

Survey Report on Career-IQ Your AI Hiring & Career Companion

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ABSTRACT

The job market is changing fast, increasing the need for smart systems that can connect candidate skills with employer needs. This paper introduces Career-IQ, an AI-powered tool for hiring and career support that aims to improve recruitment and career development. The system includes resume assessment, automated candidate screening, and personalized skill recommendations, all using machine learning and natural language processing.

Career-IQ reviews resumes by pulling out key information such as skills, experience, and qualifications. It then compares these details with job requirements to assess how suitable candidates are. The system also offers feedback and customized advice to help candidates strengthen their profiles and fill skill gaps.

The proposed system shows better efficiency, accuracy, and user experience than traditional hiring methods. This highlights the potential of AI solutions to change how we approach recruitment and career guidance.

Key Words: Artificial Intelligence, Resume Assessment, Machine Learning, NLP, Recruitment Automation, Candidate Screening.

1.INTRODUCTION

In addressing the position of finding suitable candidate for job, this paper proposes Career-IQ an AI driven and data-based system that will provide assistance both to employers and employees. Career-IQ will make use of machine learning and natural language processing through the assessment of resume, the screening of candidate resume, and the suggestion skills based upon job duties. Furthermore, Career-IQ will continue to monitor each candidate's submitted resume so that it can continue to provide employers with greater efficiency during the hiring process, and also offer career guidance to prospective employees so they can continue to improve their resumes and skills. Ultimately Career-IQ will provide a more accurate, scalable and user centric recruitment process for both job seeker and employers.

The system analyzes resumes, matches them with job requirements, and provides personalized feedback to enhance employability. By improving hiring efficiency for recruiters and offering career guidance to candidates, Career-IQ aims to

make the recruitment process more accurate, scalable, and user-centric.

2. LITERATURE REVIEW

2.1 AI in Recruitment

Recruiting has greatly benefited from AI technology by making it easier and faster to screen resumes and rank candidates. Now, companies can use machine learning to evaluate candidates based on their skills, experience, and education rather than doing it manually.

2.2 Natural Language Processing (NLP) Used For Resume Evaluation

Natural Language Processing (NLP) has become a common method for parsing resumes and extracting useful data from unstructured text. The ability of a potential employer to understand a candidate's qualifications would benefit if NLP was utilized more, but currently, most systems still perform a keyword search only, which limits their ability to accurately match qualifications and provide contextual meaning.

3. Proposed System Architecture

The Proposed system is designed as a layered architecture integrating data management, machine learning and deployment



System Architecture Diagram

3.1 System Components

1. User Interfaces (UI)

Allows users searching for a job or a recruiter to upload and post a job to see the resume and job.

2. Resume Parsing Module

Using NLP technology can extract the valuable data of skills, education, work history from applicant resumes.

3. Candidate Screening Module

Will rank and match candidate resumes to job descriptions based upon their relevancy.

4. Skill Recommendation Machine

Personalizes suggestions for potential skills and skill improvements based on the gaps left in the applicant's resume.

5. Machine Learning Models

Used to make predictive decisions, rank order and improve the matching accuracy over time.

3.2 System Features

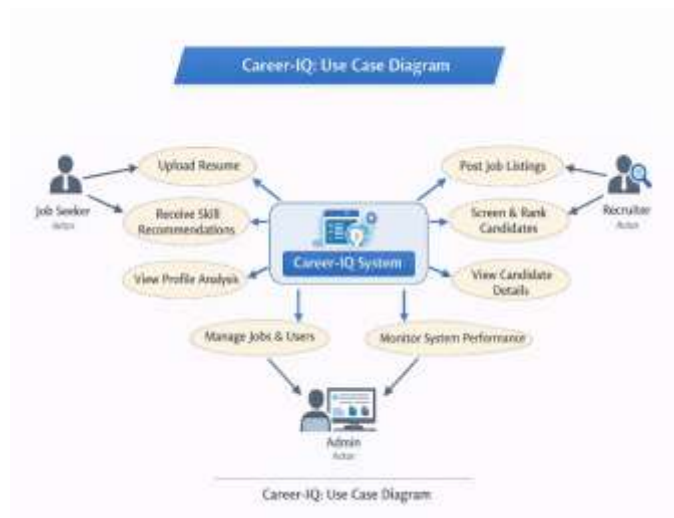


System Feature Diagram

- User-friendly web interface for non- programmers
- Support for multiple deep learning frameworks
- Real time interference and performance tracking
- Scalable deployment options for edge or cloud environment.

4. METHODOLOGY

The workflow of Career-IQ follows a structured pipeline that ensures reliability, efficiency, and reproducibility in model creation.



UML Case Diagram

1. **Data Acquisition:** Users upload labeled or unlabeled image datasets in supported formats.
2. **Preprocessing:** The system automatically resizes, normalizes, and augments images to enhance model generalization.
3. **Model Selection:** Users select a model architecture such as ResNet, EfficientNet, or MobileNet based on use case requirements.
4. **Training Process:** The training module applies forward propagation, computes loss using categorical cross- entropy, and optimizes parameters via backpropagation using stochastic gradient descent (SGD) or Adam optimizer.



UML Sequence Diagram

1. **Evaluating:** The trained model is validated using test data, and metrics such as accuracy, recall, and precision are calculated.
2. **Deployment:** The finalized model is exported through an API or hosted service, enabling real-time prediction.
3. **Feedback Loop:** Users can analyze performance and retrain models to enhance accuracy over time.

5. TECHNOLOGY STACK

Layer	Technology/Tool
Frontend	NextJS
Backend	NodeJS
AI Libraries	Gemini Flash 2.0
Database	Postgre SQL
Deployment	Vercel
Hardware	Web Browser

This combination ensures both usability and scalability for local and cloud-based AI operation

6. Conclusion

The conclusion of this article presents a successful AI-based solution for support in the hiring process and development of jobs. This AI-powered hiring and career resources help automate manual tasks involved with finding and hiring candidates. Utilizing machine learning and natural language processing techniques to match job seekers with employers to recommend skills improves overall outcomes for both parties.

Thus, AI solutions for the hiring process have great promise in moving toward a more effective scalable solution for hiring and matching job seekers.

Future Enhancements

1. Integration with **Edge AI** for low-latency inference on IoT devices.
2. Incorporation of **Explainable AI (XAI)** modules to interpret model predictions.
3. Support for **video analytics** and real-time object tracking.

7. ACKNOWLEDGMENT

The authors would like to express their gratitude to **Prof. Mr. A. H. Auti** for his continuous guidance, insightful feedback, and encouragement throughout the development of this project. The team also extends sincere thanks to **Department Of Computer Engineering, Sinhgad Academy Of Engineering, Pune**, for providing the facilities and technical support required to carry research successfully. Finally, the authors acknowledge their peers and families for their motivation and support during the completion of this work.

8. REFERENCES

1. A. Smith, B. Kumar, and R. Patel, "AI-Based Resume Screening and Candidate Ranking System," in *Proceedings of the International Conference on Artificial Intelligence and Data Science (ICAIDS)*, New Delhi, India, 2022, pp. 45–50.
2. S. Verma and P. Gupta, "Automated Resume Parsing using Natural Language Processing," in *Proceedings of the IEEE International Conference on Computing, Communication and Automation (ICCCA)*, 2021, pp. 210–215.
3. R. Sharma, K. Mehta, and A. Singh, "Machine Learning Approaches for Recruitment and Job Matching," in *Proceedings of the International Conference on Smart Computing and Informatics (SCI)*, 2020, pp. 120–126.
4. M. Johnson and L. Wang, "Intelligent Career Recommendation Systems using AI," in *Proceedings of the ACM Conference on Information and Knowledge Management (CIKM)*, 2019, pp. 987–992.
5. D. Lee, H. Kim, and J. Park, "Enhancing Recruitment Systems with NLP and Deep Learning Techniques," in *Proceedings of the IEEE International Conference on Big Data*, 2021, pp. 3050–3055.