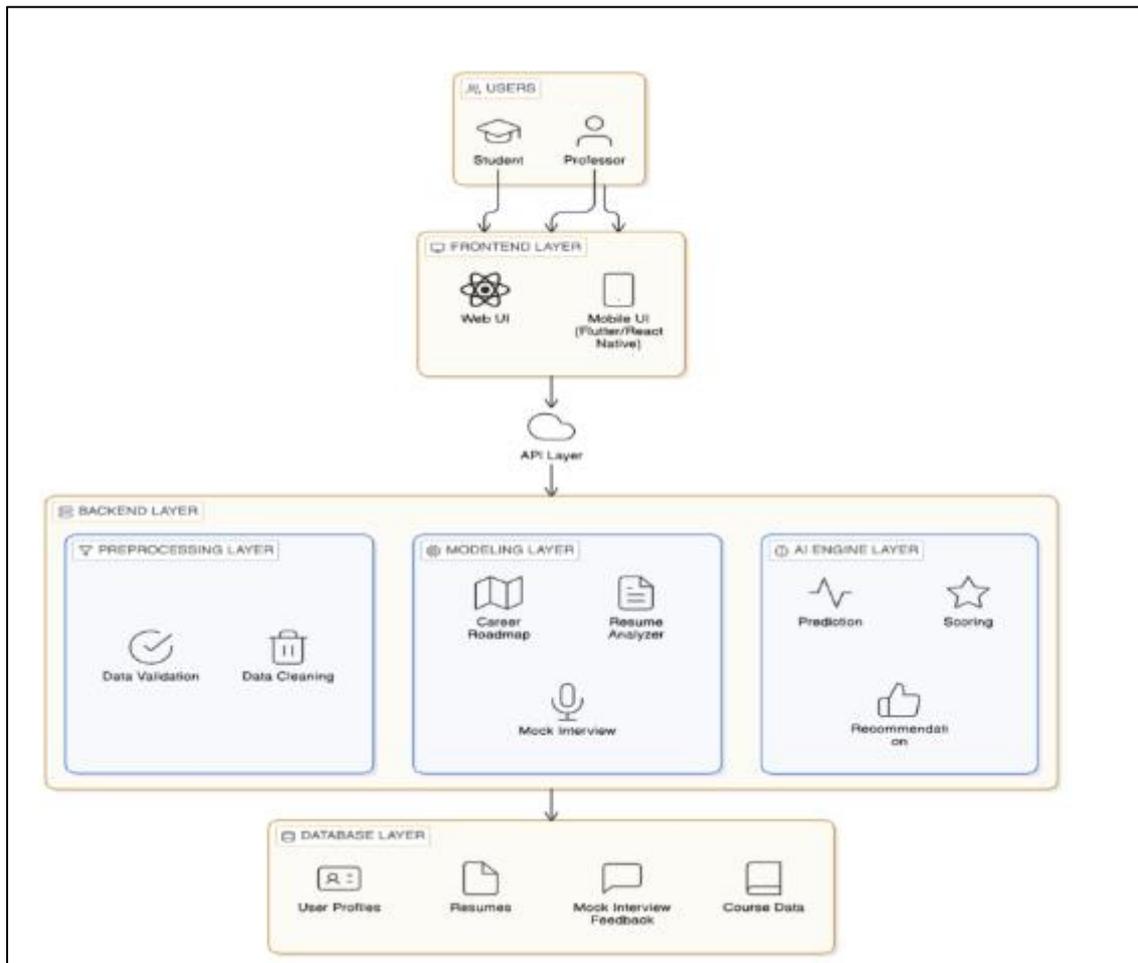


Figure 1 System Architecture of the SkillNect Platform

6. Implementation Details

6.1. Phase 1 - Initialization

- Defined objectives and modules
- Designed system architecture

- Developed UI prototypes

6.2. Phase 2 – Core Development

- Developed REST APIs
- Integrated database
- Implemented resume analysis logic

6.3. Phase 3 – AI Integration

- Developed recommendation algorithms
- Integrated mock interview evaluation

6.4. Phase 4 – Deployment

- Hosted on AWS Cloud
- Configured CI/CD pipeline

7. Conclusion

SkillNect successfully addresses the limitations of traditional and fragmented career guidance systems. By integrating AI-powered resume analysis, structured career roadmaps, mock interviews, and personality development into one platform, the system ensures structured, personalized, and scalable career growth. The application bridges the gap between academic preparation and industry expectations, providing students and professionals with a complete digital career companion.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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