Eloqify: Intelligent Interview Companion

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Abstract

In today's highly competitive job market, securing a technical role requires rigorous preparation and real-time feedback. Eloqify is an AI-driven mock interview platform exclusively designed for technical interviews, helping candidates refine their core skills through interactive and unbiased assessments. Our platform leverages Google Gemini AI to dynamically generate technical interview questions based on resume parsing, ensuring that candidates practice with job-specific, industry-relevant questions. The resume parsing, powered by Python-based processing, extracts key skills and experiences, allowing Eloqify to simulate real-world technical interviews tailored to each candidate's expertise. Eloqify is built with Next.js for the backend, React.js for the frontend, and Clerk authentication, ensuring a seamless and secure user experience. The platform features an interactive user dashboard that provides real-time performance insights, including feedback on clarity, problem-solving approach, and technical depth. These insights help candidates identify strengths and areas for improvement, making their preparation structured and goal-oriented. By focusing exclusively on technical assessments, Eloqify ensures that candidates engage in precise, skill-driven mock interviews, bridging the gap between preparation and success. With AI-powered, resume-based question generation and actionable feedback, our platform transforms technical interview readiness—making it efficient, structured, and highly personalized.

Keywords: Mock Interview Platform; Resume Parsing Tool; Self Evaluating Platform; Technical Interview Simulation Platform

1. Introduction

Mock interviews have become more than a mere practice exercise to a key step toward gaining technical skills and enhancing confidence for the modern-day job seeker in the competitive job market. The discrepancy between academic studies and industry practices usually leaves the candidates ill-prepared for tough technical interviews, where the requirements are problem-solving techniques and practical application of knowledge. Eloqify seeks to fill the gap by providing a complete AI-driven mock interview platform offering guided, customized, and data-driven interview preparation specifically designed for technical tests. One of the biggest problems that interview preparation poses to candidates is fragmentation of resources—the need to go from one platform to another to practice coding, interview simulation, and analysis of feedback. Eloqify addresses this issue by bringing all these tools together into one interactive platform, with minimal efforts required for seamless and effective preparation. The platform incorporates resume-based question generation through AI so that candidates can prepare by practicing job-relevant technical questions. Along with this, there is an intelligent user dashboard for real-time performance analysis so that candidates get actionable feedback to improve their clarity, coding style, and depth of problem-solving.

The idea behind Eloqify is to equip candidates with a smart, self-assessing system that learns from their strengths and weaknesses. With Google Gemini AI serving up relevant questions, Python-based resume parsing to extract skills, and a systematized interview simulation platform, Eloqify provides each candidate with a custom and industry-relevant mock interview experience. Our objectives of research involve creating a robust resume parsing framework to create accurate technical questions, using machine learning algorithms to solve problem-solving patterns, and

facilitating a smooth user experience through the integration of Next.js and React.js. With a sole aim of technical interview evaluations, Eloqify is revolutionizing AI-powered interview prep, making prospects more confident, well-prepared, and able to perform optimally in the highly competitive world of technology.

2. Literature Review

Communication For the sake of our AI-based mock interview platform development, we read some research papers that provide basic insights into our work. In one of them [1], an Interviewee Performance Analyzer based on facial emotion recognition and speech fluency analysis was suggested. The system utilizes HaarCascade, Gabor filters, and Convolutional Neural Networks (CNN) for facial expression recognition and MFCCs and logistic regression for speech fluency analysis. But the system fails to provide a judgment on other essential aspects in an interview, including posture, gestures, and eye contact. It makes it even more essential to demand an even better and more holistic approach to evaluation. Our video and audio analysis is AI-based. Another pertinent work [2] proposes a self-management interview system for youth employment in Korea. The system uses multi-block deep learning to identify emotions from face expressions in simulated interviews, utilizing a DCNN that primarily targets significant facial regions. The approach can enhance the accuracy of emotion detection; however, it does not prioritize the tone analysis or its applicability to various contexts of interviews that our platform enhances. In [3], scientists created a computational model that investigates human behavior during job interviews by processing 138 MIT interview videos. With Support Vector Regression (SVR) and Lasso models, the model predicts personality attributes like excitement and friendliness from facial expressions, speech, and prosodic features. While the model is good in terms of the precision of its predictions, there is no mention of including additional evaluation criteria from the interview process. Our website, however, takes this concept further with machine learning algorithms that will ascertain communication skills. Another paper [4] presents a computational model for calculating a candidate's probability of being hired based on the non-verbal behavior he displays during job interviews. This study is rooted in the examination of actual interview data sets for verbal and non-verbal cues. It comes to the conclusion that a non-verbal signal will generally perform better when it comes to assessing hirability than the psychometric questionnaires. But an absence of focus on the part of research on verbal content along with resume-based tailored questions becomes a critical omission that our platform fulfills through its AI-based system, self-assessment process. The [5] talked about an Asynchronous Video Interview with Artificial Intelligence, which is referred to as the AVI-AI system. The system makes use of the CNN of TensorFlow in order to assess communication skills and personality characteristics. The system performs effectively in all dimensions of predicting interpersonal traits except for conscientiousness and extraversion. Additionally, study-found the sample size to be small and system biases, and thus, there exists a strong demand for scalability and uncontrolled bias—a feature which our platform can provide through effective AI-based assessments. This analysis of the studies indicates the importance of a comprehensive interview preparation platform that addresses all the current gaps in technology, delivering real-time, multi-dimensional feedback through sophisticated AI approaches [6-8].

3. Proposed System

Eloqify is a mock interview platform powered by AI that is meant to help prepare for technical interviews through the use of innovative artificial intelligence (AI) methodologies. Built using Next.js on the backend, React.js on the frontend, and Clerk for authentication, Eloqify offers a smooth, secure, and user-friendly experience. One of the most notable features of Eloqify is its integration of Google Gemini AI, through which it creates dynamic personalized technical interview questions based on resume parsing. Its Python-driven resume parsing engine digs out the relevant skills and experience from uploaded resumes so that the questions generated are job-relevant and industry-friendly. This makes the preparation of candidates effective by letting them rehearse the relevant technical questions.

3.1. Resume Parsing and Personalized Question Generation

A core feature of the platform is that it has its own Python-driven resume parsing tool that extracts the skills, experience, and technical proficiencies of a candidate from their resume. This is processed by the Gemini OpenAPI to provide personalized, job-specific technical interview questions so that this mock interview closely reflects what happens in a real-world industry interview [9-11].

Workflow:

- Candidates upload their resumes to the platform.
- The resume parser, built using Python, extracts relevant technical skills and experience.
- The extracted information is sent to Gemini OpenAPI, which dynamically formulates interview questions based on job-specific competencies.
- Candidates receive a customized set of technical questions tailored according to their expertise and career aspirations.

3.2. Gemini API

Eloqify makes use of Google's Gemini API to improve the process of resume parsing and interview preparation. Upon extracting text from a candidate's resume, the system uses the Gemini API to produce customized interview questions based on the candidate's skill set, experience, and the requirements of the job. The method allows precise screening while giving personalized sets of questions, preparing candidates with ease while facilitating recruiters to optimize the hiring process. By integrating the Gemini API, Eloqify provides a smarter and more conversational user experience for candidates and recruiters alike.

3.3. System Architecture

Proposed, Eloqify is a very advanced API-based and all-in-one interview preparation tool that offers individualized skill improvement along with career development tools to candidates. The purpose of the proposed system is to automate the interview process through audio input analysis and resume data to produce personalized interview questions. Using Google's Gemini API, Eloqify mines important information from resumes and creates customized questions based on a candidate's qualifications, experience, and company-specific needs. The system also uses speech-to-text processing for answer analysis and an interactive feedback system to ensure a smooth and hassle-free interview preparation process. Figure 1, illustrates the system architecture, outlining the entire process from user registration to final feedback generation. The process is as follows:

- **User Registration & Authentication:** Applicants register or login through Clerk authentication, providing a safe and hassle-free experience. Upon registration, they build a user profile, which will hold their interview history, progress, and performance metrics.
- **Resume Upload & Parsing:** Candidates submit their resume, which is subsequently treated with Tesseract OCR (Python) to extract text .The extracted content is processed through Google's Gemini API, which creates customized interview questions in line with the candidate's experience, skill set, and job requirements. This guarantees that the questions are appropriate for the candidate's history, ensuring the interview process is extremely relevant.
- **Interview Simulation:** Candidates undergo a realistic, AI-driven interview simulation to get ready for actual job interviews. WebRTC enables a video mock interview experience, which is a mock interview environment. The system relies on Speech-to-Text (STT) technology to turn spoken answers into text form for analysis. Gemini API creates interview questions dynamically and further assists in verifying and analyzing the response against predetermined assessment criteria. This stage assists the candidates in enhancing their technical, analytical, and communication skills through actual-time interaction with the system.
- **Data Storage & Processing:** The interview answers, scores, and feedback are safely kept in PostgreSQL so users can look back at their performance. This makes it possible for candidates to see their improvement over time and adjust their strategy based on previous interviews.
- **Result Dashboard & Feedback Generation:** After the interview is done, a detailed

performance report is created and posted on the candidate's dashboard. The feedback consists of technical competence, communication clarity, problem-solving style, and overall response organization. Applicants get useful feedback, pointing out areas of strength and weakness, assisting them in improving their skills prior to an actual interview. The dynamic dashboard enables users to see previous performance, contrast outcomes, and monitor their improvements with time. The system consistently provides tips to improve learning and interview preparation, keeping candidates in a constant state of improvement.

continuous improvement. Built with Next.js and React.js, the platform delivers a seamless and interactive user experience, allowing candidates to engage effortlessly with the system. Clerk authentication provides a secure entry mechanism, keeping the onboarding process smooth. Resume-based question generation, AI-driven feedback, and an intuitive user interface enable candidates to receive tailored learning paths and improve their technical skills, leading to excellence in real-world technical interviews. The interview preparation process is therefore streamlined, more efficient, targeted, and impactful for aspiring professionals.
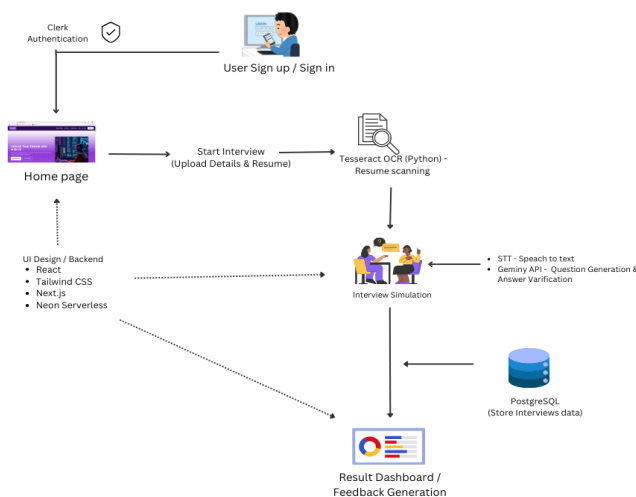

Figure 1 Eloqify System Architecture

4. Implementations

The mock interview platform driven by AI is highly designed to make technical skill building and career preparation more structured and intelligent, Figure 2. This system ensures an all-round assessment of candidates using Python-based resume parsing and Google's Gemini OpenAPI by creating customized technical interview questions for every candidate according to their skills and experience. The platform provides mock interview simulations where candidates respond to AI-generated questions, with the system analyzing clarity, problem-solving ability, and technical depth. Advanced machine learning algorithms process these responses to generate real-time feedback, offering actionable insights for
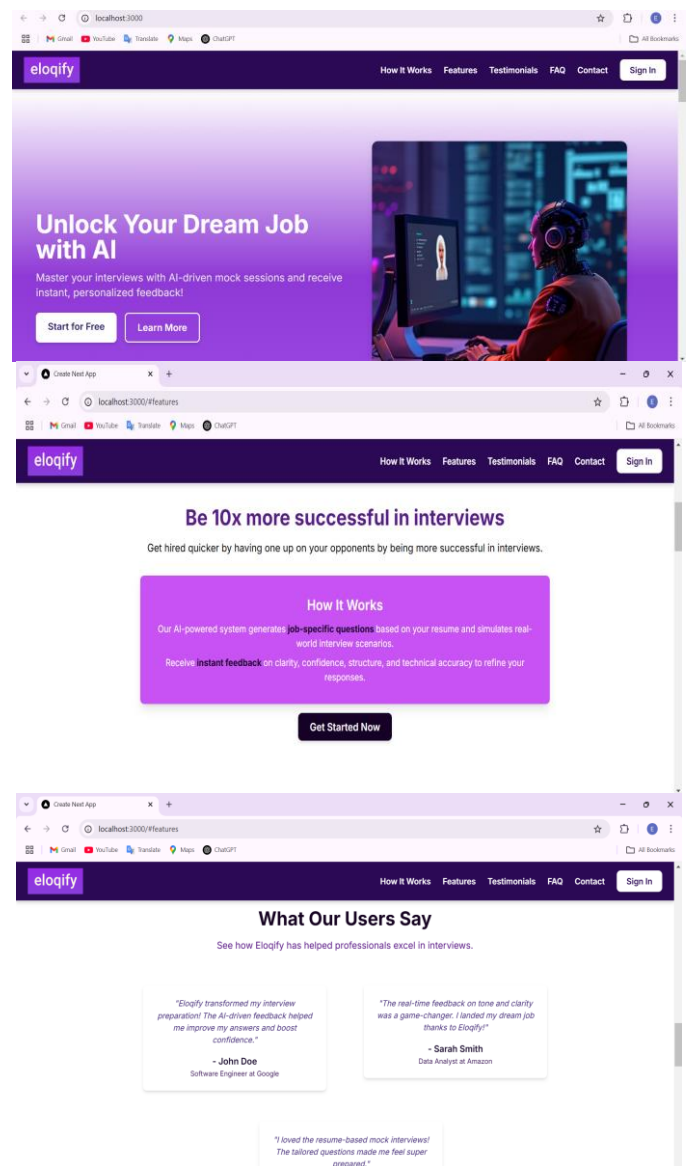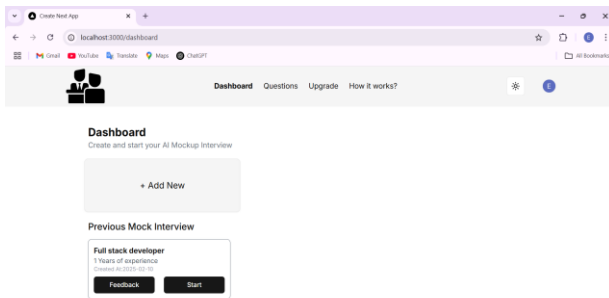

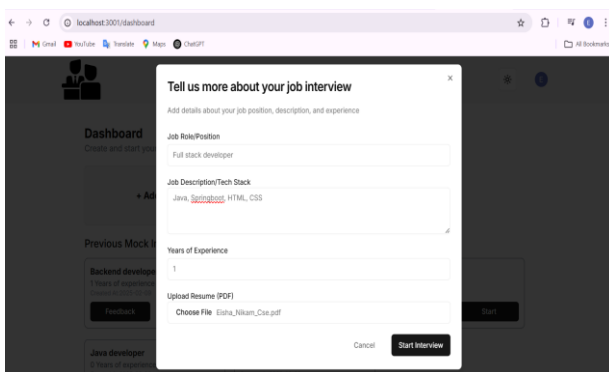**Figure 2 Eloqify Homepage**

Figure 3 User Dashboard

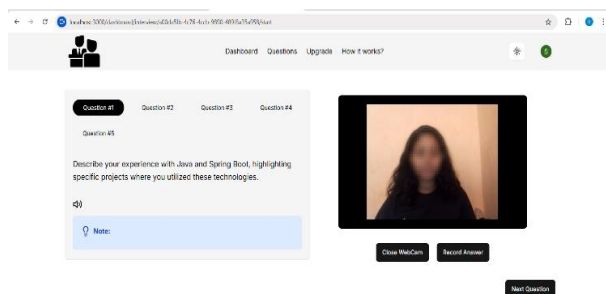**Figure 4** Custom Interview Information Entered by User
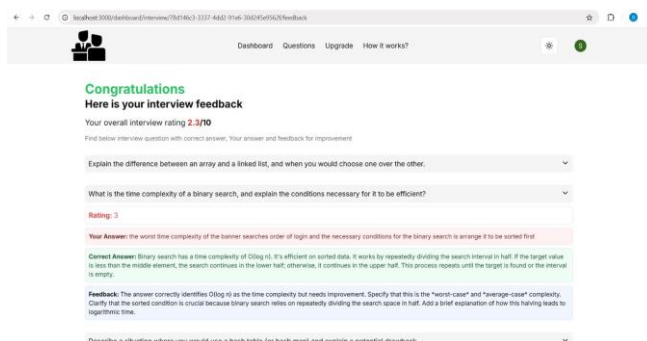

Figure 5 User Interview Simulation

Figure 6 Result Dashboard and Feedback Generation

5. Results and Discussions

The mock interview platform driven by AI marks a major leap in technical interview preparation using machine learning algorithms and APIs powered by AI to simulate candidate evaluation and skill development. It integrates Python-based resume parsing along with Google's Gemini OpenAPI to generate customized technical interview questions based on a candidate's skills, experience, and requirements for the job. Thus, it is a targeted and effective simulation of an interview, aiming at the expectations from the industry. The system's AI-driven analysis provides candidates with real-time feedback on key aspects such as clarity, technical problem-solving, and communication effectiveness, enabling them to refine their responses and improve their interview readiness. While maintaining a strong technical focus, the platform also assesses verbal fluency and structured thinking, helping candidates convey their expertise with precision. Moreover, the user interface is based on Next.js and React.js, ensuring a smooth and engaging experience for candidates while navigating mock interviews. Clerk authentication ensures secure access and smooth onboarding, thus creating a user-friendly environment. AI-powered feedback mechanisms further enhance candidate performance by providing actionable insights for continuous improvement. Therefore, by optimizing resume-based question generation, offering AI-driven feedback, and streamlining the interview preparation process, it empowers candidates to improve their technical skills, thereby further boosting their confidence and enhancing their real interview success rate. This novel approach to interview preparation makes the platform a power tool for aspiring professionals who will certainly be prepared for the challenges of present and future competitive job markets, Shown in Figure 3 to figure 6.

Conclusion

In conclusion, the proposed AI-driven mock interview platform effectively addresses the critical need for technical interview preparation in today's competitive job market. By integrating AI-powered resume parsing, personalized question generation using Google's Gemini OpenAPI, and machine

learning-driven feedback analysis, the platform empowers candidates with a structured and immersive preparation experience. The use of Next.js, React.js, and Clerk authentication ensures an easy-to-use and intuitive interface, and AI-driven insights provide actionable feedback for improvement in problem-solving skills, clarity of communication, and technical proficiency.

Future developments might include further technical assessments using more refined AI algorithms, answer analysis from users to provide more tailored feedback, and an interactive coding evaluation system to further strengthen candidates' practical skills. These would continue to redefine interview preparation methodologies, equipping candidates with the tools they need to succeed in real-world technical interviews and further their careers.

References

[1]. S.V. Kedar and D. S. Bormane, "Automatic Personality Assessment: A Systematic Review," in 2015 International Conference on Information Processing (ICIP), Vishwakarma Institute of Technology, Dec 16-19, 2015.

[2]. H. Suen, K. Hung, and C. Lin, "Intelligent video interview agent used to predict communication skill and perceived personality traits," Department of Technology Application and Human Resource Development, National Taiwan Normal University, Taipei City, Taiwan, and College of Science Technology, Ningbo University, Ningbo, China, 2019.

[3]. V. Narkhede, O. Surushe, S. Kulkarni, H. Solanki, T. Ekbote and D. Joshi, "AVA: A Photorealistic AI Bot for Human-like Interaction and Extended Reality," 2023 International Conference on Communication System, Computing and IT Applications (CSCITA), Mumbai, India, 2023,pp.5-9doi:10.1109/CSCITA55725.2023.1010467.

[4]. L. S. Nguyen, D. Frauendorfer, M. S. Mast and D. Gatica- Perez, "Hire me: Computational Inference of Hirability in Employment Interviews Based on Nonverbal Behavior," in IEEE Transactions on Multimedia, vol. 16, no. 4, pp. 1018- 1031, June 2014, doi: 10.1109/TMM.2014.2307169

[5]. I. Naim, M. I. Tanveer, D. Gildea and M. E. Hoque, "Automated prediction and analysis of job interview performance: The role of what you say and how you say it," 2015 11th IEEE International Conference and Workshops on Automatic Face and Gesture Recognition (FG), Ljubljana, Slovenia, 2015, pp. 1-6, doi: 10.1109/FG.2015.7163127.

[6]. R. A. Posthuma, F. P. Morgeson, and M. A. Campion, "Beyond employment interview validity: A comprehensive narrative review of recent research and trends over time," Personnel Psychol., vol. 55, no. 1,p. 81, 2002.

[7]. Yin, L.; Wei, X.; Sun, Y.; Wang, J.; Rosato, M.J. A 3D facial expression database for facial behavior research. In Proceedings of the 7th International Conference on Automatic Face and Gesture Recognition, Southampton, UK, 10–12 April 2006; pp. 211–216.

[8]. Pathar. R, Adivarekar.A, A. Mishra and A. Deshmukh, "Human Emotion Recognition using Convolutional Neural Network in Real Time," 2019 1st International Conference on Innovations in Information and Communications.

[9]. Shreya Narang , Divya Gupta," Speech Feature Extraction Techniques: A Review", International Journal of Computer Science and Mobile Computing, , IJCSMC, Vol. 4, Issue. 3, March 2015, pg.107 – 114.

[10]. A. Chavan, N. Tatewar, P. Naicker, and Prof. S. Deore, "AI Resume Analyzer," Undergrad. Student, Dept. of Information Technology, SKN Sinhgad Institute of Technology & Science, Lonavala, Maharashtra and Asst. Professor, Dept. of Information Tech, SKN Sinhgad Institute of Technology & Science, Lonavala, Maharashtra.

[11]. Tyagi, Rinki. (2020). Resume Builder Application. International Journal for Research in Applied Science and Engineering Technology. 8. 14-18. 10.22214/ijraset.2020.5003.