Stance Detection

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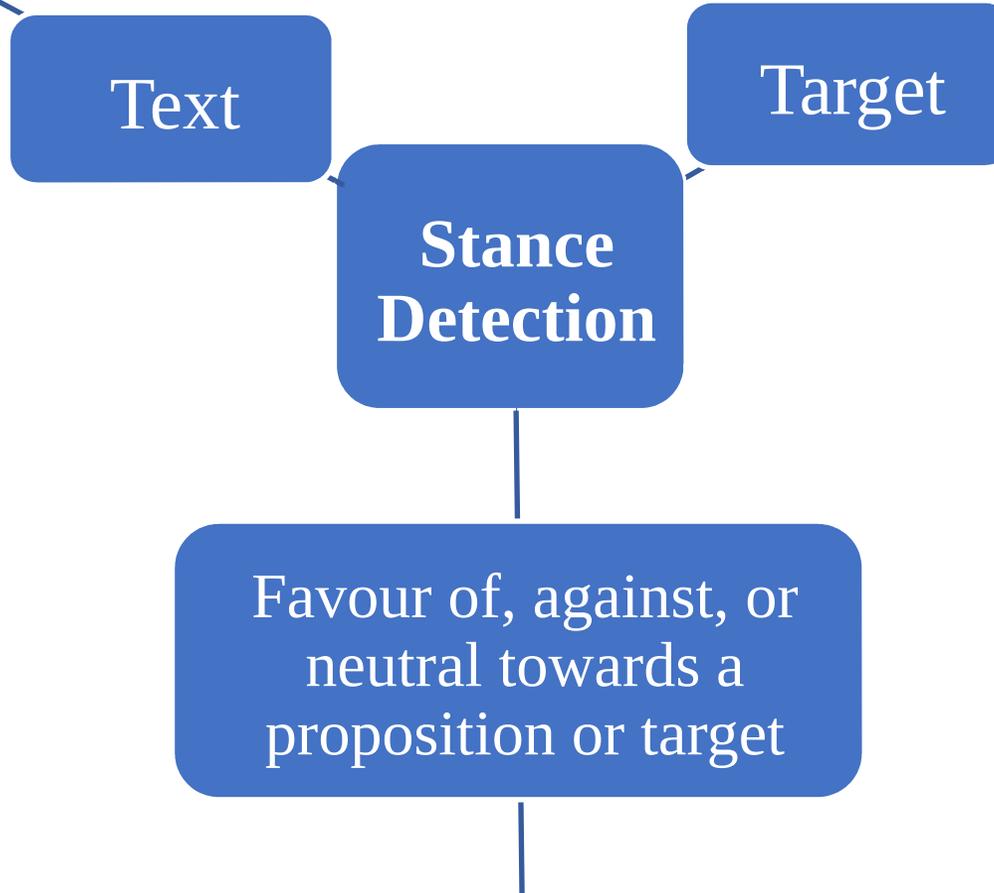

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OUTLINE

What is Stance Detection

- Stance detection is the task of automatically determining from text whether the author of the text is in favor of, against, or neutral towards a proposition or target.

Text

Target

Stance Detection

Favour of, against, or neutral towards a proposition or target

What is Stance Detection

- The target may be a person, an organization, a government policy, a movement, a product, etc.

- Note that lack of evidence for "favour" or "against" does not imply that the tweeters neutral toward the target. It may just mean that we cannot deduce stance from the tweet.

- Example:

Target: Climate Change is a Real Concern.

Tweet: When the last tree is cut down, the last fish eaten & the last stream   poisoned, you will realize that you cannot eat money.

Stance: Favour.

- one can infer from Barack Obama's speeches that he is in favor of stricter gun laws in the United States.

Applications of Stance Detection

1) Opinion Mining.

2) Analysing Debates.

3) Feedback System.

4) Analysis social media.

5) Security.

Opinion Mining

1) People opinion on new policy by Govt.

2) Analysing speech of members in different house.

3) Analysing employee opinion of an organization towards a new policy.

Analysing Debate

1) Online Debate.

2) Debate in parliament.

3) Analysing comment section of Facebook post. (Survey for News agencies)

4) Analysing conversation between group of people.

Feedback system

1) Feedback given by a customer on Amazon, Flipkart etc.

2) Analysing chat box.

3) Analysis of Public opinion for a policy which is implemented by Govt.

4) People experience about new product lunched by a company.

Evaluation.

1)Evaluation of Written essay by essay.

2)Evaluation of news article.
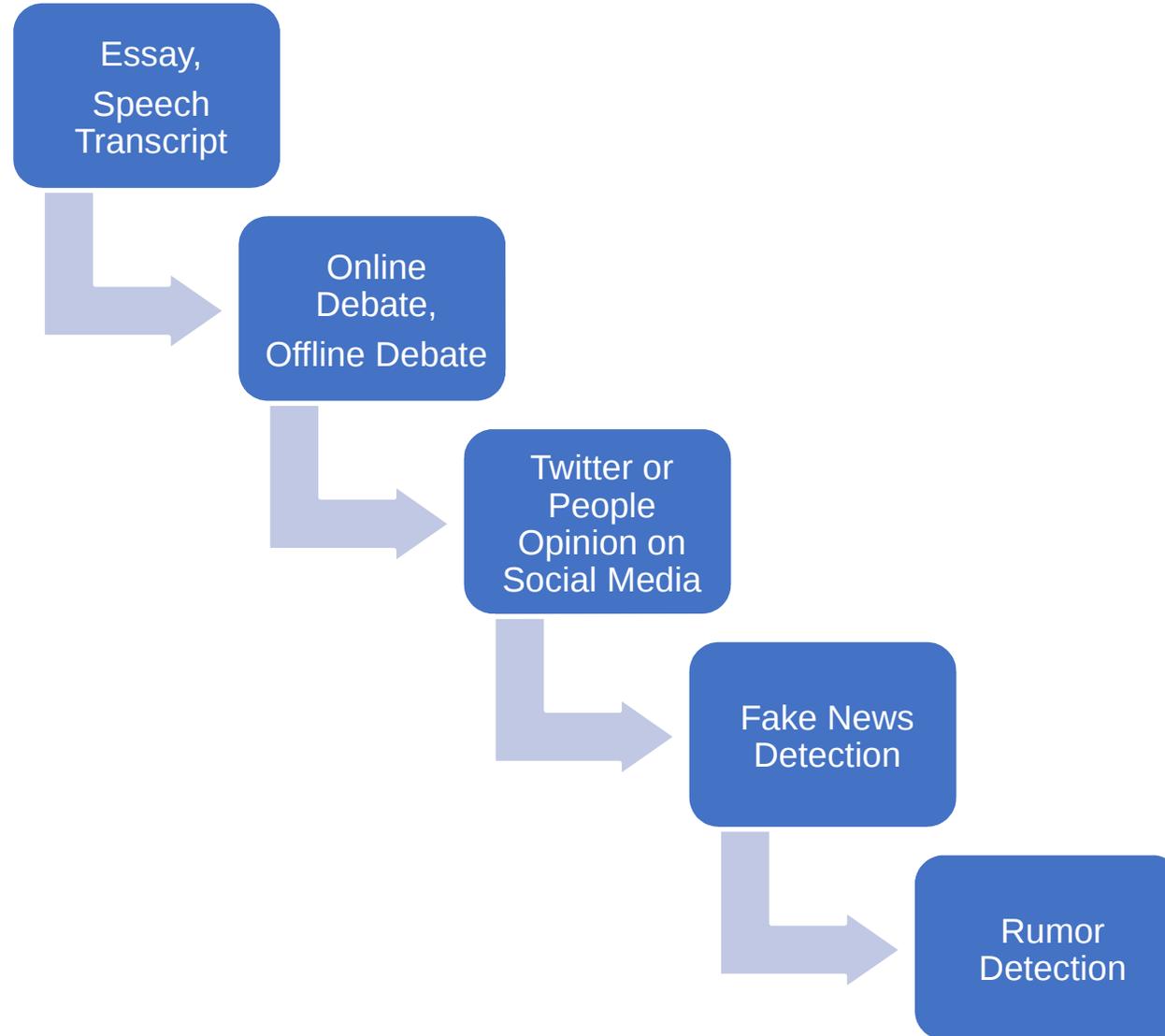
3)Evaluation of Book.

" Don't judge a book by its cover"

Social media analysis

1) Tweet by tweeter users.

2) Post by Facebook users.

3) Post on Instagram and different other social media platform.

Security

1. Fake news Detection.
2. Rumors Detection.

Applications of Stance Detection

Essay, Speech Transcript

Online Debate, Offline Debate

Twitter or People Opinion on Social Media

Fake News Detection

Rumor Detection

Stance and Sentiment

Example:

- Stance detection is related to, but different from, sentiment analysis.

- In case of sentimental there no concepts of Target.

- Some Advanced sentiment analysis method like Aspect Based sentiment analysis consider Target but there must be some reference mention in Text related to target. Target must be mention in text.

- Stance detection, systems are to determine whether the author of the text is in favour of, against, or neutral towards a given (pre-chosen) target of interest.

- The targets may or may not be referred to in the tweets, and they may or may not be the target of opinion in the tweets.

- **Target:** Donald Trump

- **Tweet:** Jeb Bush is the only sane candidate in this republican line up.

- **Stance Label**: Against

- The target of opinion in the tweet is Jeb Bush, but the given target of interest is Donald Trump.

Stance and Sentiment

Tweet	Target	Sentiment	Stance Label
@rimmedlarry Actually, the tag was made by feminists so they can narcissistically post selfies to prove they're not ugly.	Feminist Movement	Negative	Against
SO EXCITING! Meaningful climate change action is on the way!	Climate Change is a Real Concern	Positive	Favour
When the last tree is cut down, the last fish eaten & the last stream poisoned, you will realize that you cannot eat money.	Climate Change is a Real Concern	Negative	Favor
dear lord thank u for all ofur blessings forgive my sins lord give me strength and energy for this busy day ahead.	Atheism Sentiment	Positive	Against

Multi-Target Stance Detection

Tweet	Target_1	Stance Label_1	Target_2	Stance Label_2
Congress Govt lead by Dr. Manmohan Singh most corrupt govt India ever had. That govt was known famous for loot of public money. But current BJP Govt lead by PM Narender Bhai Modi is India second corruption free govt after PM Vajpayee govt.	Congress	Against	BJP	Favour
Congress have divide people in cast with extreme levels minority appeasement and BJP do politics of religion. Congress and BJP both are not good for south India we need to have third front. Say no to Both BJP and Congress.	Congress	Against	BJP	Against
Congress govt lead by PM P. V Narsimha Rao Govt had India best finance minister ever. Dr. Manmohan Singh brought so many good reforms for finance at the same time BJP Govt lead by PM Narendra Bhai Modi have best foreign minister India ever had. Sushma swaraj have shown the way how EAM can directly help common man by doing twitter diplomacy.	Congress	Favour	BJP	Favour
Congress or BJP we should not look at the party idea all party are equal. We should think about leader not party. Leader matters party doesn't matter thats my Political believe. If congress have leader Like Indira Gandhi I will vote for congress similarly if BjP have leader like NAMO I will vote BJP. Leader matters not party.	Congress	Neutral	BJP	Neutral

Data sets

1) SemEval Stance detection data sets.

Data set	Train Sample	Task A	Task B	Total
Sem Eval Stance Detection	2914	1249	707	4870

2) Similarly we have data sets for stance detection in Turkish and Russian Language.

1) Multi-Stance data sets

Target Pair	No_of_sample
Clinton- Sanders	1366
Clinton-Trump	1722
Cruz-Trump	1317
Total	4455

Data sets.

- **Fake News Detection**

Data sets	Train	Test	total
Fake News	1684	905	2589

- **Online Debate**

- Data sets contains debate of following topics.

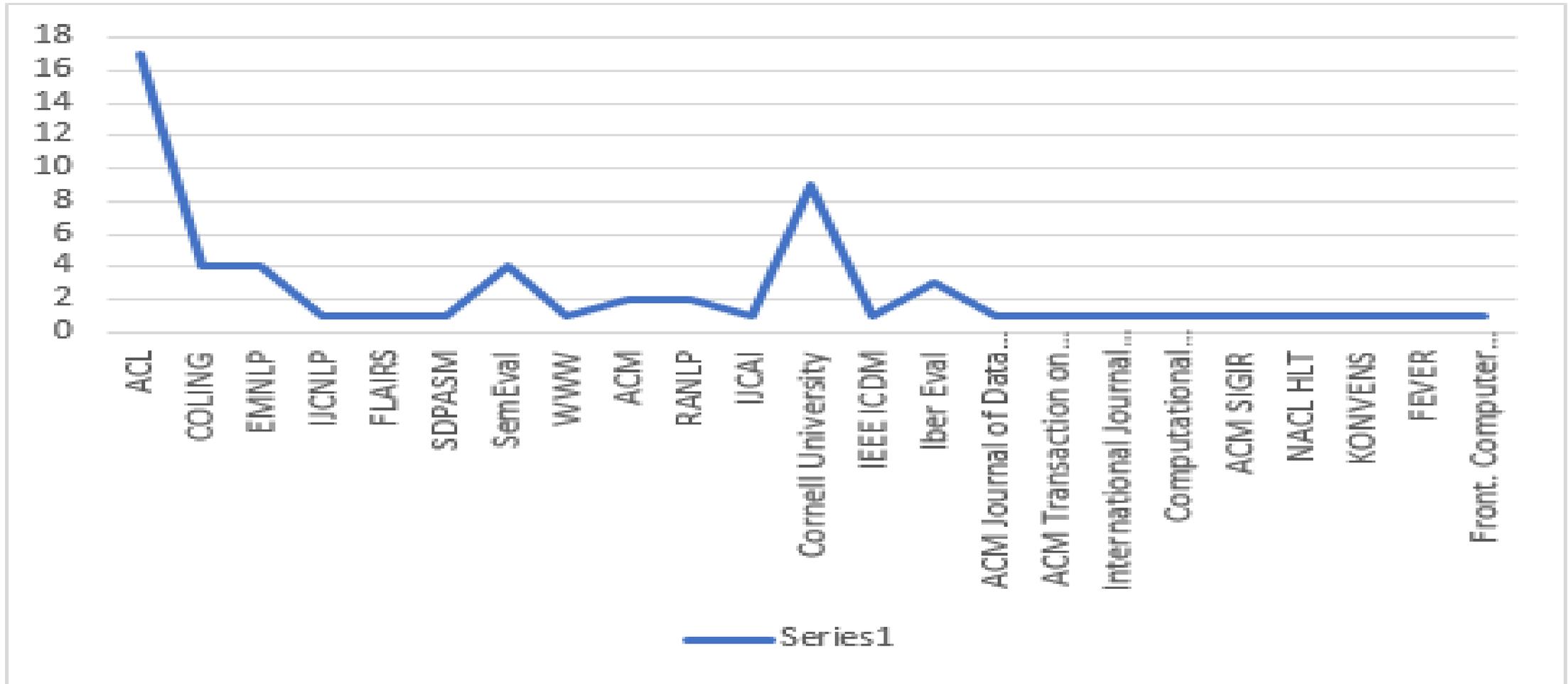I. iPhone vs. Blackberry debate.

II. Firefox vs. Internet Explorer debate.

III. Windows vs. Mac debate.
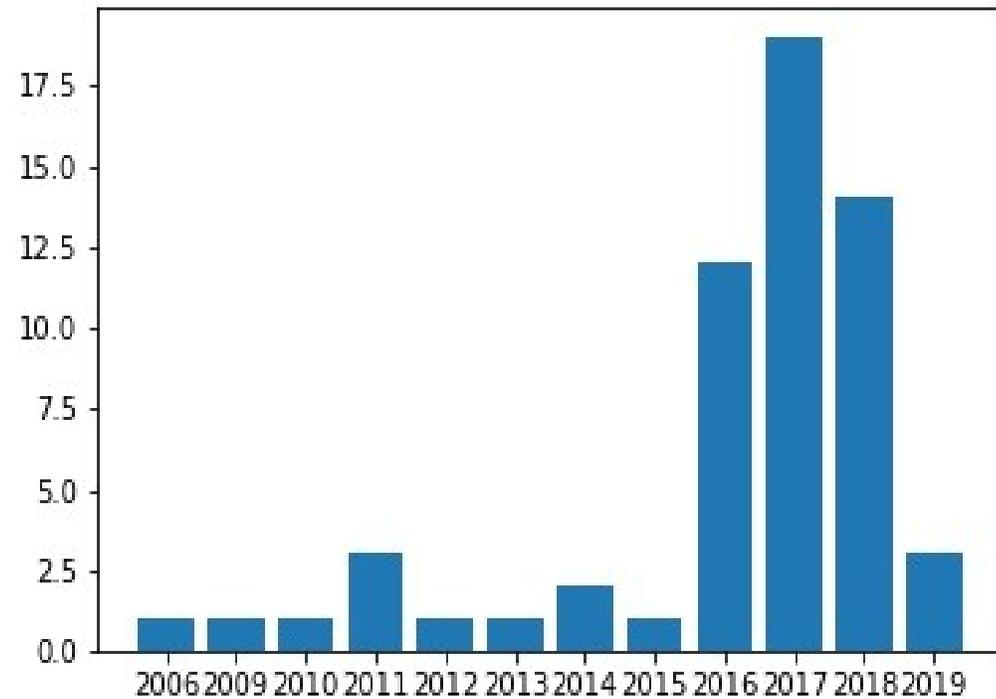
IV. Sony Ps3 vs. Nintendo Wii.

Paper collection Statistics

▪ Paper details Group by Journals and conference.

Year Wise trends

- Year wise trend in research for stance

Year	Applications	Approach
2006 to 2015	Classification of Stance in Online Debate, Parliament Debate, Student Essay, Transcript of Parliament Debate	Theory Based approach, Graph based method with help of Max cut algorithms, Probabilistic model and SVM light Naïve based classifier, HMM
2016	Stance Detection in Tweet and social media Data.	Deep Learning approach Like CNN and RNN, LSTM. Some method uses SVM
2017-2018	Detection of stance in tweet along, Fake news Detection, Rumors detection	Deep learning and Svm based approach