

Detection and Characterization of Stance on Social Media

Part1

Detection and Characterization of Stance on Social Media

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Agenda

1. What is stance detection? [30 minutes] (Kareem Darwish)

----- Break [15 minute] -----

2. Stance modeling in social media [interactive session] [120 minutes] (Abeer Aldayel / Kareem Darwish)

----- Break [30 minute] -----

3. Stance detection applications and future trends? [60 minutes] (Walid Magdy)

Part 1

What is Stance Detection?

Kareem Darwish
[@kareem2darwish](https://twitter.com/kareem2darwish)

Who am I?



What Do I Do?

- Farasa: Best Arabic NLP toolkit
- Stance detection
- Propaganda detection



 **Kareem Darwish**
كريم درويش
6.97K subscribers

HOME VIDEOS PLAYLISTS COMMUNITY CHANNELS

 **نهاية الكابوس!**
كيف ومتى تنتهي أزمة #فيروس_الكورونا؟ 3 سيناريوهات مختلفة | الحلقة 84
Kareem Darwish درويش كريم • 4.8K views • 1 month ago • 97%
تشرح الحلقة الإستراتيجيات والسيناريوهات المتوقعة لأزمة الكورونا، والوقت المتوقع للخروج من الأزمة. الحلقات السابقة: <https://www.youtube.com/watch?>



What is Stance Detection?

- Ex. Gun control:
 - It passed! They Dems are coming for our guns!
 - Nearly 40,000 Americans lose their lives each year because of gun violence we can't afford to make this a partisan issue
- Ex. Ilhan Omar:
 - No nuance necessary. Rep Ilhan Omar hates Jews period.
 - This just proves Ilhan's point about the power of the Israel lobby #IStandWithIlhan



What is Stance Detection?

- Stance: is the position of the user towards an issue or entity.
- Stance detection: is the inference of stand or position towards an object of evaluation either being supporting or opposing.
- Examples:
 - Pro-life vs. Pro-choice
 - Democrat vs. Republican
 - #Tamam vs. #Devam (Turkish politics)
 - Sisawi (Sisi supporter) vs. pro-Arab Spring (Egypt)
 - Barcelona vs. Real Madrid (Ultras)
 - Android vs. iOS (fanboys)

What is Stance Detection?

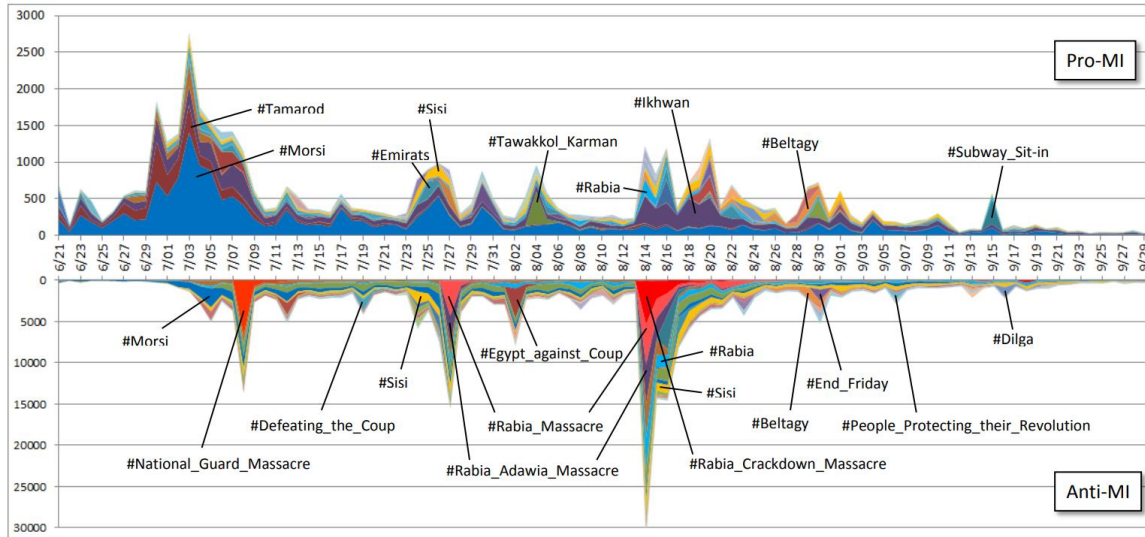
- Stance could be based on:
 - One target: person, topic, etc.
 - Multiple targets:
 - Ex. Trump & Biden; Trump & Hillary Clinton
 - Claim: agreement/disagreement with a statement
 - Ex. hydroxychloroquine is effective

Why Stance Detection?

- Who supports (or opposes) target:
 - Demographics (age, gender, ethnicity, etc.), ideology, geography
- Motivation for stance:
 - History, ideology, psychology, etc.
- Correlations of stance:
 - Lifestyle choices, politics, identity, preferences
- Impact on society:
 - Polarization, elections

Why Stance Detection?

What is important for different groups over time?



2013 Coup in Egypt

Why SD?

Association between politics & issues/life style choices.

Series	Pro-Erdogan	Pro- Opposition
Siyah Beyaz Aşk (Black & white love)	0.60%	99.40%
Vatanım Sensin (You are my country)	0.70%	99.30%
Söz (Promise)	3.80%	96.20%
Çukur (hole)	12.50%	87.50%
Diriliş Ertuğrul (Resurrection Ertugrul)	79.70%	20.30%
Payitaht Abdülhamid (Sultan Abdulhamid)	93.30%	6.70%

2016 Turkish Elections

Why Stance Detection?

- Offering better recommendations:
 - Ideologically similar people have similar preferences!
- Triangulating views of people:
 - Helpful for marketing & polling
 - Disastrous if used by authoritarian regimes
- Sub-grouping population:
 - Discovering intersecting communities
 - Crafting tailored messages

Stance in Real Life vs. Social Media?

- Determining **stance** of people in **real life**:
 - Has many tools:
 - Polling, focus groups, surveys, participant observation, population sampling, population segmentation
 - Pro's: Reasonably accurate, deep
 - Con's: Expensive, affects participants

Stance in Real Life vs. Social Media?

- Determining **stance** on **social media**:
 - Has many tools:
 - Text, interactions, social network, sharing behavior, etc.
 - Pro's: Cheap, quick, no effect on participant
 - Con's: No estimates of real life representation, shallow, information overload

Stance in Real Life vs. Social Media?

- **Stance** is amplified on social media (compared to real life):
 - People can connect with similar others from around the globe
 - Social media algorithms promote homophily:
 - Recommend like minded people
 - Diminish the cost of separation



Stance Detection is NOT Sentiment Analysis?

Stance Detection is NOT Sentiment Analysis?

Stance Detection	Sentiment Analysis
Position towards target: Ex. pro-life vs. pro-choice	Polarity of text: Ex. "I am happy/sad"
Verbalized or non-verbalized: Ex. "RT @FoxNews: some news"	Verbalized – linguistic in nature Ex. "this is maddening!"
Target dependent: Ex. "I support XYZ"	Mostly Target independent Ex. "I am happy".
Accuracy can be very high (75-98%)	Accuracy is mediocre (60-80%)

Stance Detection is NOT Sentiment Analysis?



I am sad that Hillary lost this presidential race



Stance Detection



Sentiment Analysis



Ex. +ve stance/-ve sentiment:

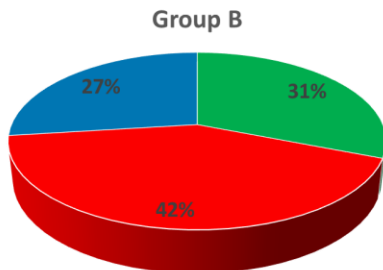
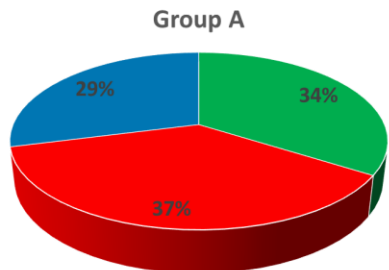
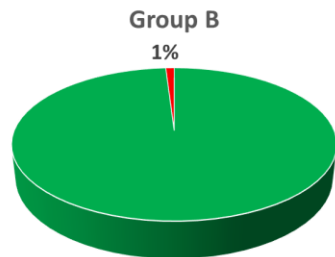
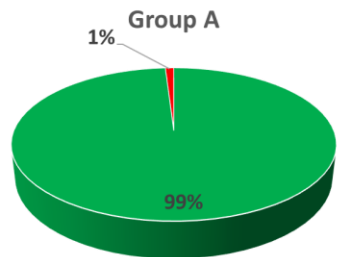
I feel bad that he lost

Ex. -ve stance/+ve sentiment:

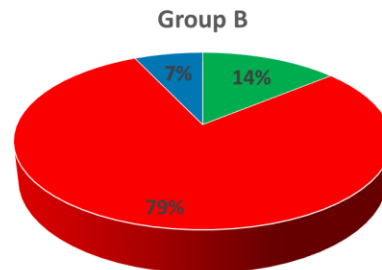
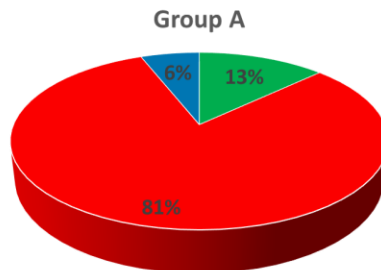
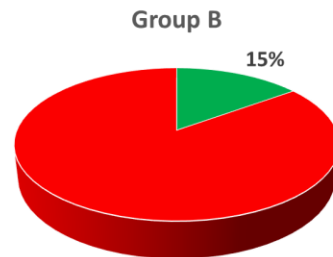
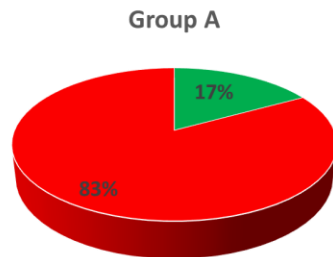
I am so glad that he bought the farm (died)

Stance does no correlate with *Sentiment* and *Offensiveness*!

Climate Change



Police Brutality



Stance is Expressed in Many Ways

Pantomath @pantomath_ · Jun 2

Replying to @realDonaldTrump

Next President, Joe Biden 🙌



44

29

251



Meena Das Narayan @MeenaDasNarayan · Jun 2

Sleepy Joe you mean LOL!!!



2



Next President, Joe Biden

Sleepy Joe you mean LOL!

Stance is Expressed in Many Ways

- Climate change: #ClimateAction vs. #ClimateGate
- Police brutality: #BlackLivesMatter vs. #BlueLivesMatter
- Elections: #VoteBlue vs. #RedWave



Stance is Expressed in Many Ways

- User 1: RT @FoxNews, @TrumpWarRoom, @BreitbartNews, @Mike_Pence
- User 2: RT @JoeBiden, @MSNBC, @WashingtonPost, @KamalaHarris, @MoveOn



Stephen G. Porter 🇺🇸 🇫🇷 🇬🇧 ⚖️ 🇪🇺 🇺🇸 🚫 NRA, RESIST, VoteBlue

@PapaPorter1

Married, Father, Grandfather, Retired. Casado, Papá, Abuelo, Jubilado.
[#AnimalRightsForAllAnimals](#), [#WeAreAllOneHumanFamily](#), [#ProudLiberalDemocrat](#).

📍 Key West, FL 🌴 & North Carolina 🌲 USA 📅 Joined September 2012

88.4K Following 83.1K Followers



Mike Vance - #KAG2020 Text TRUMP to 88022

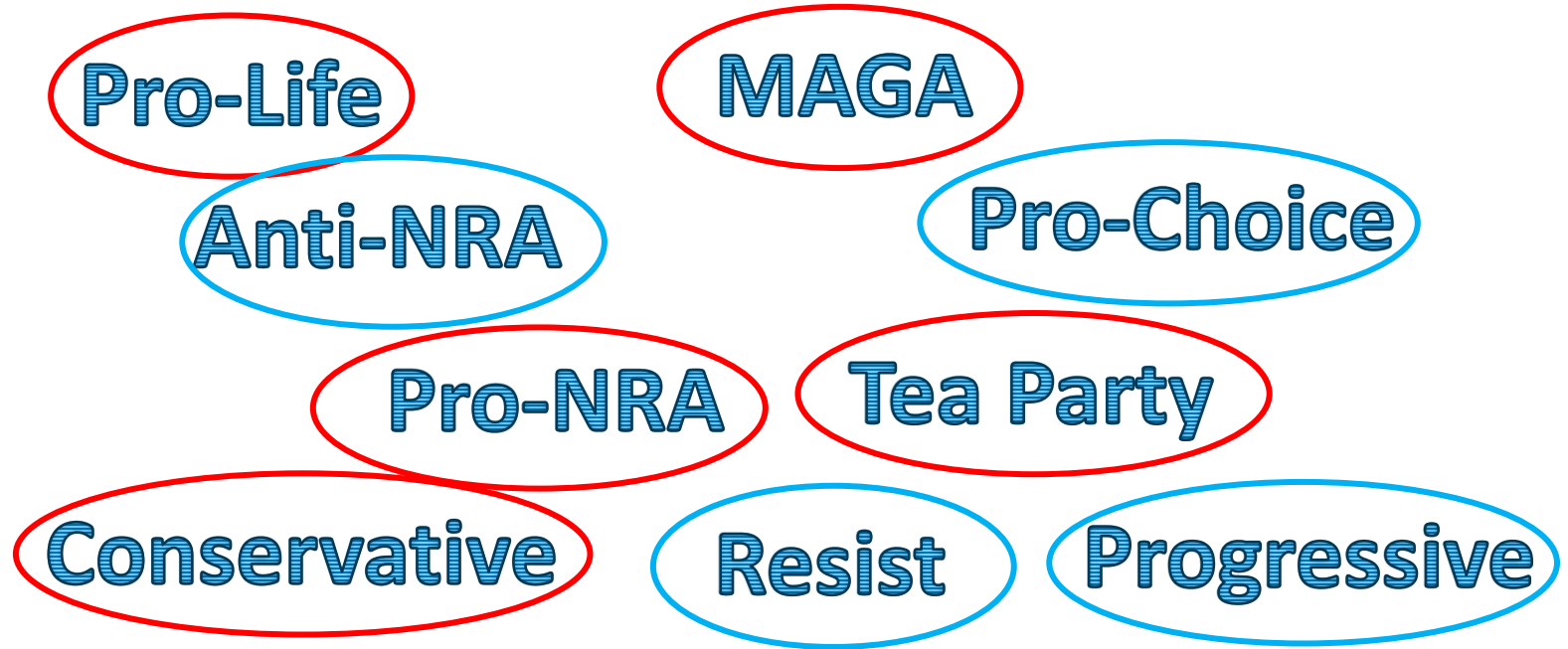
@thinkamericana

The land of the free and the home of the brave. Think Americana! Formerly the home of IH8Hillary.

📍 United States 🌐 thinkamericana.com 📅 Joined September 2015

1,902 Following 16.3K Followers

Stance is Correlated Across Topics



Types of Stance Detection?

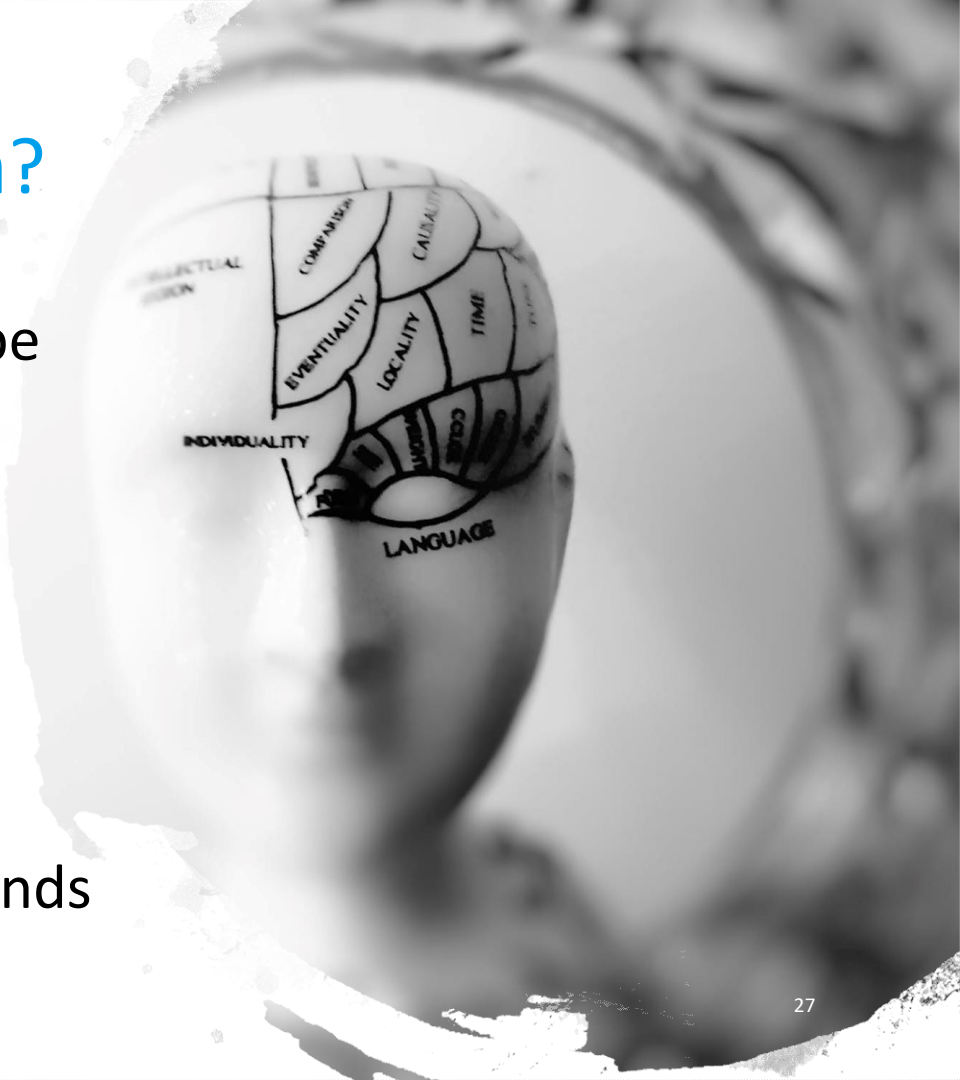
- **Text stance detection:** What is the stance in a “text snippet”?
 - Ex. tweet: “#SleepyJoe you mean LOL!!”
 - Pro’s:
 - Fine grained
 - Con’s:
 - Stance is often implicit & difficult
 - Ex. “US faces PPE shortage” (blame); “Economy is tanking” (blame); “Nov. elections most important in a generation” (call for action)
 - Ignores context!
 - Results are suboptimal

Types of Stance Detection?

- **User stance detection:** What is the stance of a person/user?
 - Ex. tweet: “RT @MSNBC: 66% disapprove of Pres. Trump's handling ... new ABC News/Ipsos poll”
 - Pro's:
 - Uses lots of context
 - Potentially very accurate
 - Con's:
 - Coarse grained
 - Based on strong assumptions

Types of Stance Detection?

- Stance prediction: What might be the stance of a person/user?
 - Ex. user hasn't said anything
 - Pro's:
 - Wicked!
 - Con's:
 - We are never sure
 - Dangerous in the wrong hands



Social Psychology Informs Stance Detection



Homophily



Social Influence/pressure

Social Psychology Informs Stance Detection



Echo chambers: closed communities share socially confirming content from similar sources

Social Psychology Informs Stance

User with similar stances:

- Retweet the same accounts
- Listen the same media
- Use similar hashtags
- Share similar items
- Use similar expressions
- Have similar preferences
- May live next to each other



Up Next

- How do we do stance detection – Abeer & Kareem
- Applications of stance detection -- Walid



End of
Part 1

Thank you