

# The Interviewer: An AI Based System for Taking Interview

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**Abstract** -The ideal approach to get ready for an interview is to audit the various sorts of conceivable interview addresses you will be asked during an interview and work on reacting to questions. The interview system tries to simulate an interviewer to provide mock interview practice simulation sessions for the candidates. The traditional interview systems provide some and feedbacks, including response time, speaking rate, and volume, to let users know their own performance in the mock interview. However, the vast majority of these frameworks are prepared with lacking discourse information and give the pre-structured interview questions. In this study, we propose an approach to dialog state tracking action selection based on deep learning methods. a long-short term memory and an artificial neural network are utilized to anticipate exchange states and the Deep RL is received to become familiar with the connection between discourse states and activities. Finally, the chose activity is utilized to create the interview question for interview practice. To evaluate the proposed method in action selection, The Interviewer is constructed.

**Key Words:** Reinforcement Learning, Neural Network, Seq2Seq etc.

## 1. INTRODUCTION

RECRUITING is one of the most important, yet difficult, tasks for any HR department. This is due to the fact that employers usually receive an enormous number of job applications which costs time and effort to manually identify and select potential candidates. As a consequence, this has led to the need for developing automatic systems for facilitating the recruitment process. Accordingly, many approaches have been proposed to accomplish this task. Though the development of online recruitment systems has several advantages over the traditional recruitment process, these system still suffer from major limitations and drawbacks. To overcome the limitations of traditional Interviewing process, a new methodology may be evolved which can provide machine as a interviewer for making error free and rational decisions. Recruiter's is one of its kinds which will assist an Interviewer in conducting a perfect interview session by providing access to Digital Libraries of relevant subject fields,

consisting of question banks with definite answers, variations in complexity levels according to the progress of the interview. This tool can also provide on-hand training to the Interviewers using Knowledge base of the system with consistent evolution over the period of time. As an offshoot, this tool may also help the candidate for the final interview preparation by providing access to the training sessions offered to the candidate by the system and is continuously upgrading with every successive session. This Recruiter's can be implementing in very efficient and suitable platform which less time consuming. Many solution we get for online interview such as

1) Skype and phone interview: We have solution for traditional interview is skype or telephonic interviews but it required lots of time to evaluate each and every candidate, so it's time consuming task. These solution is only limited for the small number of candidate.

2) Online video interview: Video interviews save the time and money, allow to differentiates candidate more quickly. It reduces the risk of rejecting good candidate but cannot eliminate it, still resulting in negative impact on quality of hire.

3) AI interviews: AI interviews gives each candidate the opportunity to leave a personal impression by using digital interview system and it making faster decision.

## 2. PROJECT AIM AND OBJECTIVE

### Project Aim:-

#### A. Aim:

To overcome the problem of hiring the bulk of candidates using human HR recruiter and automate this work using AI Interviewer and reduce human Bias nature in candidate selection process.

#### B. Objectives:

- Dramatic reduction in hiring cost.
- Automation save time.
- Process hundreds of candidate at a time.
- Take human bias out of interviews.
- Flexible interviews at candidate's comfort.
- The quality of hiring increases.
- Better Experience for Candidates.

## 3. RELATED WORK

There are many on-line websites in which candidate can get a query financial institution for interview procedure

additionally diverse test for the interview however these kinds of present in textual content format we must kind these kind of questions solution. However, this is a time consuming process since candidate has to spend more time online. Moreover, these websites do not provide accurate remedies to the candidate. Aspiring Minds, an organization that utilizes Artificial Intelligence to empower meritocracy in the work advertise, offers a virtual meeting stage that not just mirrors real face-to-face meeting yet in addition consequently assesses an up-and-comer simply like a human questioner would have. Auto View is an AI-powered video interview bot with a human touch. It can rate the candidate's body language, facial expressions and voice emotions during the interview and make the assessment without any bias.

#### 4. PROPOSED SYSTEM

The architecture characterizes the system. Candidate gives voice input. Voice commands are converted to text through Google speech API. Text input is essentially put away in the database for additional procedure. It is recognized and matched with the commands available in the database. When the command is discovered, its individual assignment is executed as voice, text or through UI as yield. It can also be in the form of application execution.

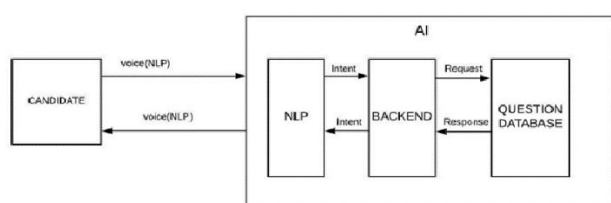


Fig. 1. Proposed System

#### 5. ALGORITHM

##### A. Seq2Seq :

Seq2seq takes as info an arrangement of words(sentence or sentences) and produces a yield succession of words. It does as such by utilization of the intermittent neural network(RNN).Although the vanilla version of RNN is rarely used, its more advanced version i.e. LSTM or GRU are used. This is because RNN suffers from the problem of vanishing gradient. LSTM is used in the version proposed by Google. It builds up the setting of the word by taking 2 contributions at each purpose of

time. One from the client and other from its past yield, subsequently the name intermittent (output goes as input).[10]

##### B. LSTM-

Long Short Term Memory The long-term memory capabilities of LSTM means it excels at predicting text sequences. In order to predict the next word in a sentence, the network has to retain all the words that preceded it.

##### C. Matching Answers With Questions-

Matching answers is a typical task, for this we used semantic matching. Given a question, we need to select a correct answer from the some candidate answers. In this, we use the dataset prepared by our team , which produces questions and corresponding best answers. We then select the question answer pairs to form the positive pairs and negative pairs. The whole dataset is divided into the training, validation and testing data sets. Moreover, we selected the best answer from candidates respectively.

#### 6. RESULTS

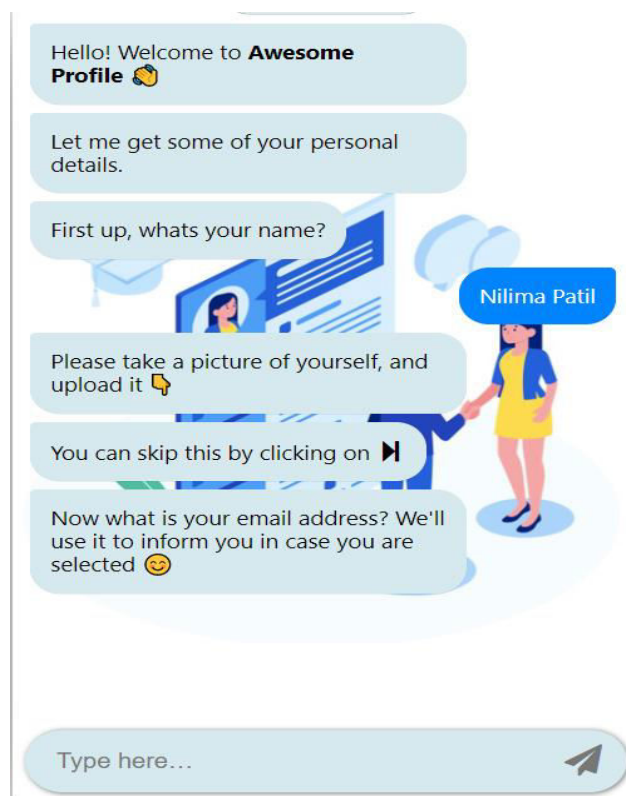
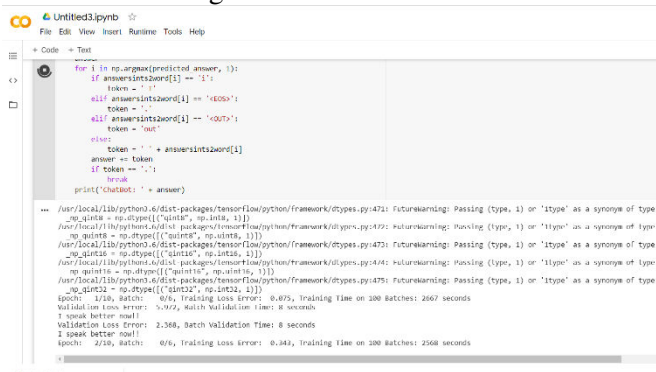


Fig. 2. Starting of Interview Process

The expected results were that the program produces accurate output after training, give us the best answer given by candidate, and asks next question based on the

answer given. But due to lack of hardware compatibility our system was unable to train properly because providing large dataset for training leads to crash our environment. To overcome this issue we used Google Colab, which allowed us the tensorflow version compatibility, but the problem of requirement of large dataset for training remains the same.



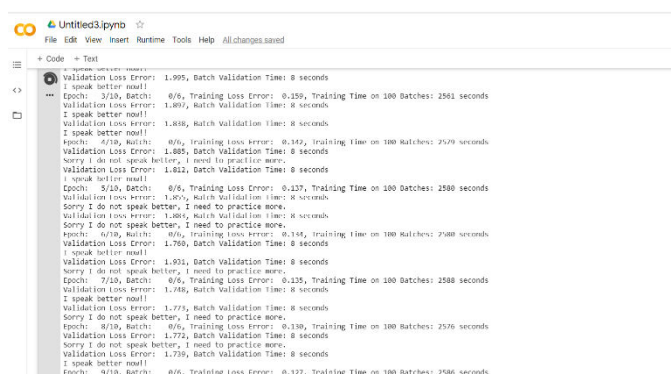
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for i in np.arange(predicted_answer, 1):
    if answerintszord[i] == '1':
        token = '1'
    elif answerintszord[i] == '1000':
        token = '1000'
    elif answerintszord[i] == '10000':
        token = '10000'
    else:
        token = '1' + answerintszord[i]
    answer = token
    if token == '1':
        print('Output: ' + answer)

...
/usr/local/lib/python3.6/dist-packages/tensorflow/python/framework/dtypes.py:472: FutureWarning: Passing (type, 1) or 'type' as a synonym of type
...
Epoch: 0/10, Batch: 0/6, Training Loss Error: 0.359, Training Time on 100 Batches: 2667 seconds
Validation Loss Error: 2.368, Batch Validation Time: 8 seconds
I speak better now!
Epoch: 2/10, Batch: 0/6, Training Loss Error: 0.343, Training Time on 100 Batches: 2568 seconds

```

Fig. 3. Start Of Training.



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Validation Loss Error: 1.995, Batch Validation Time: 8 seconds
I speak better now!
Epoch: 2/10, Batch: 0/6, Training Loss Error: 0.359, Training Time on 100 Batches: 2561 seconds
Validation Loss Error: 1.897, Batch Validation Time: 8 seconds
I speak better now!
Validation Loss Error: 1.888, Batch Validation Time: 8 seconds
I speak better now!
Epoch: 4/10, Batch: 0/6, Training Loss Error: 0.342, Training Time on 100 Batches: 2579 seconds
Validation Loss Error: 1.885, Batch Validation Time: 8 seconds
Sorry I do not speak better, I need to practice more.
Validation Loss Error: 1.812, Batch Validation Time: 8 seconds
I speak better now!
Epoch: 5/10, Batch: 0/6, Training Loss Error: 0.337, Training Time on 100 Batches: 2580 seconds
Validation Loss Error: 1.807, Batch Validation Time: 8 seconds
Sorry I do not speak better, I need to practice more.
Validation Loss Error: 1.807, Batch Validation Time: 8 seconds
Sorry I do not speak better, I need to practice more.
Epoch: 6/10, Batch: 0/6, Training Loss Error: 0.334, Training Time on 100 Batches: 2580 seconds
Validation Loss Error: 1.760, Batch Validation Time: 8 seconds
I speak better now!
Validation Loss Error: 1.691, Batch Validation Time: 8 seconds
Sorry I do not speak better, I need to practice more.
Epoch: 7/10, Batch: 0/6, Training Loss Error: 0.335, Training Time on 100 Batches: 2588 seconds
Validation Loss Error: 1.746, Batch Validation Time: 8 seconds
I speak better now!
Validation Loss Error: 1.775, Batch Validation Time: 8 seconds
Sorry I do not speak better, I need to practice more.
Epoch: 8/10, Batch: 0/6, Training Loss Error: 0.330, Training Time on 100 Batches: 2576 seconds
Validation Loss Error: 1.773, Batch Validation Time: 8 seconds
Sorry I do not speak better, I need to practice more.
Validation Loss Error: 1.736, Batch Validation Time: 8 seconds
I speak better now!
Epoch: 9/10, Batch: 0/6, Training Loss Error: 0.327, Training Time on 100 Batches: 2588 seconds

```

Fig. 4. During Training.

The Fig. 4 depicts that at the start of training due to less trained system it give output as speaking better now but as seen in Fig 5 after getting some training it gets the idea that it is not efficient to produce so it requires more practice. In spite of the fact that our model is progressively touchy to the similarity of the semantic coordinating limit between two sentences, our model cannot settle a few cases despite everything. For example, our model may give a wrong prediction of the sentence pair “A package in Java is collection of classes and interfaces which are bundled together”. The model fails to realize “bundled” means “collected”. Besides, despite the large size of the training set, it’s still very difficult to solve some cases, which depend on the combination of question answer pair. Thus some architectural improvements are necessary to eliminate all errors instead of simply scaling up the basic model.

## 7. DISCUSSION ANDSUMMARY

The Interviewer machine is proposed and built for Interview manner and candidate selection. Seq2seq uses each word that we use to type and converts it to its target language giving no regard to its grammar and sentence structure. We have proposed a voice-based interviewer question solution machine. The aim of the proposed system is to grow the performance and decrease human bias amongst candidate selection. This gadget accepts answers from the candidate questions in voice layout in place of textual content-format and generate the new question from the analyzing preceding solutions. In addition, the response of the device is reached to the candidate in voice layout. This system provides correct result to the candidate. The excessive reaction functionality and rapid processing are the important capabilities of the machine. The system makes use of natural language processing strategies and text semantic matching model to offer particular treatment to the candidate’s capability.

## 8. FUTURE SCOPE

Several possible research directions can be considered for future work. First, more nonverbal features like postures, gestures, or ne-grain gaze patterns could be extracted and analyzed in combination with the speaking status. Furthermore, we estimate that the verbal substance could clarify a significant part of the difference in the information. Therefore, future work could analyze the relationship between verbal content in job interviews and hire ability. In addition, we would like to investigate more on text matching and consider building a system that relies on deep learning, a neural network that enables the system to take video-based interview and recognized the emotions of the candidate

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## BIOGRAPHIES



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