

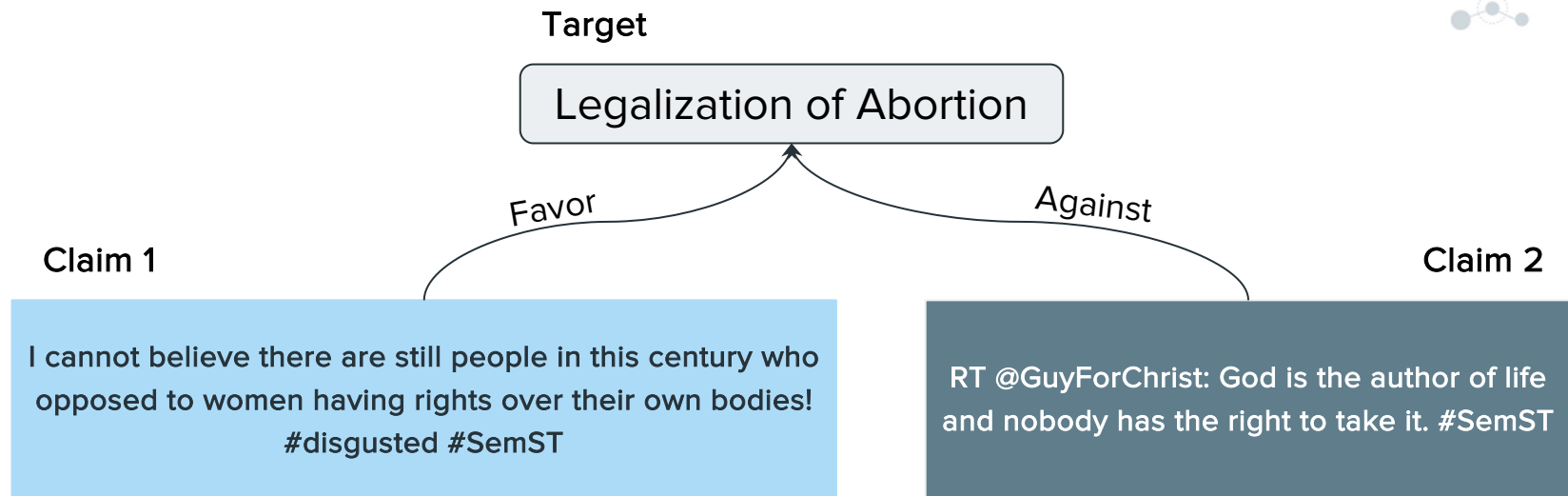
A decorative network diagram in the top-left corner, featuring a complex web of interconnected nodes. Some nodes are highlighted with blue circles, and others with solid blue dots. The lines connecting the nodes are thin and grey.

Final Project

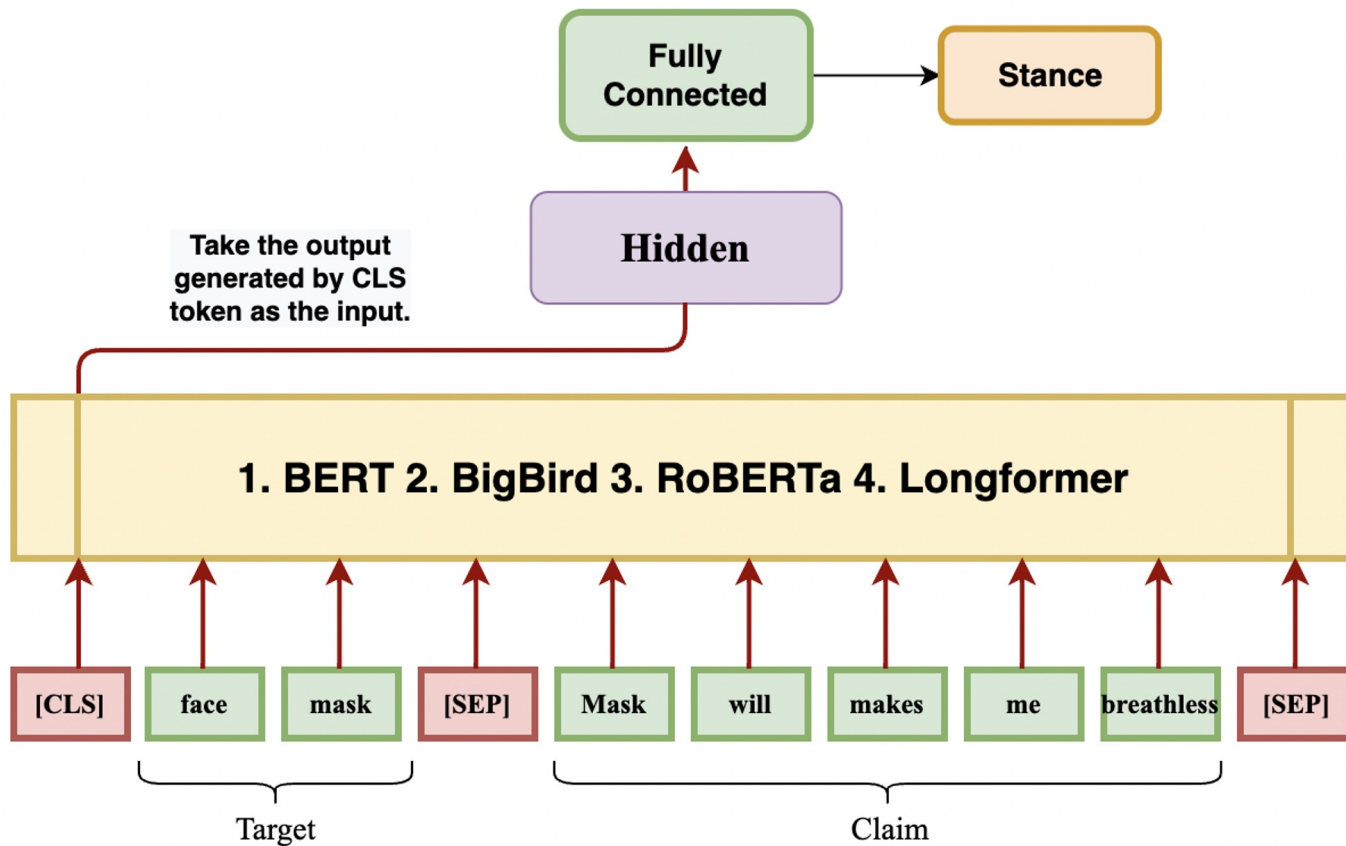
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A decorative network diagram in the bottom-right corner, similar to the one in the top-left, showing a network of nodes and connections with some nodes highlighted in blue.

Stance Detection



Model Architecture



Dataset

Dataset	Targets	avg_seq_len	max_seq_len	min_seq_len
IBM	55 targets in total <i>Ex: This house would ban gambling</i>	21.57	53	8
SemEval	<ul style="list-style-type: none">• Hillary Clinton• Feminist Movement• Legalization of Abortion• Atheism• Climate Change is a Real Concern	18.83	33	7
Covid19	<ul style="list-style-type: none">• Face_masks• Fauci• School_closures• Stay_at_home_orders	29.12	98	3

Experimental Results

5-Fold Cross-Validation (%)	IBM		SemEval		Covid-19	
Model	Accuracy	F1-score	Accuracy	F1-score	Accuracy	F1-score
BERT	86.34±1.43	86.13±1.46	94.65±0.82	94.4±0.89	77.95±1.06	77.36±1.11
RoBERTa	93.9±1.33	93.8±1.36	95.28±0.77	95.15±0.81	79.21±1.45	78.63±1.53
Longformer	90.27±5.34	90.17±5.36	94.61±1.16	94.37±1.23	74.93±4.84	73.71±6.21
BigBird	93.48±0.97	93.42±0.96	93.34±1	92.96±1.2	75.52±1.87	74.58±1.75

Experimental Results

Target-Wise (%)	IBM		SemEval		Covid-19	
Model	Accuracy	F1-score	Accuracy	F1-score	Accuracy	F1-score
BERT	57.72±4.89	56.18±5.57	51.31±9.78	46.13±7.59	55.38±14.7	46.21±17.7
RoBERTa	70.88±6.76	69.82±7.26	46.86±9.73	41.21±9.66	54.96±14.3	50.7±9.96
Longformer	56.85±5.76	43.88±11.06	43.44±10.9	37.94±8.77	50.08±13.2	47.03±10.2
BigBird	74.9±4.9	74.55±4.95	42.8±8.15	37.43±4.74	55.38±17.7	50.99±15.0

Examples - samples from test set

Dataset	Target	Claim	Prediction	Label
Covid19	Face masks	@NCGOP Morons. You should be advocating for getting rid of the masks, not selling them. #NoMasks	Against	Against
	School closures	This is so stupid. Someone has to fricking get corona virus in order for the school to close 🙄 #CloseTheSchools	Favor	Favor
SemEval	Atheism	Exodus 20:3-4 You shall have no other gods before Me. You shall not make for yourself an image in the form of anything.	Against	Against
	Climate Change is a Real Concern	I can literally sense the global warming NOW.	Favor	Favor

Demo Result

- Predictions by Big Bird on Covid19

```
Type in your target (press enter to exit): Face_masks
Type in your claim (press enter to exit): Wearing face mask keeps us safe
Stance prediction: FAVOR
```

```
Type in your target (press enter to exit): Face_masks
Type in your claim (press enter to exit): Please don't ask me to wear face mask
Stance prediction: AGAINST
```

```
Type in your target (press enter to exit): School_closure
Type in your claim (press enter to exit): students can't maintain social distance
Stance prediction: FAVOR
```

```
Type in your target (press enter to exit): School_closure
Type in your claim (press enter to exit): Only studying in school can enhance student's studying quality
Stance prediction: NONE
```

**Wrong
Prediction!**

Demo Result

- **Predictions by Big Bird on SemEval**

Construct examples by ourselves...

Type in your target (press enter to exit): Atheism

Type in your claim (press enter to exit): I don't believe in god

Stance prediction: FAVOR

Type in your target (press enter to exit): Atheism

Type in your claim (press enter to exit): God rules everyday

Stance prediction: AGAINST

Construct examples by ourselves...

Type in your target (press enter to exit): Legalization of Abortion

Type in your claim (press enter to exit): abortion should not exists!

Stance prediction: AGAINST

Type in your target (press enter to exit): Legalization of Abortion

Type in your claim (press enter to exit): Let woman make decisions!

Stance prediction: FAVOR

A decorative network diagram in the top-left corner, featuring a complex web of interconnected nodes and lines. The nodes are represented by small circles, some of which are larger and have concentric circles, suggesting different levels of connectivity or importance. The lines are thin and gray, creating a mesh-like structure.

Thank you!

A decorative network diagram in the bottom-right corner, similar to the one in the top-left. It shows a cluster of nodes connected by lines, with some nodes being larger and more prominent than others. The overall style is clean and modern, using a light gray color scheme.