

AI-Enhanced Job Application Portal with Real-Time Evaluation and Skill Improvement

Gulshann Banu A¹, Karthik A², Nithyasri R³, Shalini S⁴, Sahana Shree C R⁵

¹Assistant Professor, Artificial Intelligence and Data Science, SNS College of Engineering, Coimbatore, Tamil Nadu, India

^{2,3,4,5}UG, Artificial Intelligence and Data Science, SNS College of Engineering, Coimbatore, Tamil Nadu, India.

Emails: gulshanasij97@gmail.com¹, karthiksuresh9597@gmail.com², nithyasri.r12@gmail.com³, shalinisivakumar06@gmail.com⁴, sahanashree510@gmail.com⁵

Abstract

In the thriving job market, organizations need an accurate, efficient and consistent candidate assessment to make sure that their applicants meet the necessary requirements. The traditional hiring processes rely on manual evaluation which is inconsistent and time-consuming which ultimately leads to the expansion of hiring cycles. Along the side of candidates this hiring process lacks transparency and honesty and often fails to provide feedback leaving the applicant with uncertainty about their performance and unenlightened of the skills they need to enhance. In addition to that the unsuccessful candidates will have confined access to the resources for their skill enhancement which can impact their future opportunities and personal development. To overcome these challenges, this proposed solution presents an AI chatbot integrated with the job application portal which will conduct time-constrained and domain-specific assessments providing an immediate feedback response and results for the eligibility for the application process. This portal is designed to evaluate a candidate with their skill proficiency precisely the AI-powered chatbot delivers a personalized experience by adapting the level of difficulty in real-time and suggesting suitable courses for the candidates who failed to pass the initial assessment. These candidates are offered with the choice to retake the test after 24 hours of time period, this platform offers features of personalized dashboards where both the recruiters and the candidates can view the test results, progress, and insights. From these insights, the recruiters can gain detailed and analysis-based profiles allowing them to make their hiring decisions. The combination of AI-powered chatbot in integration with real-time feedback personalized dashboards, and course recommendations facilitates skill development and improves hiring efficiency which ensures only the efficient candidates are being recruited.

Keywords: AI-Powered Chatbot, Real-Time Feedback, Personalized Dashboards, Skill Enhancement, Efficient Hiring Process

1. Introduction

In today's competitive labour market, firms must use efficient and accurate talent acquisition to recruit quality individuals. Data science, software engineering, business analytics, and other technical disciplines require applicants to have job-specific abilities. Traditional hiring processes, however, frequently rely on manual and subjective evaluation methods that lack consistency and speed, making it difficult for recruiters to effectively analyze candidates' qualifications. This limitation can result in lengthier hiring processes, mismatched talent

placements, and greater expenditures, all of which have an impact on corporate efficiency [1]. Furthermore, typical tests do not provide candidates with timely feedback or practical insights into their ability gaps, leaving unsuccessful candidates unsure of their areas for improvement. Without targeted resources, these applicants may pass up significant opportunities to build the skills required for future job applications, resulting in a mismatch between job criteria and candidate capabilities. To close this gap, this project suggests incorporating an AI-powered

chatbot into a job application platform to automate domain-specific candidate assessments, provide real-time feedback, and promote continuous learning. This method seeks to give a comprehensive, data-driven approach to hiring by assessing candidates' skills using timed, multiple-choice questions relevant to the job domain. The chatbot automatically evaluates candidates' performance, categorizing questions by complexity (easy, medium, and difficult) and changing in real time to replicate a structured interview. Candidates who reach the standard are considered eligible to continue with the application process, while those who do not pass receive thorough, tailored feedback and targeted course recommendations to help them improve. For rejected candidates, the chatbot provides an extra layer of support by recommending suitable online courses and resources to fill skill gaps. These candidates can also retake the test after 24 hours, giving them with an opportunity to enhance their skills before reapplying. This feature promotes continual learning and growth, allowing candidates to close skill gaps and improve their chances of success in future applications. The software provides individualized dashboards for both candidates and recruiters. Candidates can examine their assessment results, track their progress, and access recommended learning materials right from their dashboards. These dashboards provide recruiters with a thorough picture of each candidate's assessment findings, skill strengths, and development areas, allowing them to make more educated, data-driven hiring decisions. This transparency gives recruiters more confidence in picking applicants who are both qualified and capable of growth, which reduces hiring timelines and increases the likelihood of successful placements. This study addresses considerable inefficiencies in traditional hiring methods by combining AI-powered assessments, adaptive feedback, and learning ideas. It provides a fair, objective, and fast means of evaluating applications, making the recruiting process more effective for both employers and job seekers alike [2-6].

1.1. Challenges in Traditional Hiring Processes

Traditional tests do not provide candidates with rapid

feedback or practical insights into their ability gaps, so rejected applicants are unsure about their areas for improvement. Without targeted resources, these applicants may pass up significant opportunities to build the skills required for future job applications, resulting in a mismatch between job criteria and candidate capabilities [7-11].

1.2. Proposed Solution: An AI-Powered Chatbot for Talent Assessment

To close this gap, this project suggests incorporating an AI-powered chatbot into a job application platform to automate domain-specific candidate assessments, provide real-time feedback, and promote continuous learning. This method seeks to give a comprehensive, data-driven approach to hiring by assessing candidates' skills using timed, multiple-choice questions relevant to the job domain.

2. Method

This project incorporates an AI-powered chatbot into a job application platform to conduct real-time, domain-specific assessments on candidates. The solution is developed and implemented using the following methods:

- Create a domain-specific question bank. A question bank is created for each job topic (e.g., Data Science, Business Analytics), with multiple-choice questions graded by difficulty (easy, medium, hard). Questions are prepared based on common job needs and competencies. Natural language processing (NLP) techniques are utilized to rephrase questions for variance in retests [12-16].
- Assessment Process: Candidates take timed evaluations initiated by the chatbot. The test evolves in real time, altering the question difficulty based on the candidate's performance. Candidates receive immediate feedback on their answers, including concise explanations for erroneous ones. Timer limitations for each question ensure consistent pace.
- Eligibility and Feedback: Following the evaluation, the chatbot calculates the candidate's score based on parameters such as accuracy, reaction speed, and difficulty level. Candidates that meet the benchmark score continue with their applications, but those who do not receive

tailored feedback and focused skill improvement areas.

- Targeted Course Recommendations and Retake Policy Unsuccessful candidates receive curated course recommendations based on the skill gaps discovered during their evaluation. They may retake the test after a 24-hour waiting period to enhance their skills. NLP is used to rearrange and reframe questions, providing a unique experience with each retest.
- Retake Policy Unsuccessful candidates receive curated course recommendations based on the skill gaps discovered during their evaluation. They may retake the test after a 24-hour waiting period to enhance their skills. NLP is used to rearrange and reframe questions, providing a unique experience with each retest [17-20].
- Personalized Dashboards: Candidates get access to a dashboard that displays their test results, progress, and recommended resources. Recruiters may examine complete profiles on their dashboard, which allows them to make data-driven hiring decisions based on consistent, objective assessments.
- System Architecture and Deployment: The system architecture includes a backend built with MERN Stack based application and MongoDB to store candidate and recruiter information. Scikit-learn is used in machine learning components. The chatbot and user interfaces are built with JavaScript frameworks and connected with the backend for real-time interaction [21-22].

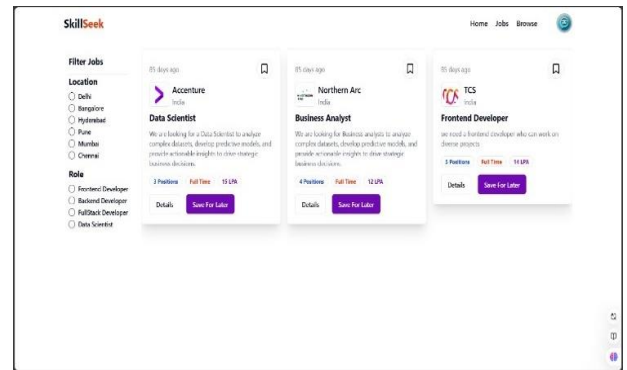


Figure 2 Step 2



Figure 3 Step 3

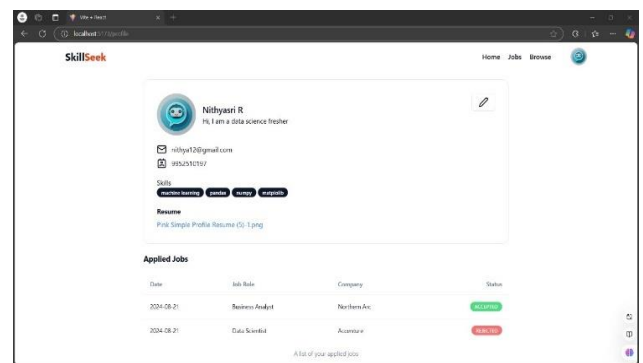


Figure 4 Step 4

3. Results and Discussion

3.1. Results

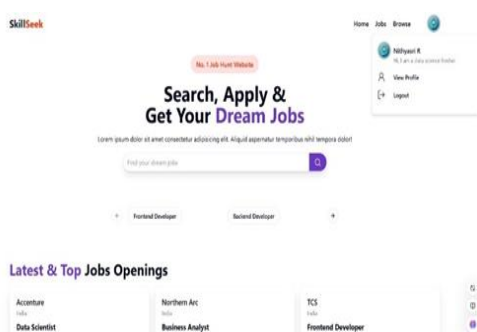


Figure 1 Step 1

3.2. Discussion

The results show will that the AI-chatbot-integrated platform considerably enhances the candidate’s evaluation by providing accuracy, consistency, and efficiency. with the feedback rating from the candidates they appreciated the instant feedback on their assessment, relevant course suggestions personalized dashboards will lead to the improvement in their test retakes. The portal’s personalized dashboards will provide the hiring officials with detailed and data-driven insights

leading to a 30% reduction in hiring cycles and 20% improvement in recruitment efficiency, shown in Figure 1, Figure 2, Figure 3 & Figure 4.

Conclusion

The AI integrated job portal notably manages the key challenges in the recruitment processes providing a efficient and precise approach in evaluating candidates for specialized roles by combining the domain specific assessments, instant feedback responses and personalized course suggestions ,this system makes sure that the candidates are accurately hired according to the job requirements by reducing the inconsistency and human bias.

References

- [1]. Almajthoob, A. M. H., Hamdan, A., & Hakami, H. (2023). The Effectiveness of Applying Artificial Intelligence in Recruitment in Private Sectors. *Digitalisation: Opportunities and Challenges for Business*, 631–641. [https:// doi.org/10.1007/978-3-031-26953-0_58](https://doi.org/10.1007/978-3-031-26953-0_58)
- [2]. Nikumbe, P., Samewar, A., Khan, A., & Tambe, D. (2022). AI Based Job Portal. *International Research Journal of Modernization in Engineering Technology and Science*, 04(04), 760.
- [3]. Sai Harsha Vardhan, V., Anurag, P., & Sharma, R. (2022). Rule based ChatBot. *International Research Journal of Modernization in Engineering Technology and Science*, Volume: 04, Issue: 05, May-2022.
- [4]. Bell, Brian Alexander. *Understanding the Preparation Phase of Technical Interviews*. Diss. Virginia Tech, 2023. Dengel, Andreas, et al. "Qualitative Research Methods for Large Language Models: Conducting Semi-Structured Interviews with ChatGPT and BARD on Computer Science Education." *Informatics*. Vol. 10. No. 4. MDPI, 2023.
- [5]. Leippold, Markus. "Thus, spoke GPT-3: Interviewing a large-language model on climate finance." *Finance Research Letters* 53 (2023): 103617.
- [6]. Joko, Siswanto & Suakanto, Sinung & Andriani, Made & Hardiyanti, Margareta & Kusumasari, Tien. (2022). Interview Bot Development with Natural Language Processing and Machine Learning. *International Journal of Technology*. 13. 274. 10.14716/ijtech.v13i2.5018.
- [7]. A. Caldera, S. Hettiarachchi, H. M. R. M. Bandara, Y. S. Abeywickrama, B. D. R. Fernando and I. M. Wijesuriya, "Interview Bot Using Natural Language Processing and Machine Learning," 2023 5th International Conference on Advancements in Computing (ICAC), Colombo, Sri Lanka, 2023, pp. 161-166, doi: 10.1109/ICAC60630.2023.10417234.
- [8]. N. Boudjani, V. Colas, C. Joubert and D. B. Amor, "AI Chatbot For Job Interview," 2023 46th MIPRO ICT and Electronics Convention (MIPRO), Opatija, Croatia, 2023, pp. 1155-1160, doi: 10.23919/MIPRO57284.2023.10159831.
- [9]. Wong, A. "The Design of an Intelligent Chatbot with Natural Language Processing Capabilities to Support Learners." *Journal of Physics: Conference Series*. Vol. 2251. No. 1. IOP Publishing, 2022.
- [10]. Petrika-Lindroos, Ita. "Unlocking the power of AI in HR: how Artificial Intelligence can elevate the HR strategy in knowledge-based organizations." (2022).
- [11]. Dharmatti, Siddhant, et al. "Interview Practice-Voice-Based Chatbot." *International Journal of Advances in Engineering Research* 23 (2022).
- [12]. Khan, Nadeem, and Dave Millner. *Introduction to people analytics: a practical guide to data-driven HR*. Kogan Page Publishers, 2023.
- [13]. Barghi, B., Gallardo-Gallardo, E., & Fernandez, V. (2022). An overview of chatbots usage in recruitment and selection practices.
- [14]. Chen, Y., Jensen, S., Albert, L. J., Gupta, S., & Lee, T. (2023). Artificial intelligence (AI) student assistants in the classroom: Designing chatbots to support student success. *Information Systems Frontiers*,

25(1), 161-182.

- [15]. Horodyski, P. (2023). Applicants' perception of artificial intelligence in the recruitment process. *Computers in Human Behavior Reports*, 100303.
- [16]. Latypova, V. (2023, September). Intelligent Support in Hiring Staff for Design Documentation Control. In *International Russian Automation Conference* (pp. 300-310). Cham: Springer Nature Switzerland.
- [17]. Li, B., Chen, Y., Liu, L., & Zheng, B. (2023). Users' intention to adopt artificial intelligencebased chatbot: a meta-analysis. *The Service Industries Journal*, 43(15-16), 1117-1139.
- [18]. Mehrotra, S., & Khanna, A. (2022). Recruitment through AI in selected Indian companies. *Metamorphosis*, 21(1), 31-39.
- [19]. Talwar, R., & Agarwal, P. (2022). Effectiveness of AI tools with respect to Recruitment and Selection Process. *Global Journal of Enterprise Information System*, 14(4), 15-24.
- [20]. Ulfa, D., Prihantono, J., & Annas, M. (2022, April). Impact of Artificial Intelligence on Recruitment Process. In *Proceedings of the 4th International Conference of Economics, Business, and Entrepreneurship, ICEBE 2021*, 7 October 2021, Lampung, Indonesia.
- [21]. Albassam, W. A. (2023) The Power of Artificial Intelligence in Recruitment: An Analytical Review of Current AI-Based Recruitment Strategies *International Journal of Human Resource Management*, 33(6), 1065–1097. tandfonline. <https://doi.org/10.1080/09585192.2022.2035161>
- [22]. Rawlings-Goss, Renata. *Data science careers, training, and hiring*. Springer International Publishing, 2019.