

PrepAI

a different view of
your interview



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Problem Statement

According to LinkedIn Talent Connect 2018, 75% of hiring managers consider behavioral skills as vital as technical skills in candidate evaluations. In the context of job interviews, these behavioral attributes hold significant weight, shaping how candidates are assessed. However, a notable challenge persists – individuals encounter difficulty in improving these crucial skills, resulting in less-than-ideal interview performances and missed chances for personal and professional development.



Literature Review

Strengths

- Quantified importance of prosody, language, and facial expressions.
- SVR for Multimodal Data
- Addresses multicollinearity in behavioral data
- Actionable Insights for Interview Improvement

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Weaknesses

- Variability in Rating by Amazon Mechanical Turkers
- Sensitivity to kernel and regularization parameters
- LASSO overlooks feature interplay.
- Population Selection Bias

Literature Review

Strengths

- LSTM for modeling sequential data and capturing long-term dependencies
- Relation among multimodal features, skill, self-efficacy, and GA.
- Suitable for analyzing time-series data

Weaknesses

Weaknesses

- The dataset used in the study was relatively small
- Requires a large amount of data for training and may be computationally intensive.
- The study was conducted only with Japanese participants, limiting generalizability

Our Approach



Filler Words

Friendliness

Excitement

Friendliness

Engagement

Structured Answers

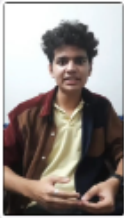
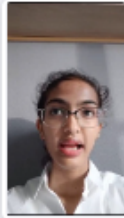


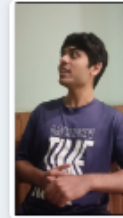



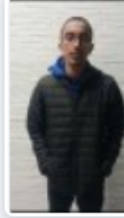
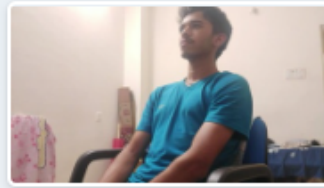

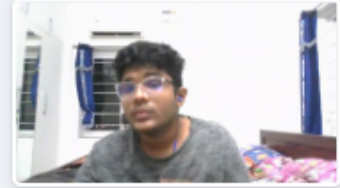


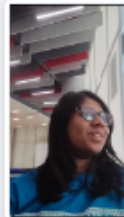

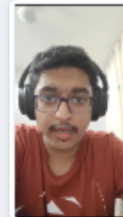

Our solution could significantly enhance interviewees' preparation by providing detailed and nuanced feedback on aspects such as friendliness, excitement, engagement, structured answers, and calmness. This, in turn, could lead to improved interview performance, increased self-awareness, and better overall communication skills.

01 - What have we been doing?

We collected our own data...

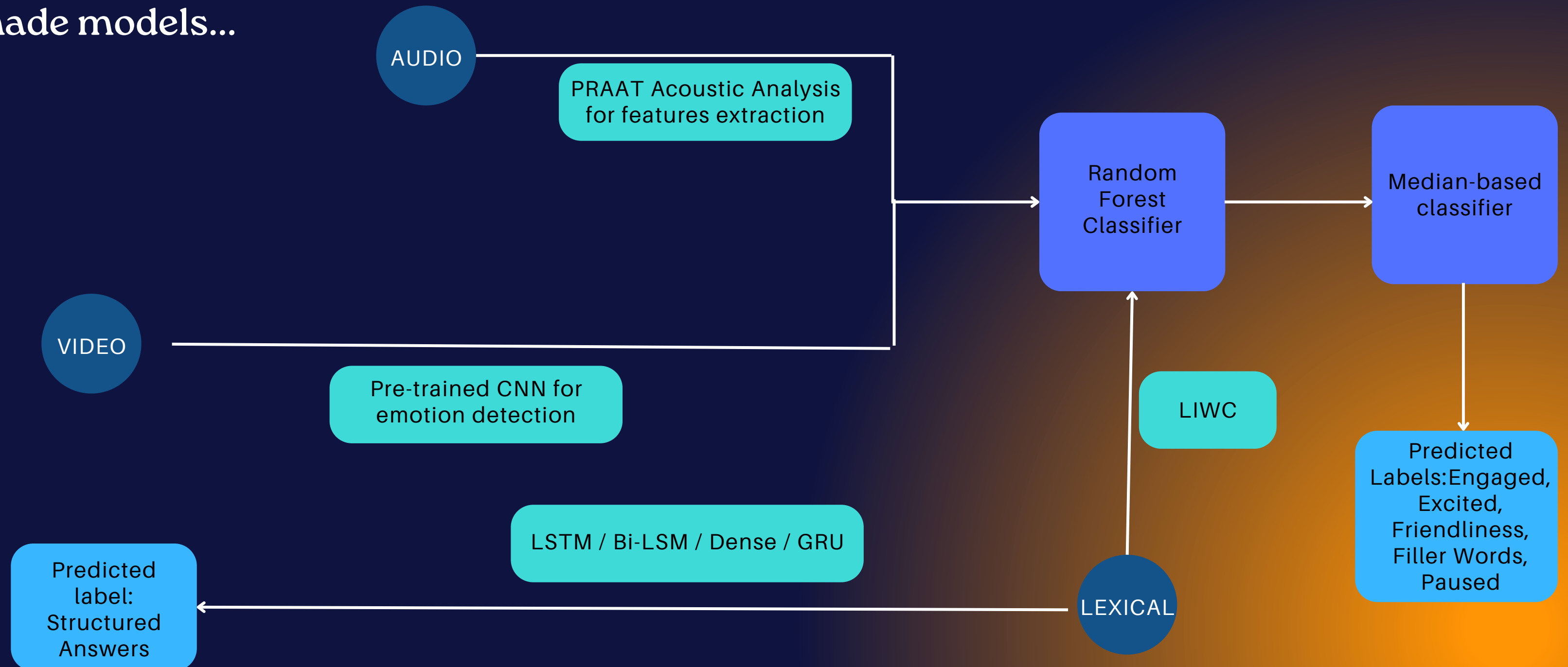
50 videos.

The image displays a grid of 18 video thumbnails, each with a small blue icon in the top-left corner. The thumbnails are arranged in three rows and six columns. Below each thumbnail is the filename and the time since the video was recorded.

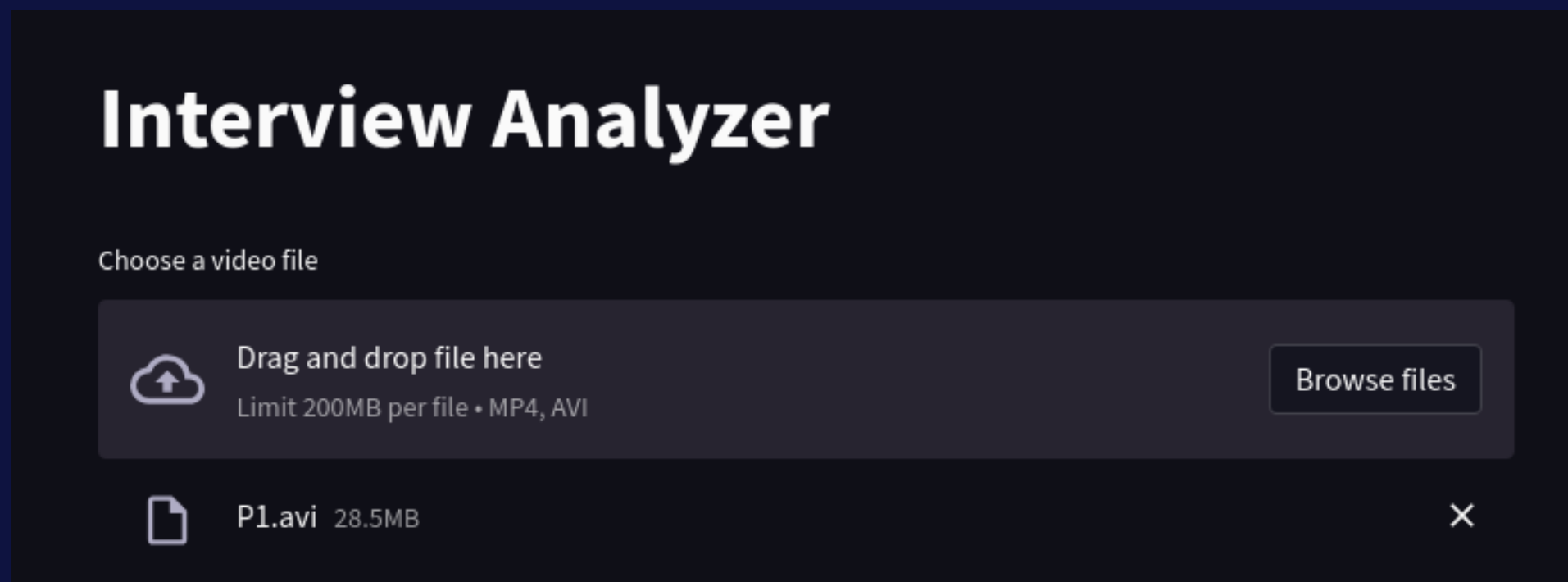
 aviraljain.mp4 October 23	 Interview2.mp4 45 minutes ago	 InterviewVideo_Aditya T... 37 minutes ago	 MaanalVid.mp4 20 minutes ago	 MalhaarVid.mp4 27 minutes ago	 mayank.mp4 October 31
 NandanVideo.mp4 33 minutes ago	 oose.mp4 About an hour ago	 PriyanshuVid.mp4 A few seconds ago	 purvesh.mp4 46 minutes ago	 rishit.mp4 October 31	 rushil.mp4 October 31
 Samyucktha.mov 47 minutes ago	 SankalpPanday.mp4 November 4	 suhani.mp4 About an hour ago	 suhani2.mp4 About an hour ago	 vasdev.mp4 October 23	 VID-20220214-WA0022.... 42 minutes ago

01 - What have we been doing?

We made models...



The Process - What you see



Step 1:
Upload the video



The Process - What goes on

Lexical

- Used assembly ai API to extract transcripts from the audios.
- Applied LIWC on these transcripts.

Prosodic

Used parselmouth library for PRAAT software to extract prosodic features.

Video

Used pre-trained CNN for emotion detection using FER library

Step 2:
Feature Extraction →

The Process - What goes on

Lexical

- Used assembly ai API to extract transcripts from the audios.
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Prosodic

Used parselmouth library for PRAAT software to extract prosodic features.

Video

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Random Forest Classifier

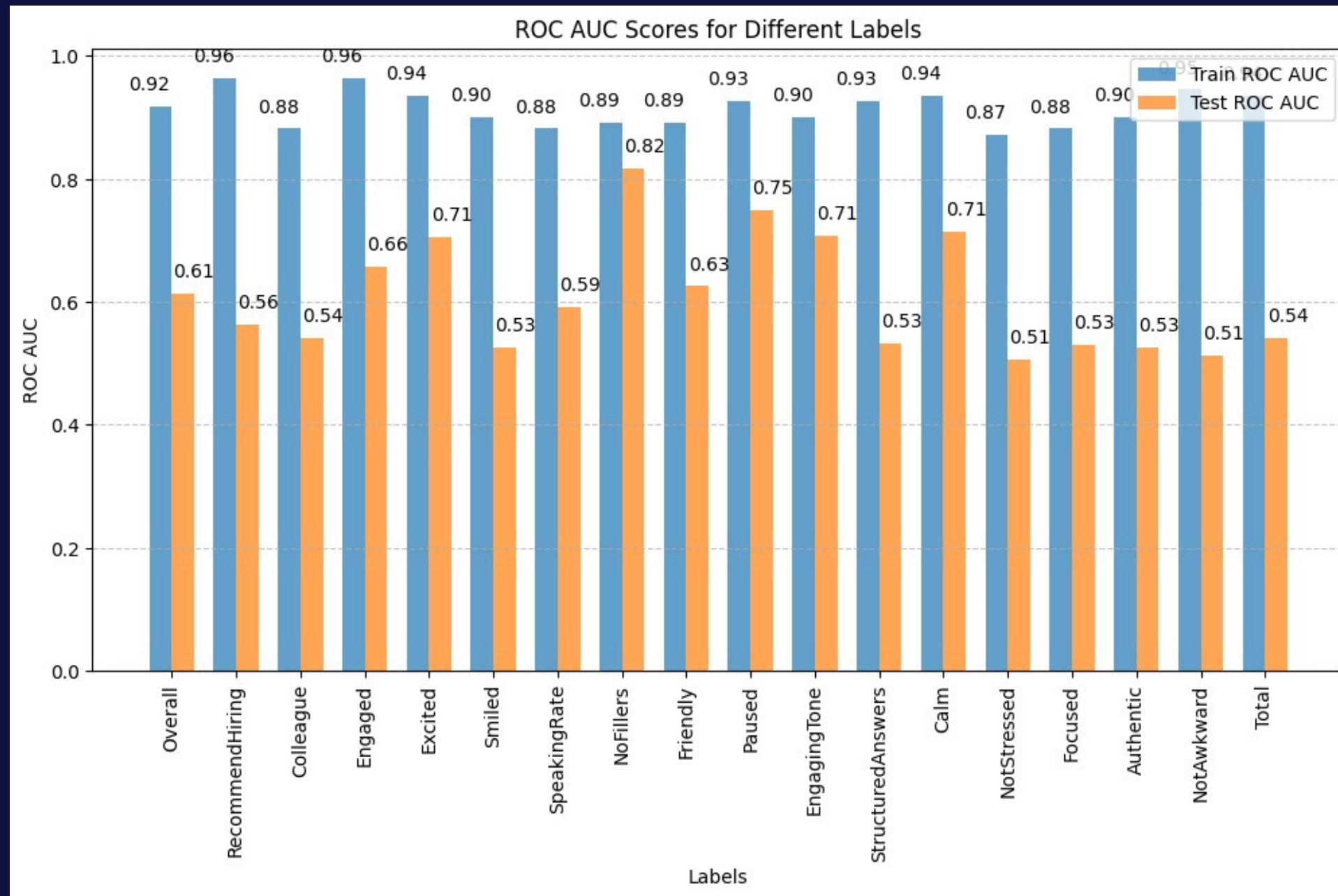
Median based classification

Extracted features: paused, calm, engaging tone, excited

Step 3:
ML Methodology



The Process - What goes on



Label	Train ROC AUC	Test ROC AUC
NoFillers	0.8909	0.8179
Paused	0.9273	0.7500
Calm	0.9364	0.7143
EngagingTone	0.9000	0.7076
Excited	0.9364	0.7056
Engaged	0.9636	0.6578
Friendly	0.8909	0.6257
Overall	0.9182	0.6128
SpeakingRate	0.8818	0.5923
RecommendHiring	0.9636	0.5641
Colleague	0.8818	0.5417
Total	0.9364	0.5417
StructuredAnswers	0.9273	0.5333
Focused	0.8818	0.5312
Smiled	0.9000	0.5250
Authentic	0.9000	0.5250
NotAwkward	0.9455	0.5125
NotStressed	0.8727	0.5056

The Process - What goes on

LSTM model for text-based classification using transcript

Extracted features:
StructuredAnswers, NoFillers

Step 4:
Lexical Analysis →

	label	Dense accuracy	LSTM accuracy	Bi-LSTM accuracy	GRU accuracy
0	Overall	0.428571	0.535714	0.607143	0.464286
1	RecommendHiring	0.553571	0.625000	0.517857	0.571429
2	Colleague	0.428571	0.553571	0.553571	0.446429
3	Engaged	0.446429	0.553571	0.535714	0.553571
4	Excited	0.446429	0.607143	0.660714	0.482143
5	EyeContact	0.446429	0.642857	0.642857	0.589286
6	Smiled	0.535714	0.553571	0.553571	0.482143
7	SpeakingRate	0.464286	0.482143	0.428571	0.589286
8	NoFillers	0.745839	0.773568	0.819286	0.750374
9	Friendly	0.482143	0.517857	0.571429	0.482143
10	Paused	0.464286	0.392857	0.553571	0.428571
11	EngagingTone	0.410714	0.410714	0.589286	0.553571
12	StructuredAnswers	0.747297	0.814827	0.824592	0.796219
13	Calm	0.500000	0.571429	0.553571	0.464286
14	NotStressed	0.428571	0.535714	0.464286	0.428571
15	Focused	0.607143	0.517857	0.571429	0.535714
16	Authentic	0.446429	0.517857	0.553571	0.464286
17	NotAwkward	0.446429	0.482143	0.553571	0.464286
18	Total	0.660714	0.660714	0.625000	0.625000

The Process - Model Architecture

Dense Model

```
def create_dense_model(input_dim):  
    model = Sequential()  
    model.add(Embedding(input_dim, embedding_dim, input_length=max_len))  
    model.add(GlobalAveragePooling1D())  
    model.add(Dense(24, activation='relu'))  
    model.add(Dropout(drop_value))  
    model.add(Dense(1, activation='sigmoid'))  
    model.compile(optimizer='adam', loss='binary_crossentropy', metrics=['accuracy'])  
    return model
```

✓ 0.0s

LSTM

```
def create_lstm_model(input_dim):  
    model = Sequential()  
    model.add(Embedding(input_dim, embedding_dim, input_length=max_len))  
    model.add(SpatialDropout1D(drop_lstm))  
    model.add(LSTM(n_lstm, return_sequences=False))  
    model.add(Dropout(drop_lstm))  
    model.add(Dense(1, activation='sigmoid'))  
    model.compile(optimizer='adam', loss='binary_crossentropy', metrics=['accuracy'])  
    return model
```

✓ 0.0s

Bi-LSTM

```
def create_bi_lstm_model(input_dim):  
    model = Sequential()  
    model.add(Embedding(input_dim, embedding_dim, input_length=max_len))  
    model.add(Bidirectional(LSTM(n_lstm, return_sequences=False)))  
    model.add(Dropout(drop_lstm))  
    model.add(Dense(1, activation='sigmoid'))  
    model.compile(optimizer='adam', loss='binary_crossentropy', metrics=['accuracy'])  
    return model
```

✓ 0.0s

GRU

```
def create_gru_model(input_dim):  
    model = Sequential()  
    model.add(Embedding(input_dim, embedding_dim, input_length=max_len))  
    model.add(SpatialDropout1D(0.2))  
    model.add(GRU(128, return_sequences=False))  
    model.add(Dropout(0.2))  
    model.add(Dense(1, activation='sigmoid'))  
    model.compile(optimizer='nadam', loss='binary_crossentropy', metrics=['accuracy'])  
    return model
```

✓ 0.0s

What you finally see

We made the platform...

Here's a few tips on how you can improve in each category:

Engaged:

- Maintain eye contact with the camera to convey attentiveness and interest.
- Use positive body language to express enthusiasm and engagement.
- Ask thoughtful questions and actively listen to the interviewer's prompts.

Excited:

- Express genuine enthusiasm and excitement about the opportunity.
- Use positive and energetic language to convey your interest in the role.
- Share specific reasons why you are excited about the prospect of joining the company.

EyeContact:

- Focus on looking directly into the camera for a virtual interview.
- Avoid excessive staring at notes or distractions in the room.
- Practice a balance between maintaining eye contact and natural blinking.

Interview Analyzer

Choose a video file



Drag and drop file here

Limit 200MB per file • MP4, AVI

Browse files



P1.avi 28.5MB



Areas where you shine

- Engaged
- EyeContact
- Smiled
- SpeakingRate
- NoFillers
- Friendly
- EngagingTone
- StructuredAnswers
- NotStressed
- NotAwkward

Areas to improve

- Excited
- Paused
- Calm
- Focused

Our Limitations



- Video Analysis - due to limited computational power
- Our model could not perform as well as the one showed in midsem. This is because, we extracted our own features this time.

Thanks