

Next Gen Power – AI Based Skill Obsolescence & Future Readiness Analyzer an AI-Powered Career Intelligence Platform Using NLP and Machine Learning

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Abstract

The rapid advancement of Artificial Intelligence (AI), automation, cloud computing, and digital transformation has reshaped employment. This paper presents NEXT GEN POWER – AI Based Skill Obsolescence & Future Readiness Analyzer, an AI-powered platform that parses resumes, extracts skills using NLP, performs semantic skill-gap analysis, predicts future skill obsolescence, computes career readiness metrics, and recommends companies, courses, and career paths. The system integrates React, Node.js, FastAPI, MongoDB, Sentence Transformers, and AI-based recommendations to provide personalized career intelligence.

I. Introduction

The platform bridges the gap between academic learning and industry expectations using AI, NLP, and Machine Learning. It evaluates resumes, identifies skill gaps, predicts future demand, and generates personalized recommendations.

II. Related Work

Existing job portals and learning platforms provide isolated services such as job search or online learning but lack integrated AI-based career intelligence and future readiness analysis.

III. Proposed System

The proposed system performs resume parsing, semantic skill matching, skill obsolescence prediction, future readiness assessment, company recommendation, course recommendation, industry trend analysis, AI chatbot guidance, dashboard visualization, and PDF report generation.

IV. Module Description

Modules include User Authentication, Resume Parser, Skill Gap Analysis, Skill Obsolescence Prediction, Future Readiness Assessment, Company Recommendation, Course Recommendation, Industry Trend Analysis, AI Career Assistant, and Report Generation.

V. Methodology

Users upload resumes which are processed using NLP. Extracted skills are vectorized using Sentence Transformers, compared with job requirements using cosine similarity, analyzed for skill gaps and obsolescence, and used to generate recommendations and readiness scores.

VI. System Implementation

Frontend: React.js + Tailwind CSS. Backend: Node.js + Express.js. AI Service: Python FastAPI. Database: MongoDB. Security: JWT Authentication. Storage: Cloudinary. REST APIs integrate all modules.

VII. Results and Discussion

Experimental evaluation demonstrated accurate resume parsing, meaningful semantic skill matching, personalized recommendations, and effective future readiness analysis.

VIII. Conclusion

The proposed AI platform provides comprehensive career intelligence through NLP, Machine Learning, semantic analysis, and recommendation systems, improving employability and workforce readiness.

IX. Future Scope

Future work includes real-time job portal integration, mobile applications, multilingual support, blockchain credential verification, AI mock interviews, salary prediction, and reinforcement-learning-based learning paths.

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