

# InterviewX: AI/ML Powered Interview Simulator Using NLP And CNN

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**Abstract:** Interview-X is an advanced AI and ML-powered simulator designed to mimic real-world interview scenarios, enabling users to effectively prepare for interviews. The platform evaluates both verbal and non-verbal responses, offering comprehensive feedback that helps users refine their performance. By integrating Natural Language Processing (NLP) and Convolutional Neural Networks (CNN), Interview-X delivers precise insights into the user's communication skills and confidence levels. For speech evaluation, the system uses NLP to transcribe and analyze spoken answers. By leveraging the Google Speech-to-Text API, it converts audio inputs into text and evaluates the accuracy and relevance of the responses based on the interview questions. A predefined accuracy threshold determines whether the answer meets the desired standard, offering actionable feedback for improvement. On the non-verbal front, Interview-X uses CNNs for facial expression analysis. With technologies like MTCNN for facial detection and FaceNet /VGGFace for feature extraction, the system assesses the user's confidence by comparing facial landmarks and expressions with predefined confident face templates. This analysis ensures that both verbal content and non-verbal cues are aligned for effective interview performance. The platform aggregates results from both NLP and CNN evaluations, providing users with detailed feedback on their performance. This holistic approach helps individuals enhance both their answers and their presentation, boosting their interview confidence and readiness. Interview-X is a valuable tool for anyone looking to improve their interview skills in a realistic, data-driven environment.

**Keywords:** AI, ML, CNN, NLP, Embedding system, Recognition