

Real Time Mock Interview using Deep Learning

Ansil Ouseph

Roll No: 10

Reg.No: KTE22MCA-2010

Name of the Guide: Dr. Reena Murali
Department of Computer Applications
Rajiv Gandhi Institute of Technology, Kottayam

Contents

- 1 Introduction
- 2 Current state of art
- 3 Motivation
- 4 Objectives
- 5 Literature Survey
- 6 Proposed Methodology
- 7 Materials and Methods
- 8 Conclusion and Future Scope
- 9 Implementation Status and Plan
- 10 Git History
- 11 Bibliography

Introduction

- Recent graduates rarely get interview practice during their studies, hindering their preparation for further education and employment.
- This project addresses this gap by offering a platform for simulating both academic and job interviews.
- The system adapts questions and difficulty based on your performance, mimicking a real interview and pushing you to improve.

Current state of art

- Existing online interview preparation resources lack dynamism and personalized feedback.
- They often rely on static scenarios or pre-recorded interactions.
- It fails to replicate the real-time feedback and adaptability of actual interviews.

Motivation

- Recent graduates struggle with static interview resources that don't offer real-time feedback and adaptability. This makes them unprepared for the dynamic nature of actual interviews.
- This lack of dynamic practice can lead to anxiety in graduates. hindering their performance and limiting their success in interviews.
- It restricts their performance and limits their success in interviews.
- This project addresses this gap by offering a platform for simulating both academic and job interviews.

Objectives

- The objective of this project is to create a comprehensive and interactive platform that empowers recent graduates and job seekers to prepare for interviews confidently and effectively.
- It analyzes facial expressions, voice, and text to provide real-time feedback on aspects like confidence, emotional control, and posture control.
- It helps users develop strong communication skills through practice and feedback.
- Reduce interview anxiety by providing a safe and controlled environment to practice.

Literature Survey

Table 1: Literature Survey

SI No.	Title	Author	Model	Accuracy	No. of Dataset used
1	Deep Learning-Based Automatic Personality Recognition from Video Interviews	Ahmed, R, Naqvi, S. A	Convolutional Neural Network (CNN) with Long Short-Term Memory (LSTM) and Softmax layer	75.5% for Big Five personality traits	21,000
2	Automatic Personality Recognition from Video Interviews: A Comparative Study	Pereira, Oliveira	VGG16 CNN for facial expression recognition	78.7% for Big Five traits	600
3	Towards Explainable Automatic Personality Recognition from Video Interviews	Karimi, Ben-namoun	Gradient-weighted Class Activation Mapping (Grad-CAM) with CNN for facial expression recognition	82.4% for Big Five traits	2700

Proposed System: Methodology

This system utilizes deep learning for real-time feedback during mock interviews.

- User login through an Android application and this app accesses the user's camera and microphone with permission.
- The system displays the interview question on the user's screen.
- The user provides a video response using the camera and microphone.
- Haarcascade algorithm detects the user's face in the video stream.
- CNN sequential model analyzes the user's facial expressions to identify emotions (e.g., happy, sad, angry, disgusted, fearful, surprised and neutral).
- NLTK library converts the user's spoken response to text.
- Text similarity technique, cosine similarity is used to compare the user's answer with the company's ideal response provided earlier.
- KNN model analysis of the user's uploaded resume to predict the suitable role for him.

Proposed System: Architecture

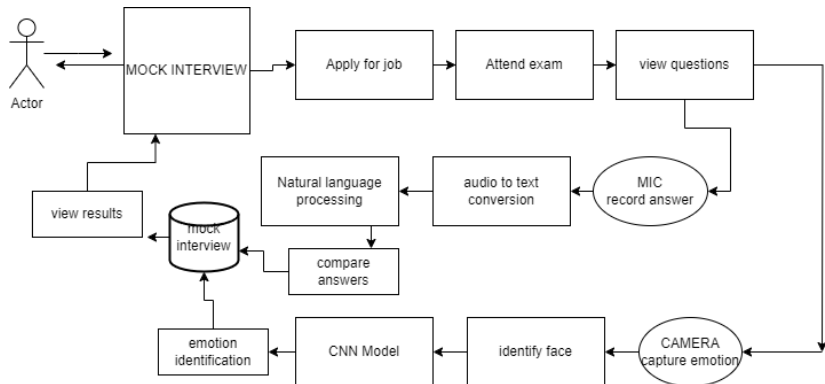


Figure 1: Block Diagram

Proposed Methodology: Algorithms

- NLTK for speech to text recognition
- CNN-Sequential model for emotion detection.
- Haar cascade algorithm to detect face while recording.

Materials and Methods - Dataset

- **Dataset** : Facial Emotion Expressions
- **Source** : Kaggle
- **Total Number of images:** 7178(happy, fearful, disgusted, angry, surprised, sad and neutral images)
 - Happy images : 1774
 - Fearful Images : 1024
 - disgusted Images : 111
 - angry Images : 958
 - surprised Images : 831
 - sad Images : 1247
 - neutral Images : 1233
- **Training set:** 80%
- **Testing Set** : 20%

Materials and Methods - Tools

● Software Tools

- Language : Python
- Framework : Django
- IDE : Pycharm
- Android studio

● Hardware Tools

- CPU: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz
- Memory : 4 GB RAM or Above and 1 TB HDD or 256 SDD

Conclusion and Future Scope

Cocclusion

- It offers a realistic interview experience with emotion detection, making it ideal for interview prepration.
- Offers personalized feedback based on analysis, helping users improve nonverbal communication skills.

Future Scope

- Develop a virtual interviewer with pre-programmed responses and questions based on the company's needs.
- It provides a more dynamic and complete mock interview experience.

Implementation Status and Plan

Table 2: Implementation Status and Plan

Task	Status	Remarks
Html forms desgined	Completed	
SQL tables desgined	Completed	
Each modules splitted, functionalities assigned	Completed	
Admin module functionalities	Completed	
Company module functionalities	Completed	
User module functionalities	Completed	
Android application development	completed	
Implementation of CNN model	completed	
Implementation of NLTK	completed	

Git History

The screenshot shows the GitHub web interface for the repository 'anzilouseph / Main-project'. The 'Activity' tab is selected, displaying a list of recent commits. The browser's address bar shows the URL 'github.com/anzilouseph/Main-project/activity'. The repository's navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The activity list shows four recent commits by 'anzilouseph' to the 'master' branch, with descriptions like 'Updated the front end and backend code', 'Added some models', 'Updated the dataset', and 'Added some UI and some dbs'. The Windows taskbar at the bottom shows various application icons and the system clock indicating 21:52 on 19-03-2024.

Activity

Updated the front end and backend code
anzilouseph pushed 1 commit to master • ddc0f50...cdf6eb3 • 48 seconds ago

Added some models
anzilouseph pushed 1 commit to master • 64dd99a...ddc0f50 • 21 minutes ago

Updated the dataset
anzilouseph pushed 1 commit to master • 9c8b95a...64dd99a • 26 minutes ago

Added some UI and some dbs
anzilouseph created master • 9c8b95a • 21 days ago

[Share feedback about this page](#)

Figure 2: Git history

Bibliography

- 1 Tengfe Song, Wenming Zheng, Cheng Lu, Yuanzong, Xilei Zhang, and Zhen Cui, "MPED: A Multi-Modal Physiological Emotion Database for Discrete Emotion Recognition" IEEE Access, vol. 7, pp. 12177–12191, 2019.
- 2 R. Patil, A. Butte, S. Temgire, V. Nanekar, and A. P. Shivganga Gavhane, "Real Time Mock Interview Using Deep Learning," International Journal of Engineering Research Technology (IJERT), vol. 10, issue 05, May 2021.
- 3 H.-Y. Suen, K.-E. Hung, and C.-L. Lin, "Tensor Flow-based Automatic Personality Recognition Used in Asynchronous Video Interviews," International Journal of Engineering Research Technology (IJERT), vol. 10, issue 05, May 2021.

Thank you!