

FilterQ: FALSE RESPONSE DETECTION WITH FEEDBACK AND RESPONSE MANAGEMENT

Guided By - Dr. Rajesh Ingle

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**Dr. Shyama Prasad Mukherjee International
Institute of Information Technology, Naya
Raipur**

Group 54

Aryan Kishore Saran	(211010217)
Aryansh Verma	(211010218)
Jay Padia	(211010229)

Problem Statement

“ Developing an Effective Screening Mechanism for Job Application Forms and Marketing Forms to Address the issue of irrelevant responses and increase the efficiency of the hiring and sales process. ”

Abstract

- False response detection is a technique for ensuring the authenticity and accuracy of responses received online forums.
- The feedback approach uses deep learning to identify genuine responses and prioritize them for analysis.
- The insights gained are used to improve our model iteratively, making data-driven decisions for continuous improvement.

Introduction & Motivation

- Many companies in today's world are posting their vacancies through various platforms via JAF (Job Application Form) or they are releasing their product for sales via marketing forms.
- Many candidates fill these forms but there are a number of responses among those forms that are not relevant or that are just filled by people who are not usually interested in it, just for the sake of getting the job. They do clear the interview for a particular role but there are very high chances of that person resigning sooner or later.
- This problem may not seem to be alarming but if we mathematically calculate this from a company's perspective we can easily find the loophole.

Introduction & Motivation

- Every new member's interview or time spent on each applicant has a cost to a company which today is around 10 lakhs per employee.
- The cost of hiring 1 employee today for a company plays a very crucial role and this is also one of the reason of the layoff.
- Similarly if a company is marketing a product some people just respond and are not actually interested which wastes the time and money of the workforce.
- Every sales employee has been assigned a target number of customers nowadays which is very crucial.

Literature Review

- False response detection and feedback and response management systems have become increasingly crucial as communication technology advances. Many researchers have worked to detect fake news and fake profiles on social media, which are very similar to our project case.
- One study used deep learning algorithms to detect fake news on social media, analyzing features such as the language used, the source of information, and the context of the news. [1]

Literature Review



- Another study focused on detecting fake profiles on social media platforms based on features such as the number of friends, the frequency of posts, and the type of content posted and achieved an accuracy rate of 92%.^[2]
- In the context of our project case, it shares some similarities with detecting fake news and fake profiles on social media, particularly in using deep learning and analyzing features to identify patterns.

Dataset

- The dataset which we have used is obtained from the E-Cell and TNP (Training and Placement Cell) of our institute.
- The dataset consists of responses from students who have filled forms for joining the E-cell and TNP cell.
- To prepare the dataset, the responses of the students are clubbed together to create a large dataset that can be used for training and testing machine learning models.

Research Gap

- **Facebook (Now Meta):**
 - Lacks credibility of application
 - No check of skill set
 - No check on the knowledge of the domain
 - No facility to collect info of the user
- **Internshala:**
 - Facility to collect info of the user
 - Lacks credibility of application
 - No check of skill set
 - No check on the knowledge of the domain

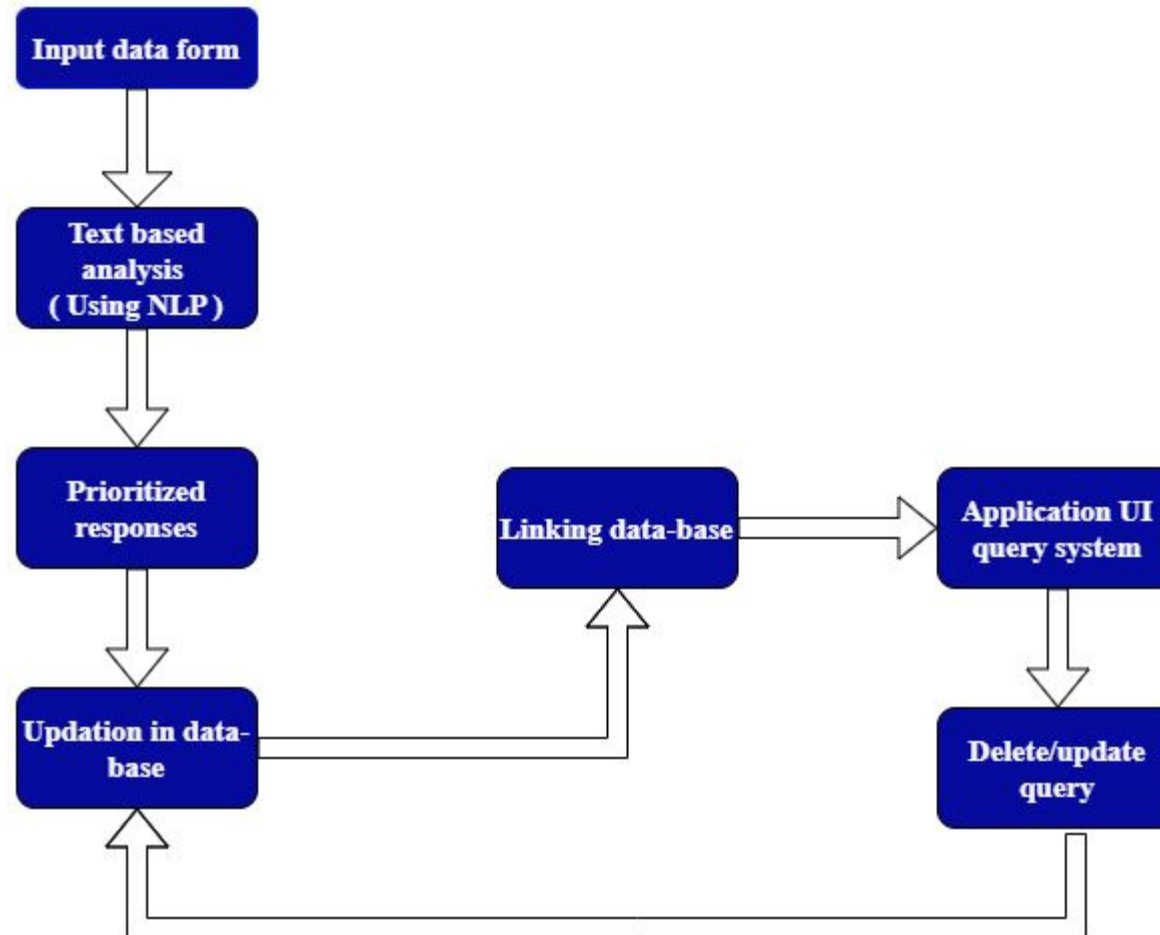
Research Gap

- **Unstop (Formerly Dare2Compete):**
 - Facility to collect info of the user
 - Ensures credibility of the applicant and application
 - No check of skill set
 - No check on the knowledge of the domain
- **LinkedIn:**
 - Facility to collect info of the user
 - Ensures credibility of the applicant and application
 - A check on skill set but no verification as the opportunities are not customized
 - No check on the knowledge of the domain

Research Gap

- **Microsoft:**
 - Currently facing scarcity of form reviewing and calling team.
 - More than 80 Thousand unreviewed forms are pending

Methodology



SentimentRNN Model

- consists of several layers that work together to process and transform input data.
- Embedding Layer
- LSTM Layer
- Sigmoid Layer

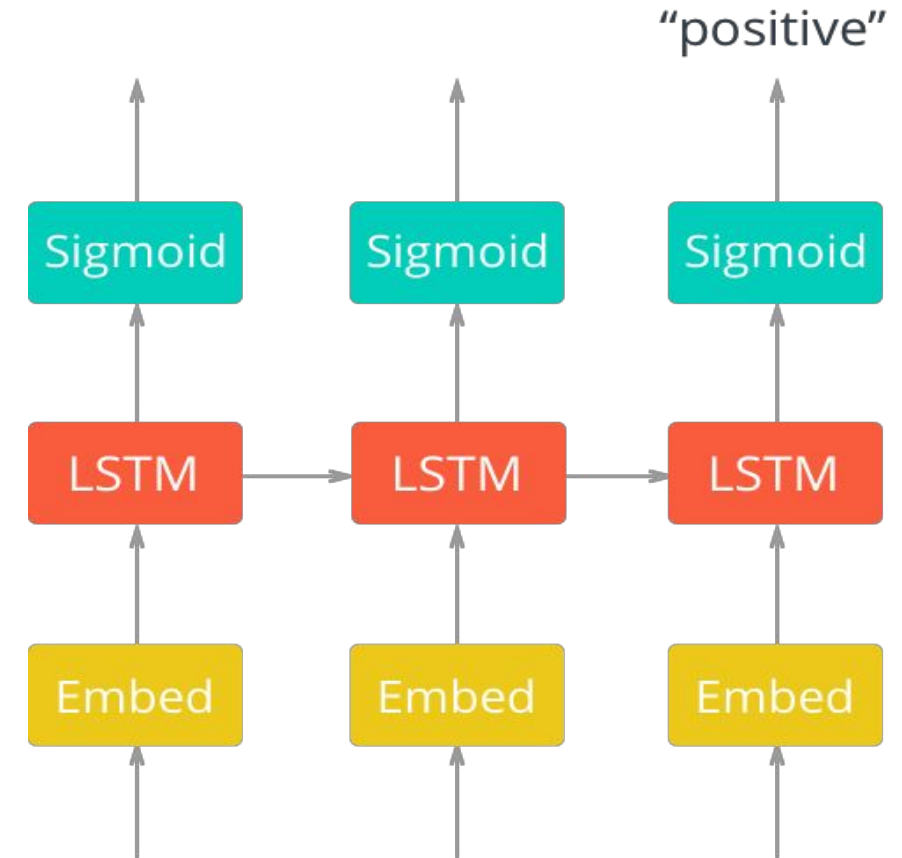


Fig. Sentiment Network

Training and Validation

In order to validate the output from our model:

- Utilizing Binary Cross-Entropy Loss for validation.
- Optimizing hyperparameters to minimize losses.
- Considering the addition of LSTM layers for further loss reduction.

Epoch: 1/4...	Step: 100...	Loss: 0.624876...	Val Loss: 0.631932
Epoch: 1/4...	Step: 200...	Loss: 0.516240...	Val Loss: 0.602477
Epoch: 1/4...	Step: 300...	Loss: 0.591740...	Val Loss: 0.526906
Epoch: 1/4...	Step: 400...	Loss: 0.427122...	Val Loss: 0.515380
Epoch: 2/4...	Step: 500...	Loss: 0.489924...	Val Loss: 0.547347
Epoch: 2/4...	Step: 600...	Loss: 0.396301...	Val Loss: 0.439898
Epoch: 2/4...	Step: 700...	Loss: 0.343936...	Val Loss: 0.452742
Epoch: 2/4...	Step: 800...	Loss: 0.368828...	Val Loss: 0.427010
Epoch: 3/4...	Step: 900...	Loss: 0.425627...	Val Loss: 0.524893
Epoch: 3/4...	Step: 1000...	Loss: 0.220752...	Val Loss: 0.439810
Epoch: 3/4...	Step: 1100...	Loss: 0.326549...	Val Loss: 0.423517
Epoch: 3/4...	Step: 1200...	Loss: 0.406281...	Val Loss: 0.476000
Epoch: 4/4...	Step: 1300...	Loss: 0.140521...	Val Loss: 0.521311
Epoch: 4/4...	Step: 1400...	Loss: 0.349042...	Val Loss: 0.521825
Epoch: 4/4...	Step: 1500...	Loss: 0.095108...	Val Loss: 0.547091
Epoch: 4/4...	Step: 1600...	Loss: 0.282560...	Val Loss: 0.511684

Fig. Training and Validation Loss

Execution Results



- Response sheet of the google forms sent to firebase

Name	Email	Conatct	Why do you want to join E-Cell?	What ideas do you have for E-Cell to grow?			
Parth jhunhunwala	parthjhunhunwala4@gmail.com	6261578341	To have good impact on my resume	E cell should conduct many events and should promote people to participate.. Participation is bit low in the events			
akash trivedi	akasht21100@iiitnr.edu.in	6261922982	i m attending all the session	till now i have not			
Ayushman Tripathi	ayushman21101@iiitnr.edu.in	8840605594	To advance my entrepreneurship skills further ahead.	I have few ideas regarding how we can increase the active participation of the people. Giving enough incentives is the key.			
Ruchir Raj Gupta	ruchir21100@iiitnr.edu.in	8143520180	To learn, grow and improve myself, develop leadership and net	Increasing the quality and quantity of events, executing events efficiently, collaborating with E Cells and finance clubs of ot			
Vishal Raj Bais	vishal21101@iiitnr.edu.in	8319431770	Interested in entrepreneurship	No plans			
Adarsh Singh	adarsh21102@iiitnr.edu.in	8305388098	Ecell	Ecell			
Ganeah Prajapati	ganesh21101@iiitnr.edu.in	9098669466	I want to explore the entrepreneurial side and want to learn fro	Conducting entrepreneurial simulation games which intrigues students to participate in such events. Collaboration from entrepreneur regarding talks and events. Will benefit both the entrepreneurs and E-Cell both.			
V.Jashwanth	vemula21101@iiitnr.edu.in	9617494339	Interest in photography change to showcase my skills	NA			
Deependra Singh Bhow	deependra21102@iiitnr.edu.in	9587715397	To enhance in leadership skill.	E cell can increase the count of events.			
Sontu Akshath Rishi	sontu21100@iiitnr.edu.in	9109562757	ncbsjdv	Opportunities on learning how find a idea for strat up and strategies. Better interaction with people around.			
Nayan Deep	nayan21100@iiitnr.edu.in	7840073450	Want to learn skill sets that entrepreneurs need.	Awareness among aspiring entrepreneurs regarding entrepreneurship , Programs on Entrepreneurship Enabling Skills .			
Abhijeet Jharbade	abhijeet21101@iiitnr.edu.in	6394079252	We would get better idea of how business is conducted in real	Organising Workshops and Lectures periodically to create awareness about entrepreneurship.Providing Mentorship throug			
Sagam Reddy Nanditha	sagam21100@iiitnr.edu.in	8989846583	to improve myself	First of all, we need to increase voluntarily participation of our college people in all the E-Cell events. We need to show the			
PARTH BHANDAKKAR	parthb21101@iiitnr.edu.in	8319585932	To change perspective of the students towards entrepreneurship	To conduct seminars and workshops which will teach students how to deal with the problems while building a startup			
Aadi Juvekar	aadi21101@iiitnr.edu.in	6265451240	Push Enterpreneurship culture at campus and would look good	Host seminars and workshops outside of esummit multiple times in the academic year			
Priykrit Varma	priykrit21100@iiitnr.edu.in	9685521031	To nurture professionalism and leadership skill in my fellow ma	jiahuysdvesjdkvhgdiuhvbdsvkvhdsdvg			
Jay Deep Singh	jay21102@iiitnr.edu.in	9303102080	Because I like the Independency the club has...	Not rn.			
Shristi Tiwari	shristi21102@iiitnr.edu.in	8602237007	It will give me the ideal environment to develop my thoughts, t	It should plan regular sessions, seminars with young entrepreneurs and workshops to encourage students' entrepreneuria			
Shubham khilari	Shubham21100@iiitnr.edu.in	8953146775	I believe E-cell has been a great learning opportunity for me, ar	E-cell can conduct various small events throughout the year and stay active.			
Abash Yadav	abash21100@iiitnr.edu.in	7587785757	I want to contribute in various activities of the club	iihndchukfuhbfkz bdkbh fdk			

Execution Results



- Output sheet generated after running ML model

Name	Email	Contact	Why do you want to join E-Cell?	Response 1	What ideas do you have for E-Cell to grow?	Response 2	Final Response
Parth Jhunjhunwala	parthjhunjhunwala4@gmail.com	6261578341	To have good impact on my resume	Negative	E cell should conduct many events and should promote people	Positive	Failed
akash trivedi	akasht21100@iiitnr.edu.in	6261922982	i m attending all the session	Negative	till now i have not	Negative	Failed
Ayushman Tripathi	ayushman21101@iiitnr.edu.in	8840605594	To advance my entrepreneurship skills further ahead.	Positive	I have few ideas regarding how we can increase the active partic	Positive	Passed
Ruchir Raj Gupta	ruchir21100@iiitnr.edu.in	8143520180	To learn, grow and improve myself, develop leadership and net	Positive	Increasing the quality and quantity of events, executing events e	Negative	Failed
Vishal Raj Bais	vishal21101@iiitnr.edu.in	8319431770	Interested in entrepreneurship	Positive	No plans	Negative	Failed
Adarsh Singh	adarsh21102@iiitnr.edu.in	8305388098	Ecell	Negative	Ecell	Negative	Failed
Ganeah Prajapati	ganesh21101@iiitnr.edu.in	9098669466	I want to explore the entrepreneurial side and want to learn fr	Positive	Conducting entrepreneurial simulation games which intrigues st Collaboration from entrepreneur regarding talks and events. Wi	Positive	Passed
V.Jashwanth	vemula21101@iiitnr.edu.in	9617494339	Interest in photography change to showcase my skills	Negative	NA	Negative	Failed
Deependra Singh Bhow	deependra21102@iiitnr.edu.in	9587715397	To enhance in leadership skill.	Positive	E cell can increase the count of events.	Positive	Passed
Sontu Akshath Rishi	sontu21100@iiitnr.edu.in	9109562757	ncbsjdv	Negative	Opportunities on learning how find a idea for strat up and strate	Positive	Failed
Nayan Deep	nayan21100@iiitnr.edu.in	7840073450	Want to learn skill sets that entrepreneurs need.	Positive	Awareness among aspiring entrepreneurs regarding entreprenei	Positive	Passed
Abhijeet Jharbade	abhijeet21101@iiitnr.edu.in	6394079252	We would get better idea of how business is conducted in real	Positive	Organising Workshops and Lectures periodically to create aware	Positive	Passed
Sagam Reddy Nanditha	sagam21100@iiitnr.edu.in	8989846583	to improve myself	Negative	First of all, we need to increase voluntarily participation of our c	Positive	Failed
PARTH BHANDAKKAR	parthb21101@iiitnr.edu.in	8319585932	To change perspective of the students towards entrepreneurship	Positive	To conduct seminars and workshops which will teach students h	Positive	Passed
Aadi Juvekar	aadi21101@iiitnr.edu.in	6265451240	Push Entrepreneurship culture at campus and would look good	Positive	Host seminars and workshops outside of esummit multiple time	Positive	Passed
Priykrit Varma	priykrit21100@iiitnr.edu.in	9685521031	To nurture professionalism and leadership skill in my fellow ma	Positive	jiahuysdvesjdkvhgdiuhvbsukvhsdvg	Negative	Failed
Jay Deep Singh	jay21102@iiitnr.edu.in	9303102080	Because I like the Independency the club has...	Negative	Not rn.	Negative	Failed
Shristi Tiwari	shristi21102@iiitnr.edu.in	8602237007	It will give me the ideal environment to develop my thoughts, t	Positive	It should plan regular sessions, seminars with young entreprene	Positive	Passed
Shubham khilari	Shubham21100@iiitnr.edu.in	8953146775	I believe E-cell has been a great learning opportunity for me, ar	Positive	E-cell can conduct various small events throughout the year and	Positive	Passed
Akash Yadav	akashy21100@iiitnr.edu.in	7587785757	I want to contribute in various activities of the club.	Negative	jihcudsbvkfvhbfdku bdkbh fdk	Positive	Failed
					I believe INCREASING NETWORK over the many social media pla		
					Since I have many friends on social media, I want to use it to		

Execution Results

<https://qfilt-9bc28-default-rtdb.firebaseio.com>

<https://qfilt-9bc28-default-rtdb.firebaseio.com/>

▶ Datas

▶ Employees

- **Data database has all the data fetched from sheets.**
- **Employee database has all the updated data from app after calls done**

- **Two databases formed**

<https://qfilt-9bc28-default-rtdb.firebaseio.com/>

▶ 15PWMSABolvQNrEIa5WamVTDPPnvjUgyZcVhYyqtuFN0

▼ Datas

▶ -NVRPDT95TlondU4ISIH + 🗑

▶ -NVSYXwxmwaomtx33f3t

▶ -NVSZ0IX2Lgw_ArS_Pxu

▶ -NVSZb8dCgWuvqkAn0tA

▶ -NVSZ17b0RsQK885LZW0

▶ -NVSZyhZU-3yKSHIQvtd

▶ -NVS_6e68L-VDA5fRtHv

Execution Results

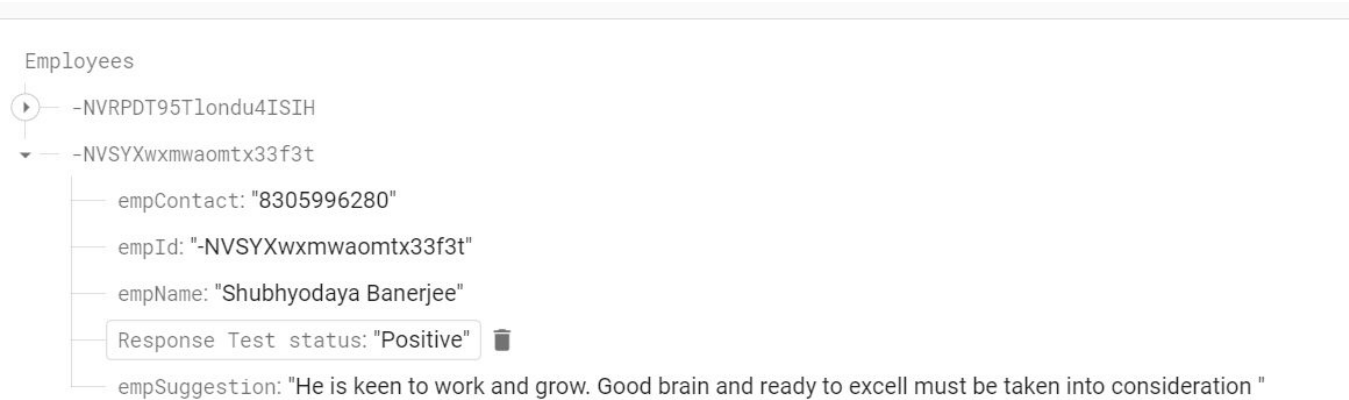


- Output data having both negative and positive responses

- Data format in the fetching database queue



Execution Results



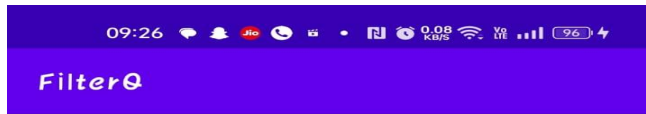
- **Data in the Employee database that contains suggestion of the recruiter after interview call.**

- **The failed responses stay in the data database where they are not updated and sent to the Employee database.**
- **The data here gets filtered because of this functionality.**

Execution Results



- Functionality Activity

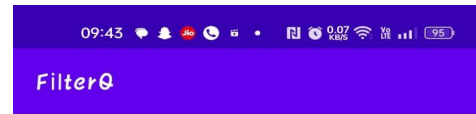


FilterQ:
New Gen Recruitments are
HERE!!

INSERT DATA

FETCH DATA

- Queuing data after fetching



Aryansh Verma

Shubhyodaya Banerjee

Parth Jhunjhunwala

Akash Trivedi

Agushman Tripathi

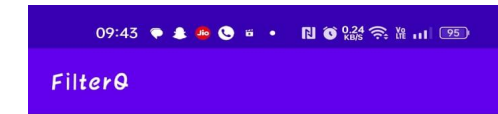
Ruchir Raj Gupta

Vishal Raj Bais

Adarsh Singh

Genesh Priseneti

- Viewing data after clicking on the names



Emp id	-NVRPDT95Tlondu4ISIH
Emp Name	Aryansh Verma
Contact	9617494339
Suggestion	
Response Test	Passed

UPDATE

DELETE

Execution Results

- Updating suggestion on the data after call

10:03

Filter@

Emp id -NVRPDT95TlondU4ISIH

Emp Name Aryansh Verma

Contact 9617494339

Suggestion

Updating Aryansh Verma Record

Aryansh Verma

9617494339

Passed

Suggestion

UPDATE DATA

- Viewing updated on the app

09:44

Filter@

Emp id -NVRPDT95TlondU4ISIH

Emp Name Aryansh Verma

Contact 9617494339

Suggestion Had a interview over call , was good at it and prompt on every answer!

Response Test Passed

UPDATE DELETE

Employee Data Updated

- Customized data insertion feature

09:27

Filter@

Enter name

Contact Number

Enter Response Test Result

Suggestions

SAVE DATA

QWERTY keyboard

Conclusion

- **By successfully implementing various deep learning techniques and refining our model, we have established a robust system for distinguishing between genuine and false responses.**
- **The integration of our system into organizations' communication processes enables them to make data-driven decisions, improve user experiences, and enhance overall decision-making.**
- **Our research contributes to the advancement of false response detection methodologies, providing valuable insights for researchers and practitioners in leveraging deep learning to ensure the reliability of feedback in the digital era.**

Future Works

- **Creating a better UI by introducing graphics**
- **Adding some features like in-app calling**
- **Running Deep-Learning algorithm on app rather than on firebase**
- **Implementing the same filtering technology on .pdf based resume files for much more easier and accurate filtration of responses according to need.**

References

- [1] Shu, K., Mahud-eswaran, D., Wang, S., Lee, S., and Liu, H. (2018). Fake news detection on social media: A data mining perspective. ACM SIGKDD Explorations Newsletter, 20(1), 22-36.
- [2] Tavaréz, L., Gomez-Adorno, H., and Sanchez-Perez, ´ M. A. (2017). Detecting fake social media profiles. Journal of Ambient Intelligence and Humanized Computing, 8(2), 273-282.
- [3] Liang, H., Chen, X., Zhang, Y., Huang, Z., and Liu, X. (2018). A machine learning framework for identifying fake news. IEEE Access, 6, 70693-70703.

Thank You



**Dr. Shyama Prasad Mukherjee International
Institute of Information Technology, Naya
Raipur**