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UNIVERSITY OF
ARTIFICIAL INTELLIGENCE

Fighting the Global Social Media Infodemic: from Fake News to Harmful Content

Preslav Nakov

Mohamed bin Zayed University of Artificial Intelligence

MARI 2023

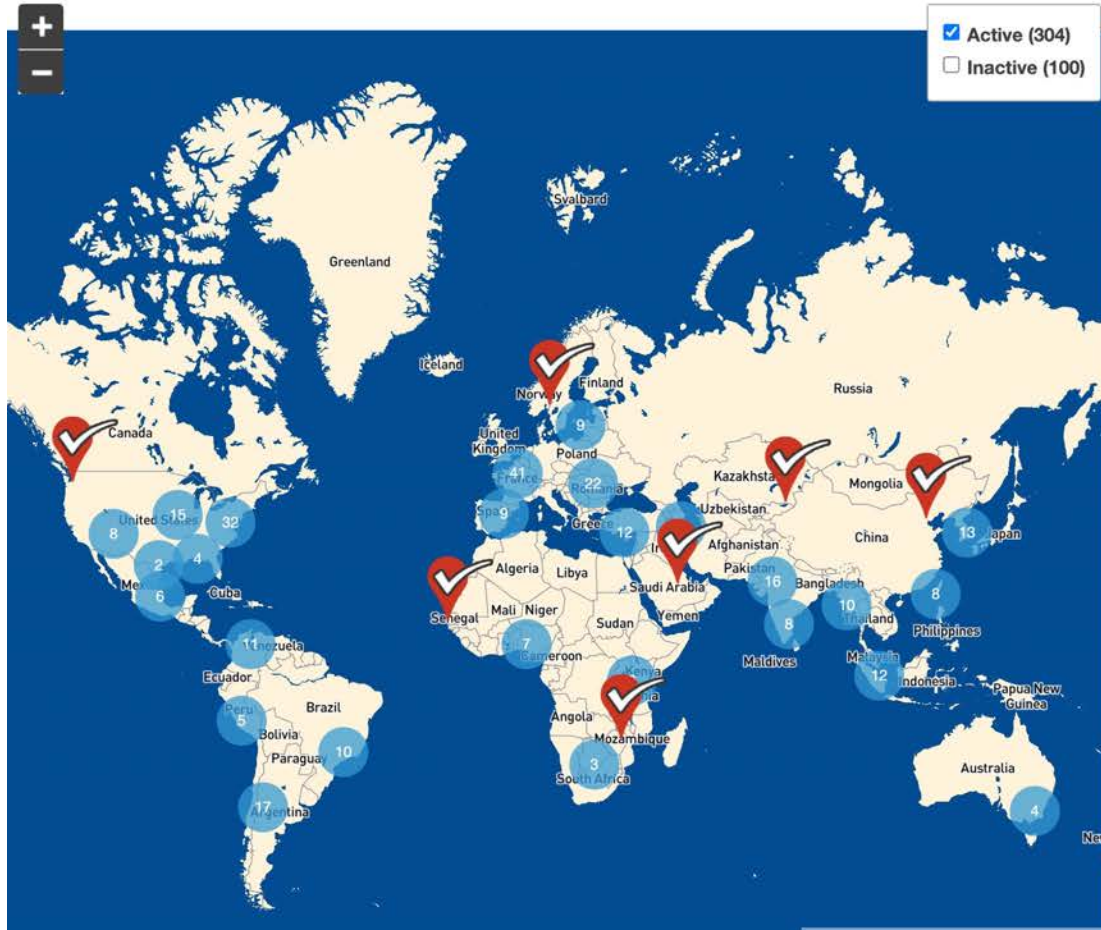
January 25, 2023



**Is Fact-Checking
the Solution
to Disinformation?**

The Fact-Checking Landscape

<https://reporterslab.org/fact-checking/>



[LATEST NEWS](#) [FACT-CHECKING](#) [TECH & CHECK](#) [ABOUT THE LAB](#)

FACT-CHECKING NEWS

FACT-CHECKING NEWS
Fact-checking count tops 300 for the first time
October 13, 2020

[SEE ALL FACT-CHECKING NEWS](#)

GLOBAL FACT-CHECKING SITES

The Reporters' Lab maintains a database of global fact-checking sites. You can use the map to explore sites around the world or use the menu below. (Here's more [how we identify fact-checkers.](#))

[BROWSE IN LIST](#)

How Much Has Been Manually Fact-Checked?

Statistics

Property	Global	Snopes	Politifact	Africa Check	Truth or Fiction	Check your Fact	FactsCan	Fullfact	AFP Factcheck (FR)	AFP Factuel
Number of claims	33,261	12,812	16,476	520	1,311	823	125	250	678	266

- ClaimReview schema: 77K
- Twitter Birdwatch: 12K

<https://data.gesis.org/claimskg/>

Technology could help:

- make fact-checkers more productive (*~translation memories*)
- automate the entire process (*~full machine translation*)

What Do Fact-Checkers Want?

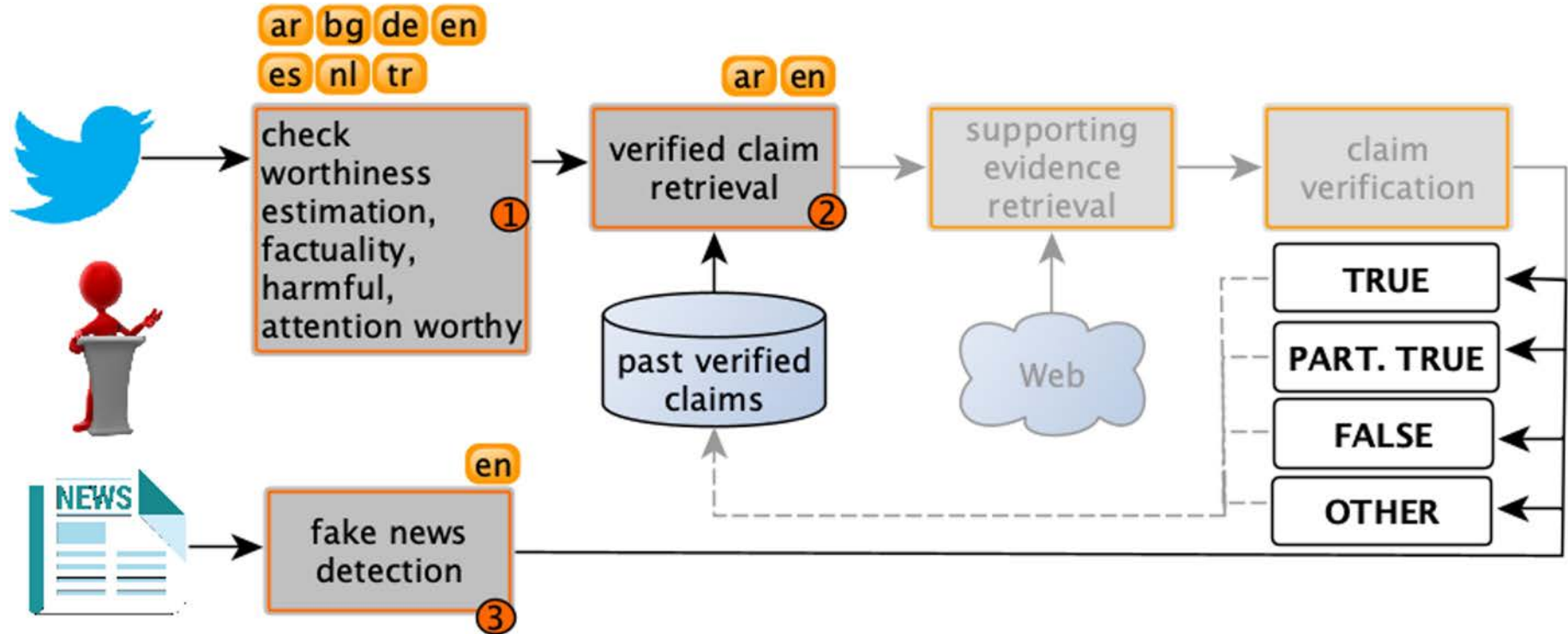
1. To know what is the most important claim to check today
2. To know when somebody says something that they have already checked
3. To check claims as quickly as possible

IJCAI-2021: *Automated Fact-Checking for Assisting Human Fact-Checkers.*

Preslav Nakov, David Corney, Maram Hasanain, Firoj Alam, Tamer Elsayed, Alberto Barrón-Cedeño, Paolo Papotti, Shaden Shaar, Giovanni Da San Martino

The CheckThat! Lab at CLEF 2018-2023

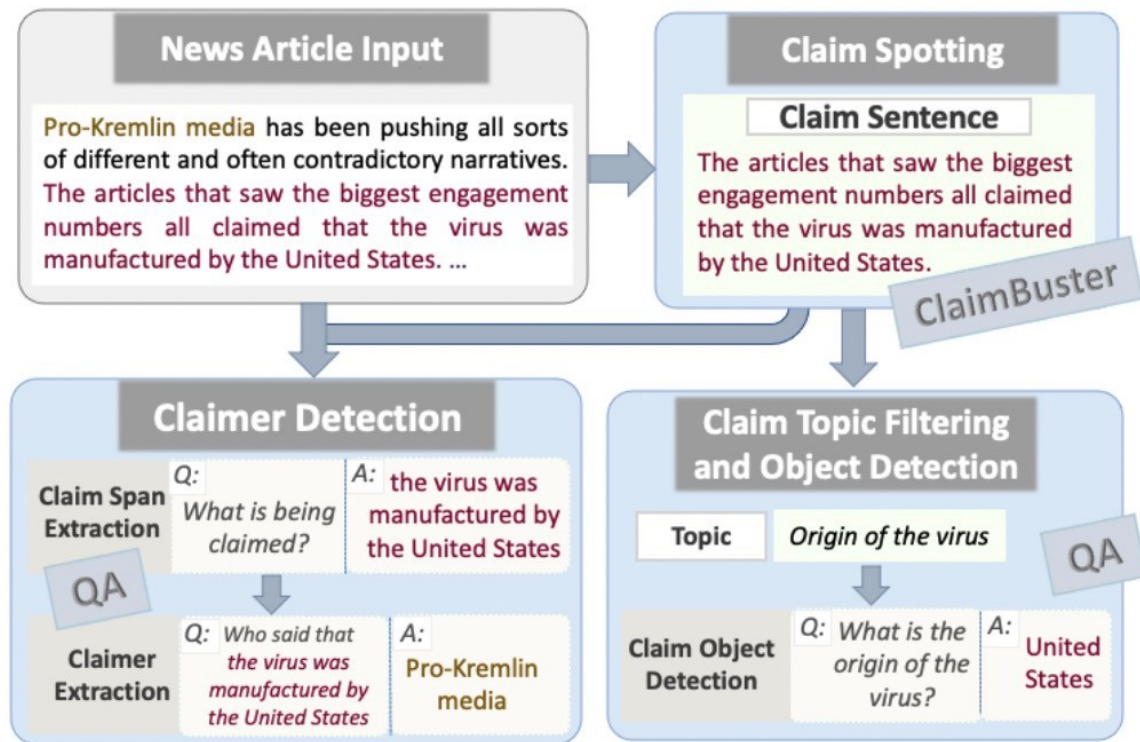
<https://sites.google.com/view/clef2022-checkthat>





What is Worth Fact-Checking?

Claim Detection in News Articles



EMNLP-2022: NewsClaims: A New Benchmark for Claim Detection from News with Attribute Knowledge.
Revanth Gangi Reddy, Sai Chetan Chinthakindi, Zhenhailong Wang, Yi Fung, Kathryn Conger, Ahmed Elsayed, Martha Palmer, Preslav Nakov, Eduard Hovy, Kevin Small, Heng Ji

Donald Trump: (07:37)
How are you doing? How are you?

Kristen Welker: (07:58)
And I do want to say a very good evening to both of you. This debate will cover six major topics. At the beginning of each section, each candidate will have two minutes, uninterrupted, to answer my first question. The Debate Commission will then turn on their microphone only when it is their turn to answer. And the Commission will turn it off exactly when the two minutes have expired. After that, both microphones will remain on. But on behalf of the voters, I'm going to ask you to please speak one at a time.

Kristen Welker: (08:27)
The goal is for you to hear each other and for the American public to hear every word of what you both have to say. And so for that, if you're ready, let's start. And we will begin with the fight against the coronavirus.

President Trump: (08:31)
The first question is for you. The country is heading into a dangerous new phase. More than 40,000 Americans are in the hospital tonight with COVID, including record numbers here in Tennessee. And since the two of you last shared a stage, 16,000 Americans have died from COVID. So please be specific. How would you lead the country during this next stage of the coronavirus crisis? Two minutes, uninterrupted.

Kristen Welker: (09:03)
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Donald Trump: (09:04)
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Kristen Welker: (11:00)
Okay. Former Vice President Biden to you. How would you lead the country out of this crisis? You have two minutes uninterrupted.

Joe Biden: (11:13)
220,000 Americans dead. You hear nothing else I say tonight, hear this. Anyone who is responsible for not taking control, in fact, not saying I take no responsibility initially. Anyone is responsible for that many deaths should not remain as president of the United States of America. We're in a situation where there are a thousand deaths a day now. A thousand deaths a day. And there are over 70,000 new cases per day. Compared to what's going on in Europe as the New England Medical Journal said, they're starting from a very low rate. We're starting from a very high rate.

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Joe Biden: (12:19)
What I would do is make sure we have everyone encouraged to wear a mask all the time. I would make sure we move into the direction of rapid testing, investing in rapid testing. I would make sure that we set up national standards as to how to open up schools and open up businesses so they can be safe and give them the wherewithal, the financial resources to be able to do that.

Joe Biden: (12:41)
We're in a situation now where the New England Medical Journal, one of the most serious journals in the whole world said for the first time ever that the way this president has responded to this crisis has been absolutely tragic. And so folks, I will take care of this. I will and this. I will make sure we have a plan.

Kristen Welker: (13:01)
President Trump, I'd like to follow up with you and your comments. You talked about taking a therapeutic, I assume you're referencing Regeneron. You also said a vaccine will be coming within weeks. Is that a guarantee?

Donald Trump: (13:13)
No, it's not a guarantee, but it will be by the end of the year. But I think it has a good chance. There are two companies, I think within a matter of weeks and it will be distributed very quickly.

Kristen Welker: (13:22)
Can you tell us which companies?

Donald Trump: (13:23)
Johnson & Johnson is doing very well. Moderna is doing very well. Pfizer is doing very well and we have numerous others. They are also others that we're working on very closely with other countries, in particular Europe.

Kristen Welker: (13:35)
Let me follow up with you and your comments. You mentioned that you're

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President Trump, your reaction?

Donald Trump: (16:50)
Excuse me. I take full responsibility. It's not my fault that it came here. It's China's fault. And you know what? It's not Joe's fault that it came here either. It's China's fault. They kept it from going into the rest of China for the most part, but they didn't keep it from coming out to the world, including Europe and ourselves.

Kristen Welker: (19:16)
Vice President Biden.

Joe Biden: (19:17)
The fact is that when we knew it was coming, when it hit, what happened? What did the President say? He said, "Don't worry, it's going to go away. It'll be gone by Easter. Don't worry, warm weather. Don't worry, maybe inject bleach." He said he was kidding when he said that, but a lot of people thought it was serious. A whole range of things the President has said, even today, he thinks we are in control. We're about to lose 200,000 more people.

Kristen Welker: (19:43)
President Trump.

Donald Trump: (19:44)
Look, perhaps just to finish this, I was kidding on that, but just to finish this, when I closed he said I shouldn't have closed. And that went on for months. Nancy Pelosi said the same thing. She was dancing on the streets in Chinatown, in San Francisco. But when I closed, he said, "This is a terrible thing, you xenophobic." I think he called me racist even, because I was closing it to China. Now he says I should have closed it earlier. Joe, it doesn't.

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The debate has 1000+ sentences!

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Also, everything that he said about the way we've single mole that he said we should make, that's what we've done. We've done a lot of it. But he was way behind us.

Kristen Welker: (16:10)
Vice President Biden, your response.

Joe Biden: (16:12)
My response is he is xenophobic, but not because he shutdown access from China. And he did it late after 40 countries had already done that. In addition to that, what he did, he made sure that we had 44 people that were in there in China trying to get the Wuhan to determine what exactly the source was. What did the president say in January? He said, "No, he said, "It's being transparent. The president of China is being transparent. We owe him a debt of gratitude. We have to thank him."

Joe Biden: (16:38)
And then what happened was we started talking about using the Defense Act to make sure we go out and get whatever is needed out there to protect people. And again, I go back to this. He had nothing, he did virtually nothing. And then he gets out of the hospital and he talks about, "Oh, don't worry, it's all going to be over soon." Come on, there's not another serious scientist in the world who thinks it's going to be over soon.

Kristen Welker: (17:03)
President Trump, your reaction?


Donald Trump: (19:44)
Look, perhaps just to finish this, I was kidding on that, but just to finish this, when I closed he said I shouldn't have closed. And that went on for months. Nancy Pelosi said the same thing. She was dancing on the streets in Chinatown, in San Francisco. But when I closed, he said, "This is a terrible thing, you xenophobic." I think he called me racist even, because I was closing it to China. Now he says I should have closed it earlier. Joe, it doesn't.

Joe Biden: (20:13)
I didn't say either of these things.

Donald Trump: (20:14)
You certainly did. You certainly did.

<https://www.rev.com/blog/transcripts/donald-trump-joe-biden-final-presidential-debate-transcript-2020>

We Can Learn From Human Fact-Checks

been told through investigative reporting that he owes about \$650 million to Wall Street and foreign banks. Or maybe he doesn't want the American people, all of you watching tonight, to know that he's paid nothing in federal taxes, because the  body's ever seen were a couple of years when he had to turn them over to the authorities when he was trying to get a casino license, and they showed he didn't pay any federal income tax.

TRUMP: That makes me smart.

CLINTON: So if he's paid zero, that means zero for troops, zero for vets, zero



We rated this claim Mostly False.
<http://www.politifact.com/truth-o-meter/statements/2016/sep/27/hillary-clinton/debate-hillary-clinton-tax-claim-ignores-years-whe/>

Detecting Check-Worthy Claims

This tool identifies automatically which claims in a given document are most worthy and should be prioritized for fact-checking, e.g., by investigative journalists.



0.46:	We have an awful lot of vacant houses in this city.
0.05:	They're in good shape and structurally sound.
0.55:	In the last three years we've taken 3,000 vacant houses, taken them away from the homeowners who neglected them, sold them on the web site BuildingDetroit.org, and moved families back in, Three thousand families occupied.
0.15:	Senator Young says he wants to sell side lots.
0.44:	He's a little late to the party.
0.46:	We've sold 8,200 side lots to next -door neighbors who are maintaining them so they could add swing sets and slides and gardens.
0.28:	And then what we are doing is taking a strategy that works so well in Midtown, and we call it the Strategic Neighborhood Fund.
0.39:	We are starting to go to 10 neighborhoods across the city and investing all kinds of money.
0.52:	We've lined up now \$60 million of private money and this week in West Village we just opened the Coe.
0.26:	They built beautiful new apartments and retail.
0.46:	We're doing the same thing in the Fitzgerald neighborhood at McNichols and Livernois, where we're renovating 115 houses and then out in Old Redford.
0.45:	We're about to kick off a program: we're going to renovate 50 houses around the old Holcomb school.
0.07:	We're going from neighborhood to neighborhood and then for the storefronts.
0.02:	We need to create beautiful areas where businesses want to invest.
0.49:	And I'm very proud to say yesterday Detroit City Council approved my proposal for a \$125 million bond issue.
0.46:	We're going to put \$80 million into it.
0.37:	Twenty three neighborhood quarters your shopping Court is making the beautiful flowers and walkways and the like and recreate those old shopping districts.
0.44:	That's the plan we have for the next four years.

Enter new text Mimic source: General Sort

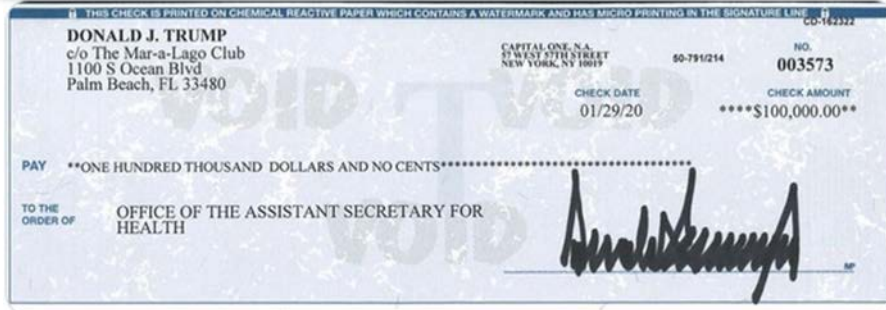
NAACL'2018 (demo): ClaimRank: Detecting Check-Worthy Claims in Arabic and English.
sraa Jaradat, Pepa Gencheva, Alberto Barrón-Cedeño, Luís Màrquez, Preslav Nakov

Check-Worthiness



Eric Trump ✓
@EricTrump

Since this will never get reported by the media, I wanted to share a copy of this check. @realDonaldTrump is once again donating his salary back to the United States Government — This quarter, it will be donated to @HHSGov to confront, contain, and combat #Coronavirus. 🇺🇸🇺🇸



Donald J. Trump

11:11 PM · Mar 3, 2020 from Manhattan, NY · Twitter for iPhone

D. Trump is donating his salary to combat COVID19?

**This is
check-worthy!**

What Makes a Tweet Check-Worthy?

- Q0: viral?
- Q1. contains verifiable factual claim?
- Q2. likely to be false?
- Q3. of public interest?
- Q4: harmful?
- Q5. worth fact-checking?

	One-task	Multi-task
Q2	69.2	72.9
Q3	82.5	71.6
Q4	56.0	67.9
Q5	62.0	76.8

Detecting Check-Worthy Tweets

Tweet Classifier

Tweet Analytics

Masks don't stop transmission. Vaccines don't stop transmission. Don't allow anyone to coerce you into thinking these ridiculous measures work. Stop the allowance of mandates for ludicrous reasons.

Random Sample

Classify Tweet

Summary

Does the tweet contain a verifiable factual claim?

Yes

Does the tweet appear to contain false information?

No, probably contains no false info

Will the tweet have an effect on or be of interest to the general public?

Yes, probably of interest

Is the tweet harmful to the society/person(s)/company(s)/product(s)?

Yes, probably harmful

Do you think that a professional fact-checker should verify the claim in the tweet?

No, too trivial to check



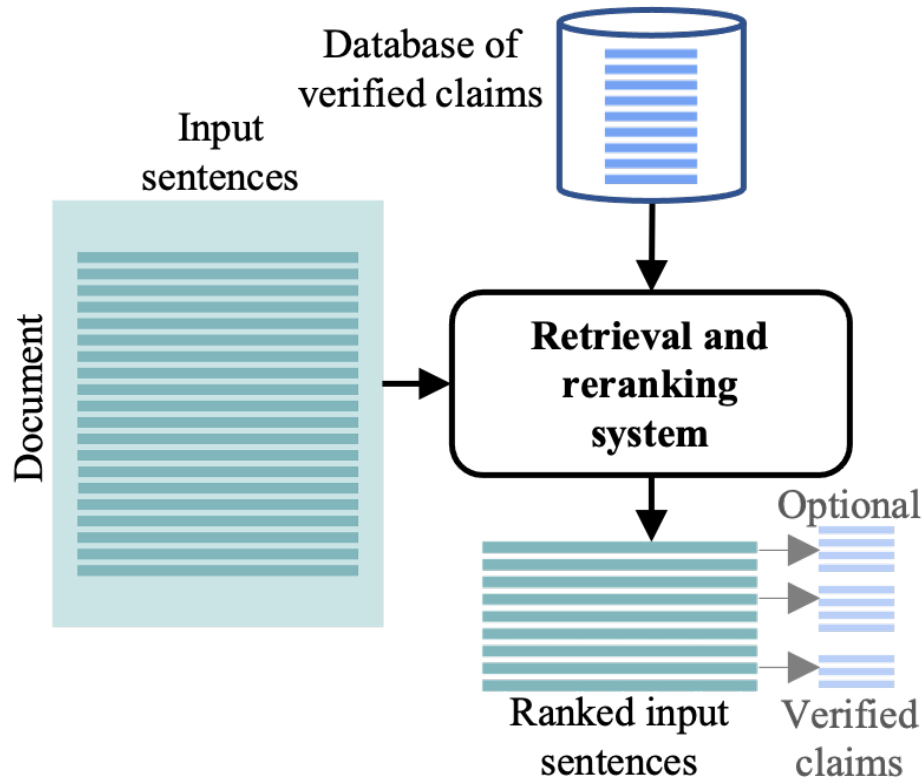
Detecting Previously Fact-Checked Claims

Automatic Fact-Checking

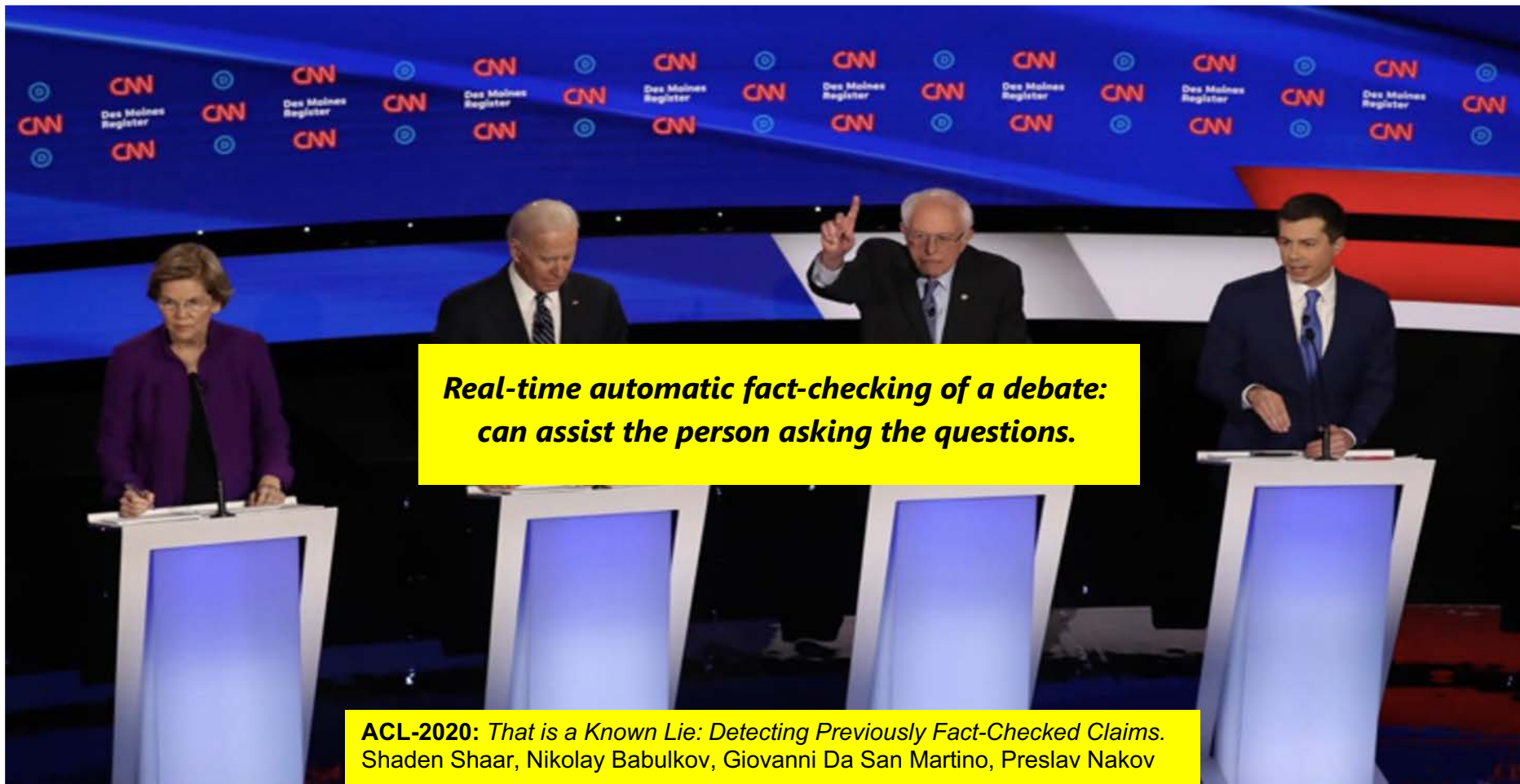
- **Problem:** people do not trust automatic methods
 - Yet, they trust human fact-checkers
- **Proposal:** Look for previously fact-checked claims
 - people tend to repeat the same claims!



Detecting All Previously Fact-Checked Claims in a Document



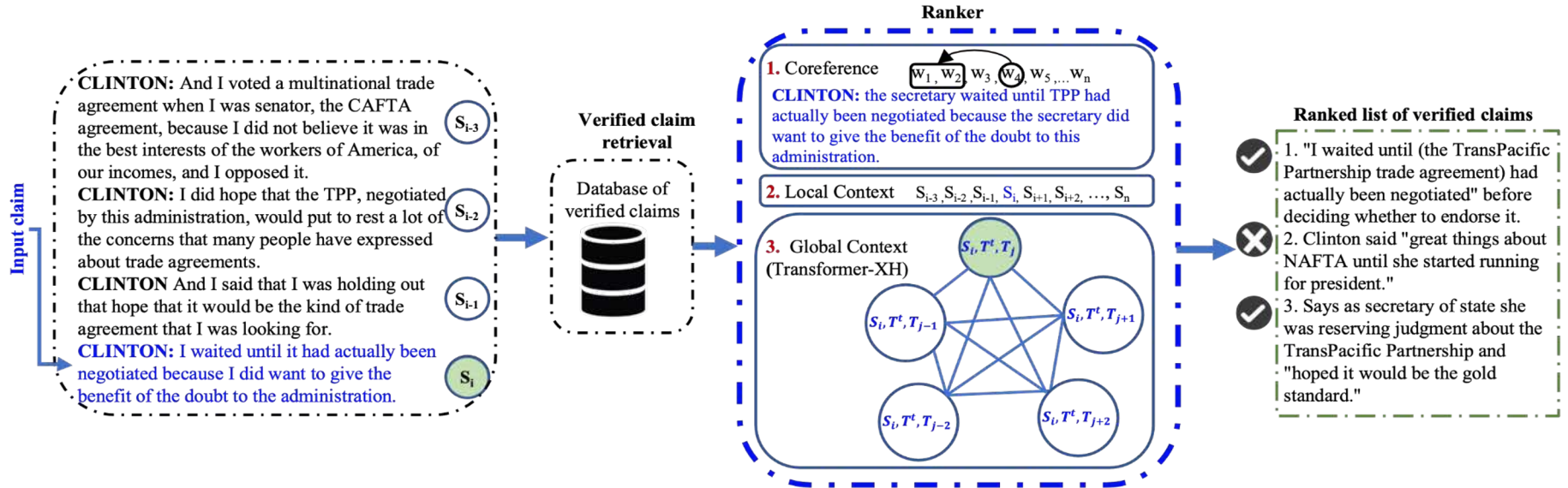
Detecting Previously Fact-Checked Claims



*Real-time automatic fact-checking of a debate:
can assist the person asking the questions.*

ACL-2020: That is a Known Lie: Detecting Previously Fact-Checked Claims.
Shaden Shaar, Nikolay Babulkov, Giovanni Da San Martino, Preslav Nakov

Not an Easy Task: Need for Contextual Understanding!



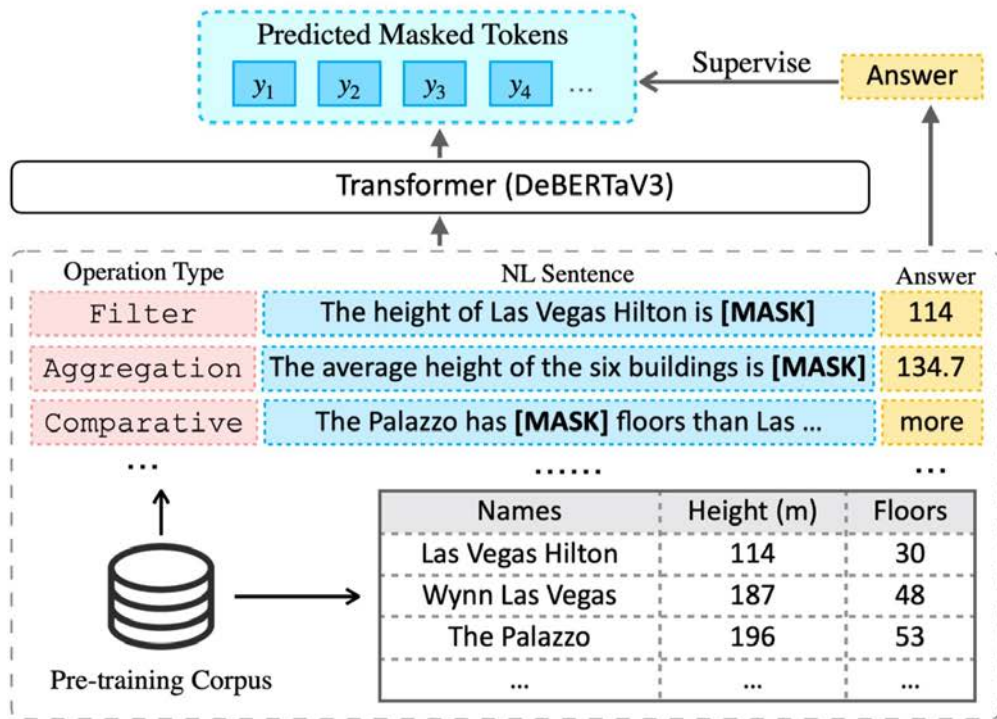
NAACL'2022 (Findings): *The Role of Context in Detecting Previously Fact-Checked Claims.*
 Shaden Shaar, Firoj Alam, Giovanni Da San Martino, Preslav Nakov



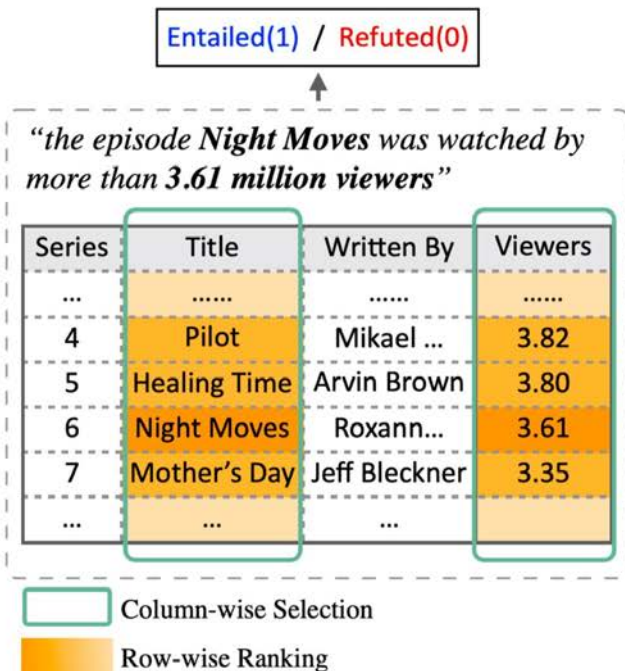
**Is Automatic
Fact-Checking
the Solution to
Disinformation?**

Fact-Checking Using Tables

(1) Pre-training with Sentence-Table Cloze Task



(2) Select-then-Rank for Fine-tuning



WhatTheWikiFact: Fact-Checking Claims Against Wikipedia

You are now in the debug mode!

This system is a fact-checking pipeline demonstration system and is intended to demonstrate the results of testing some "toy" statements. It is not a system for checking real (political) claims.

This tool performs fact checking by comparing information with Wikipedia data.

Select the language

English ▾

Enter claims here (one per row, max 5)

Abu Dhabi and Dubai are in the same country.

Output options +

Verify

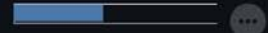
Claim

Abu Dhabi and Dubai are in the same country.

Verdict

TRUTH

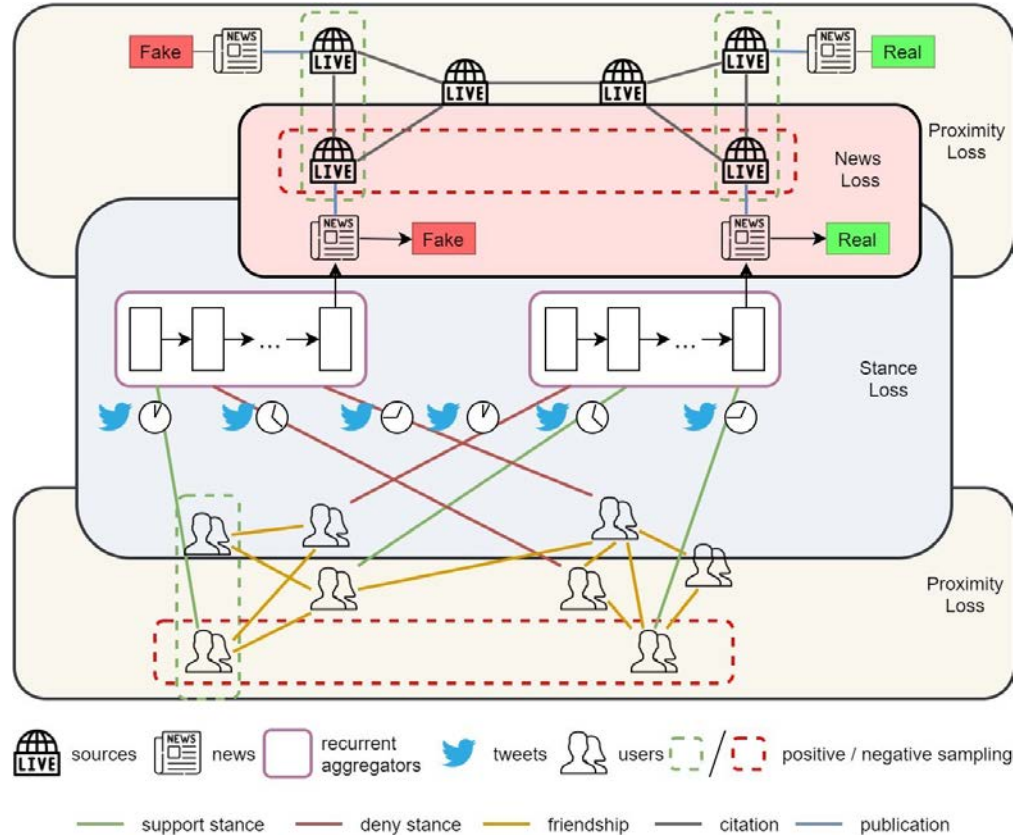
Confidence



CIKM-2021: *WhatTheWikiFact: Fact-Checking Claims Against Wikipedia.*
Anton Chernyavskiy, Dmitry Ilvovsky, Preslav Nakov

<https://www.tanbih.org/whatthewikifact>

Heterogeneous Graph for Automatic Fact-Checking

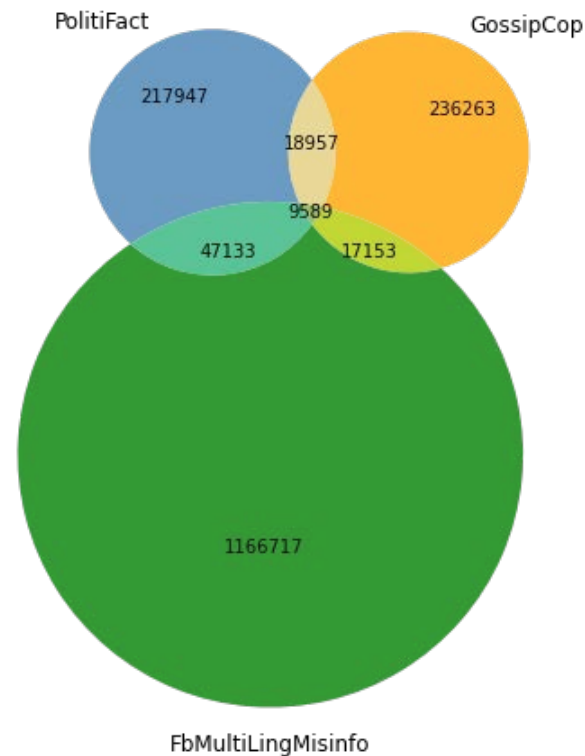
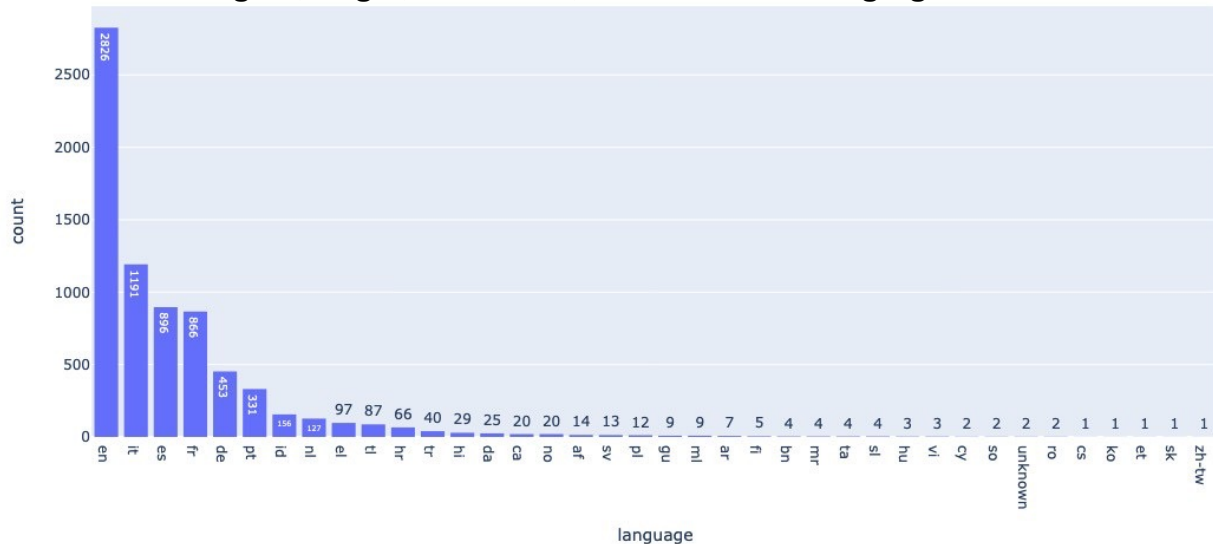


**CIKM'2020
best paper award**

CIKM-2020 (best paper award): FANG: Leveraging Social Context for Fake News Detection Using Graph Representation.
Van-Hoang Nguyen, Kazunari Sugiyama, Preslav Nakov, Min-Yen Kan

FbMultiLingMisinfo: Large-Scale Multilingual Benchmark for Misinformation Detection

- from Facebook Privacy-Protected Full URLs Data Set (all URLs shared on Facebook at least 100 times January'2017 –July'2019)
- About 12,500 URLs out of a total of 36 millions URLs come with a third-party fact-checking label
- We expanded this subset with additional information from Twitter
- **Multilingual, larger, real-world, much more challenging**



IJCNN'2022: FbMultiLingMisinfo: Challenging Large-Scale Multilingual Benchmark for Misinformation Detection.

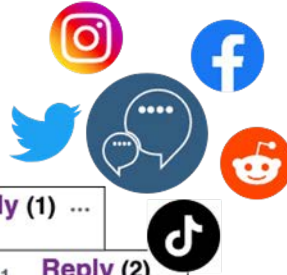
Giorgio Barnabo, Federico Siciliano, Carlos Castillo, Stefano Leonardi, Preslav Nakov, Giovanni Da San Martino, Fabrizio Silvestri

Crowd Fact-Checking

John Doe @johndoe **Post w/ Claim** ...

Ivermectin won't solve covid-19 but it'll make men sterile.

4:39 PM · Oct 29, 2021



Jane Doe @janedoe · Oct 29, 2021 **Reply (1)** ...

Replying to @johndoe

I'm going to share this after I've reviewed scientific literature.

Jane Doe @janedoe · Oct 29, 2021 **Reply (2)** ...

Replying to @johndoe and @janedoe

Charlie @crowdfc1 **(Crowd) Fact-Checker** **Unproven**

Replying to @johndoe and @janedoe

"The study in question was not published in a credible journal, nor was it hosted by an accredited, reputable institution." 🙄

snopes.com

Does Ivermectin Cause Sterility in Men?
One study purportedly found that 85% of men who were given the anti-parasitic were sterile following the research period.

8:50 AM · Nov 1, 2021 · Twitter Web App



Verifying Article

Does Ivermectin Cause Sterility in Men?

One study purportedly found that 85% of men who were given the anti-parasitic were sterile following the research period.

By **Madison Dapcevic**
Published 8 September 2021, Updated 10 September 2021

Does Ivermectin Cause Sterility in Men?

One study purportedly found that 85% of men who were given the anti-parasitic were sterile following the research period.

By **Madison Dapcevic**
Published 8 September 2021, Updated 10 September 2021



Image via Soumyabrata Roy/NurPhoto via Getty Images

Listen to this article

Claim

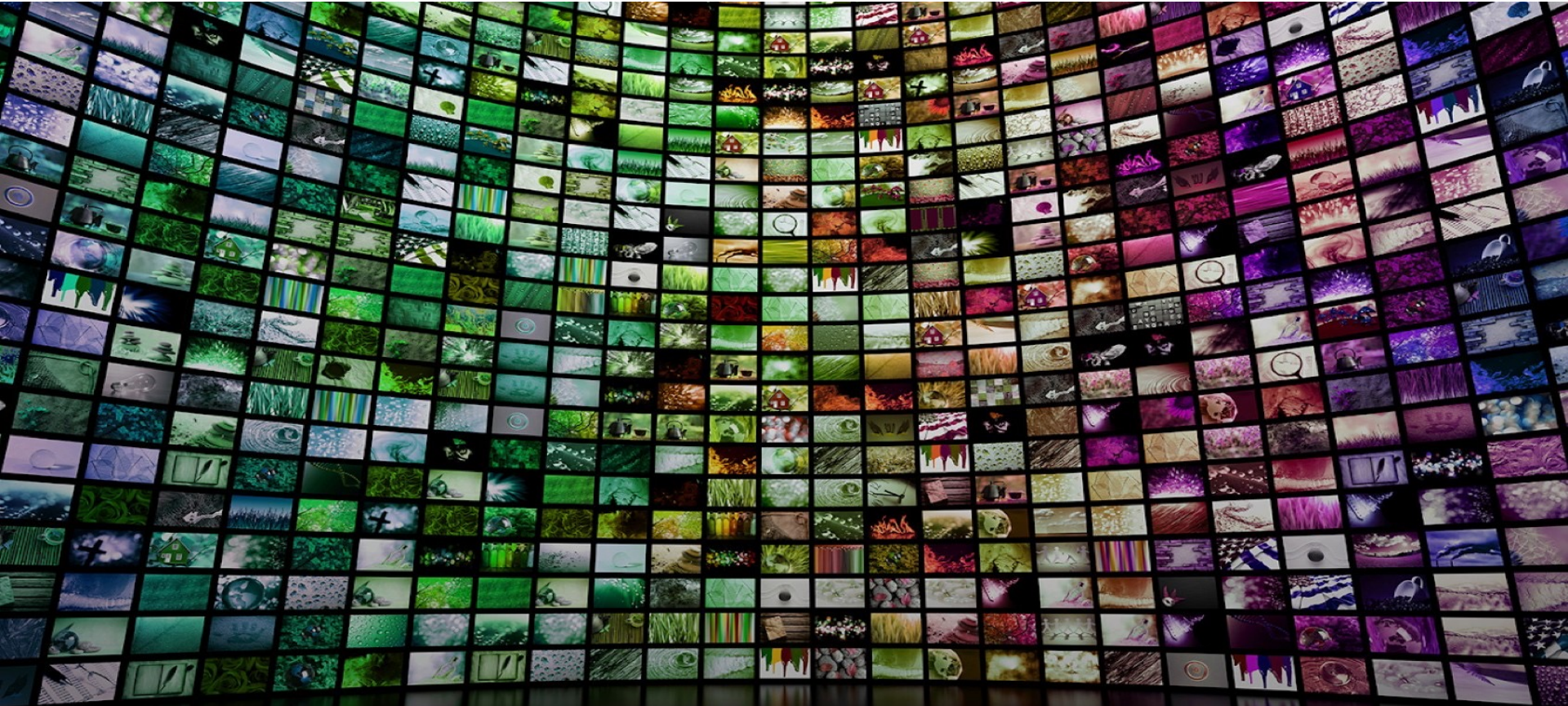
A study published in 2011 and widely circulated in September 2021 found that 85% of men treated with ivermectin for a tropical disease known as river blindness were found to be sterile.

Rating

Unproven
About this rating

Context

The study in question was not published in a credible journal, nor was it hosted by an accredited, reputable institution. In the decade since the study's supposed 2011 publication, there has been little — if any — related research to confirm its findings. Furthermore, a spokesperson for the U.S. Food and Drug Administration told Snopes that infertility in men is not a known side effect of ivermectin and, as such, is not included in U.S. labeling requirements.



Can we fact-check every claim in the world?

This is Very Hard !

50%

of the spread of “fake news” on Twitter happens in less than 10 minutes

Zaman, T., Fox, E. B., & Bradlow, E. T. (2014). A bayesian approach for predicting the popularity of tweets. *The Annals of Applied Statistics*, 8(3), 1583-1611.

6x

faster is how “fake news” travel in Twitter, compared to the truth

Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146-1151.

Need for Early Fake News Detection: **Focus on the Source!**

So, Better to Go After the Source

<https://here.comes.url.com>

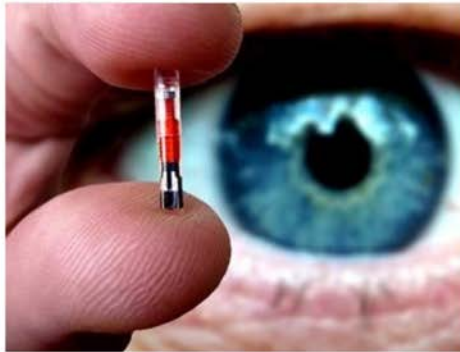
Home About ▾ My writings ▾ Amazon Ebooks ▾ Patriots Boutique Privacy Policy Write to Ella

English ▾

It Is Coming The Agenda Behind Covid-19 Was Microchip Or As Bill Gates Says "Digital Tracking System" For Virus

MAR
26

INTERNIST



SHARES

f Share

🐦 Tweet

Who would have thought it will come so soon? The same person who urged the world to "reduce the population growth through vaccines" and insisted that through "reproductive health and vaccines we can reduce the population" and again the same

NEWSLETTER

Email address:

Sign up

Search ...

♥ Click Boutique
Click Boutique

PATRIOTS BOUTIQUE



Thus, We Can Detect “Fake News” Before It Was Even Written!



What was Written




Undercover Nurse Exposes NYC's COVID 'Epicenter' – Revealing Widespread Medical Malpractice

Matt Stoller Explains COVID's Billionaire and Big Government Power-play

What are the real economic implications of the coronavirus lockdown? Will the economy, or society ever regain its former footing?

This interview discusses the macro financial aspects of the COVID crisis with Matt Stoller, author of *Goosh! The 100-Year War Between Monopoly Power and Democracy*, where explains how the coronavirus lockdowns have allowed corporate monopolies to flourish – and he also forecasts the coming disappearance of most small businesses, the problems that emerge when monopolies control health care, the emergence of a Wall Street-oriented "planned economy", the failure of progressives to stop the theft of trillions, and much more.

"Erin Marie C... months on li... settings. Tw... not just any... Elmhurst (H... experiences, been the mo... the Army wh... her duties in... country she received the Army Commendation Medal for meritorious service, and was wounded in combat."

- Published Articles 
- Twitter Profile 
- YouTube Videos 

NEWS MEDIUM

Who Read it

FoxNews

Believer in Jesus #1 **Trump Supporter** all the way. Freedom supporter. #usarmyvet #WW1WGA

Anywhere facebook.com/profile.php?i... Joined June 2009

650 Following 342 Followers

MSNBC

#proudi **trump2020**

sticks and stones may break my bones but there will always be something to offend a feminazi #allivesmatter #georgetfloydissacriminal

Ireland profilfecampaign.ie Joined November 2016

1,287 Following 52 Followers

InfoWars

Human. Anti-Fascist. Lover of lasagna. Constitutional.

#triggop #oliasidem **BlackLivesMatter** #voteouttrump2020 #FoxNewsIsRacist #TimesUp #EnoughIsEnough




United States of America Joined September 2019

545 Following 127 Followers

PRO-LIFE. BUILD THE WALL Not one bit ashamed of my beliefs. Been standing for SSB & POA for 64 years---Tacoma baseball & Husky FB since 1962--South Tacoma #MAGA

Tacoma, WA 98408 Joined July 2011

2,814 Following 714 Followers

- Twitter Followers' Bios 
- Facebook Followers' Demographics 
- YouTube Metadata 

What's Written About it?

InfoWars

From Wikipedia, the free encyclopedia

"Info Wars" redirects here. For the 2004 film, see *Info Wars (film)*.

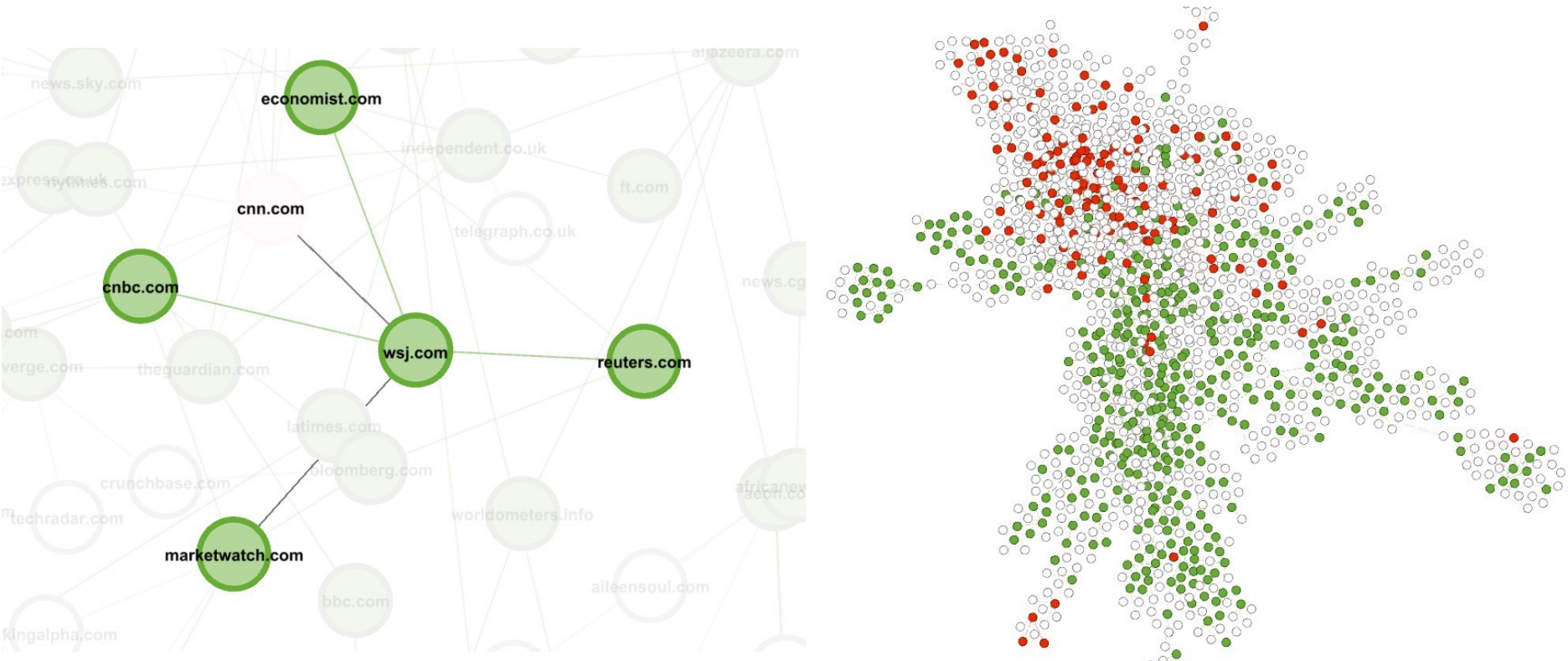
InfoWars is a far-right American **conspiracy theory and fake news website** owned by Alex Jones.^[14] It was Talk shows and other content for the site are created primarily in studios at an undisclosed location in an in visits, making its reach greater than some mainstream news websites such as *The Economist* and *Newswatch*.

The site has regularly published fake stories which have been linked to harassment of victims.^[24] In Febura harassing employees.^[25] *InfoWars*, and in particular Jones, advocate numerous conspiracy theories partic attacks and Sandy Hook shootings). *InfoWars* has issued retractions various times as a result of legal chal platforms, including Facebook, Twitter, YouTube, iTunes,^{[26][27][28][29]} and Roku.^[30]

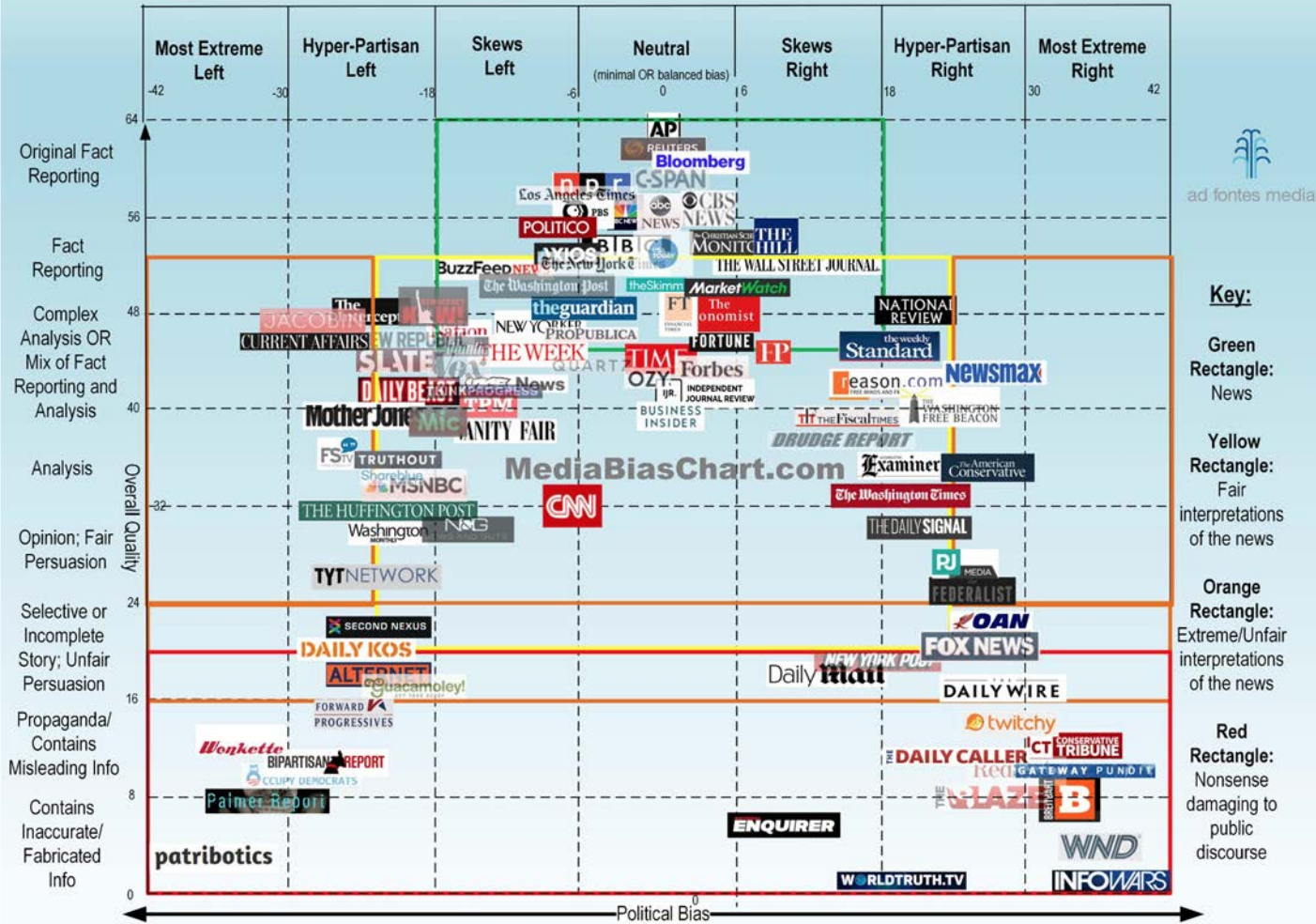
InfoWars earns revenue from the sale of products pitched by Jones during the show, including dietary supp a media outlet.^[31]

- Wikipedia page content 

Media Profiling Based on Audience Overlap in AlexaRank



EMNLP'2022: GREENER: Graph Neural Networks for News Media Profiling.
Panayot Panayotov, Utsav Shukla, Husrev Taha Sencar, Mohamed Nabeel and Preslav Nakov



ad fontes media

Key:

- Green Rectangle: News
- Yellow Rectangle: Fair interpretations of the news
- Orange Rectangle: Extreme/Unfair interpretations of the news
- Red Rectangle: Nonsense damaging to public discourse

Left

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Methodology, licenses and usage info available at mediabiaschart.com

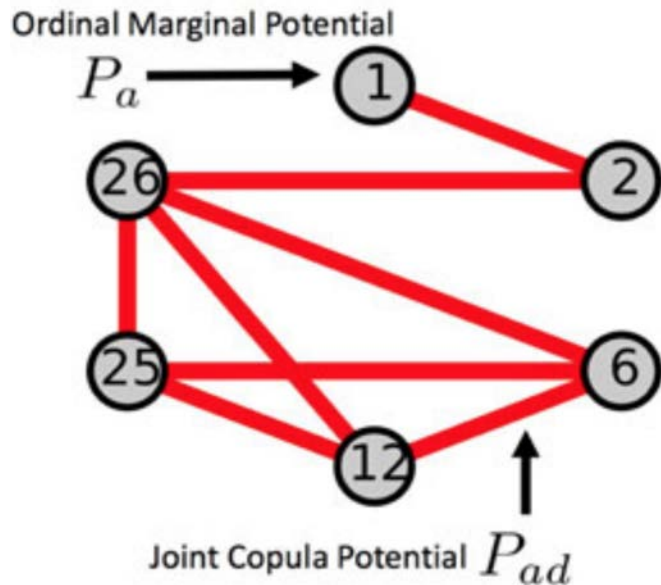
Created by Vanessa Otero

twitter: @vlotero

Version 4.0
August 2018

Multitask Ordinal Regression for Factuality & Bias

- **Ordinal regression**
- **Learn jointly**
 - Factuality
 - Left-center-right bias
 - 7-point
 - 5-point
 - 3-point
- Centrality
- Hyper-partisanship





Propaganda

Propaganda is a communication tool that is **deliberately** designed to **influence** the opinions and the actions of other people in order to achieve a predetermined goal.



Propaganda Techniques

Black-and-white Fallacy/Dictatorship **Repetition**
Obfuscation, Intentional vagueness, Confusion **Thought-terminating cliché**

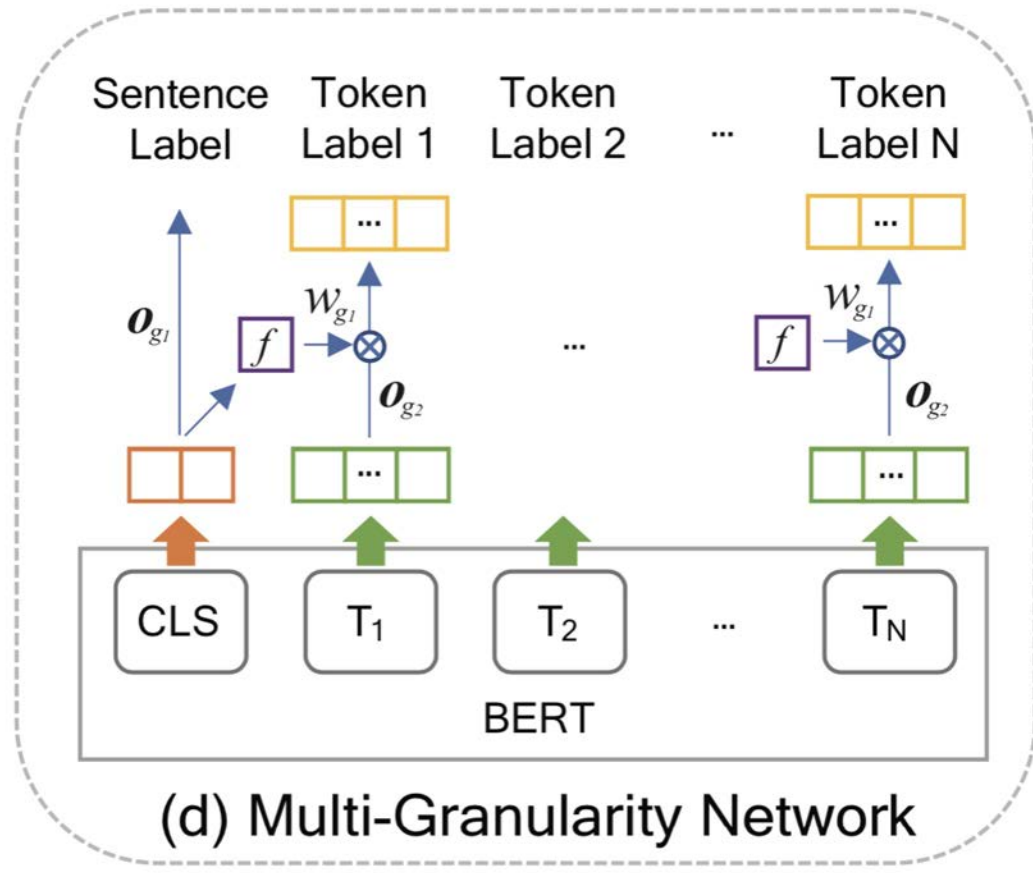
Slogans **Causal Oversimplification** **Flag-waving**
Appeal to authority **Transfer**
Presenting Irrelevant Data (Red Herring)

Smears **Exaggeration/Minimisation** **Whataboutism**
Misrepresentation of Someone's Position (Straw Man)
Name calling/Labeling **Appeal to fear/prejudice**
Reductio ad hitlerum **Glittering generalities (Virtue)**
Bandwagon

Loaded Language **Appeal to (Strong) Emotions** **Doubt**

**Emotional
appeals**

**Logical
fallacies**



- (Natural News) The Covid crimes are years in the making and more than a handful of vaccine manufacturers and promoters could be on trial soon for mass-murder⁹ and conspiracy to commit⁹ genocide.

- Senator Rand Paul puts Dr.

Anthony Fauci at the forefront of the whole plandemic brigade, since Fauci lied and DID help fund gain-of-function research that led directly to the (Wuhan Flu) virus outbreak in humans across planet Earth.

- Already those who planned and propagated the scandemic are begging for forgiveness, knowing that Nuremberg II trials are coming, sooner or² later, for them.

There are too many people involved in this mass murder scheme, but the ones at the top should be tried first.

- Anthony "Fraudulent" Fauci is the King of Misinformation¹⁰ when it⁶ comes to anything related to Covid-19

- Fauci flip-flopped⁹ on mask wearing, social distancing, lockdowns, medications, vaccinations, and just about every piece of "advice" that spewed from his mouth for the past two years.

Back and forth he went, talking about mandates that were vital to 'flattening the curve' and saving lives, when, come to find out, most of his advice is responsible for killing millions, if not billions, of people.

- Then he wrote a book on it all so he can further pad his rich pockets from the whole scandemic,⁹ that's ongoing and may never⁹ end.

- That's why Fauci is the King of Misinformation.

- 2 - Appeal to fear prejudice (?)
- 5 - Causal/Oversimplification (?)
- 6 - Doubt (?)
- 8 - Flag Waving (?)
- 9 - Loaded Language (?)
- 10 - Name Calling, Labeling (?)
- 14 - Repetition (?)
- 15 - Slogans (?)

- 1 - Appeal to Authority
- 3 - Bandwagon
- 4 - Black and White Fallacy
- 7 - Exaggeration, Minimisation
- 11 - Obfuscation, Intentional Vagueness, Confusion
- 12 - Red Herring
- 13 - Reduction ad hitlerum

ACL-2020
(best demo award,
honorable mention)

<https://www.naturalnews.com/2022-11-15-nuremberg-ii-mass-murder-trials-could-commence-after-midterms.html>

ACL-2020 (best demo award, honorable mention): *Prta: A System to Support the Analysis of Propaganda Techniques in the News.*
Giovanni Da San Martino, Shaden Shaar, Yifan Zhang, Seunghak Yu, Alberto Barrón-Cedeño, Preslav Nakov



SHARED TASK ON PROPAGANDA DETECTION IN ARABIC

co-located with EMNLP 2022 in Abu Dhabi, UAE

SemEval'2023 Task 3 Data

Persuasion Techniques and Logical Fallacies

Gallia est omnis divisa in partes tres, quarum unam incolunt Belgae, aliam Aquitani, tertiam qui ipsorum lingua Celtae, nostra Galli appellantur. Hi omnes lingua, institutis, legibus inter se differunt. Gallos ab Aquitanis Garumna flumen, a Belgis Matrona et Sequana dividit. Horum **omnium fortissimi** sunt Belgae, propterea quod a cultu atque humanitate provinciae longissime absunt, minimeque ad eos mercatores saepe commeant atque ea **quae ad effeminandos animos pertinent important**, proximique sunt Germanis, qui trans Rhenum incolunt, quibuscum continenter bellum gerunt. Qua de causa **Helvetii quoque reliquos Gallos virtute praecedunt, quod fere cotidianis proeliis cum Germanis contendunt**, cum aut suis finibus eos prohibent aut ipsi in eorum finibus bellum gerunt. Eorum una pars, quam Gallos obtinere dictum est, initium capit a flumine Rhodano, continetur Garumna flumine, Oceano, finibus Belgarum, attingit etiam ab Sequanis et Helvetiis flumen Rhenum, vergit ad septentriones. Belgae ab extremis Galliae finibus oriuntur, pertinent

Manipulative Wording: Loaded Language

Attack on Reputation: Smears

Manipulative Wording: Exaggeration

Justification: Appeal to Values

Dataset 40000+ annotations

1600+ documents

23 techniques

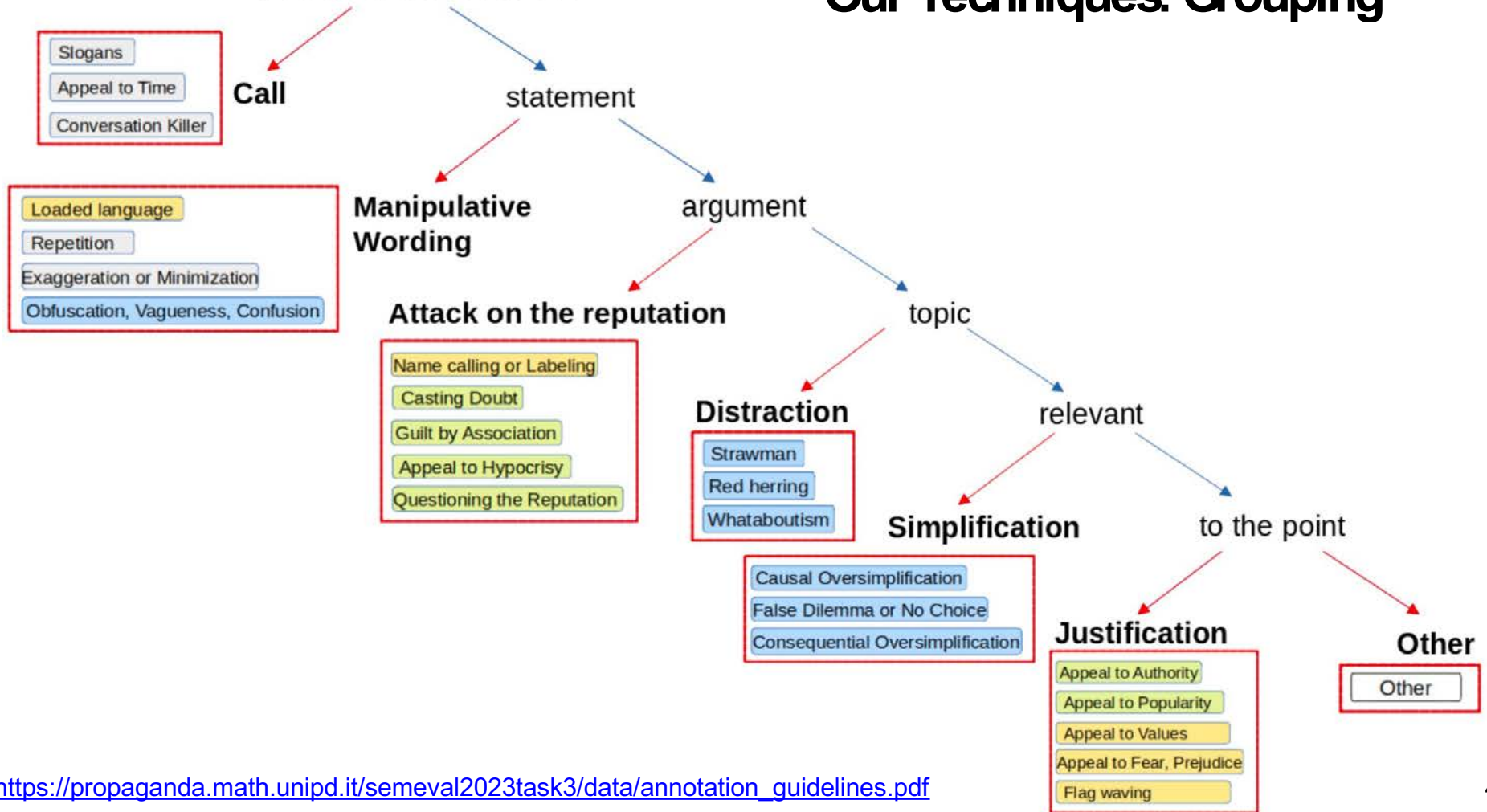
in 

Would your **Artificial Intelligence** system be able to detect them ?

Take part in the **SemEval 2023 Shared Task 3** to find out !

Our Techniques: Grouping

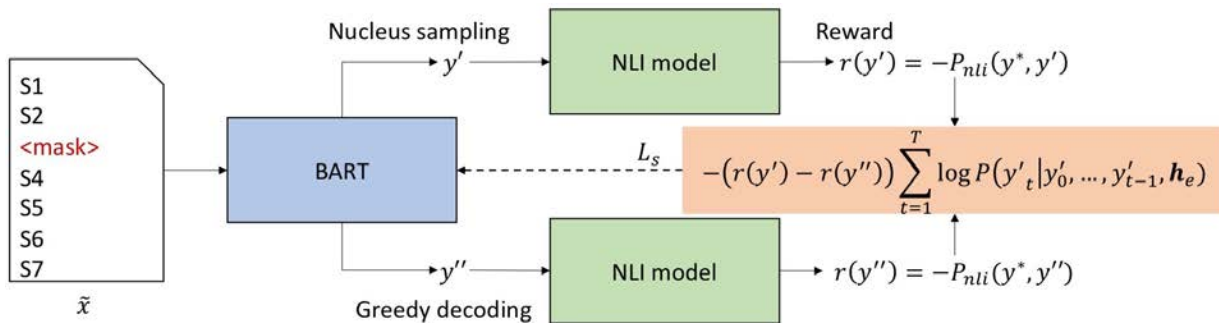
PERSUASIVE TEXT



Fake News Generation/Detection – Propaganda Connection (work in progress)

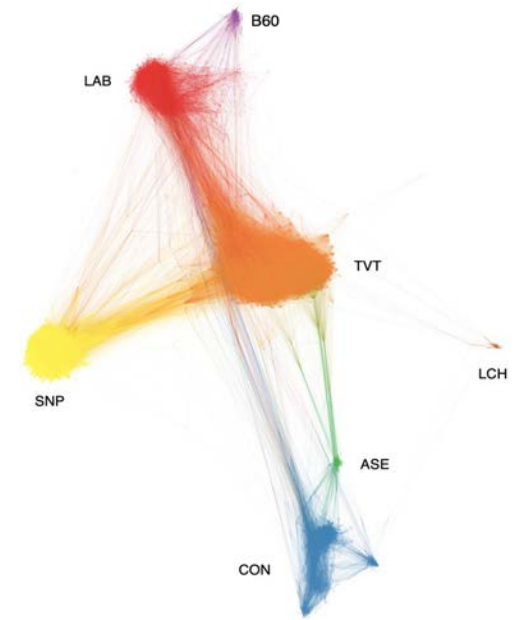
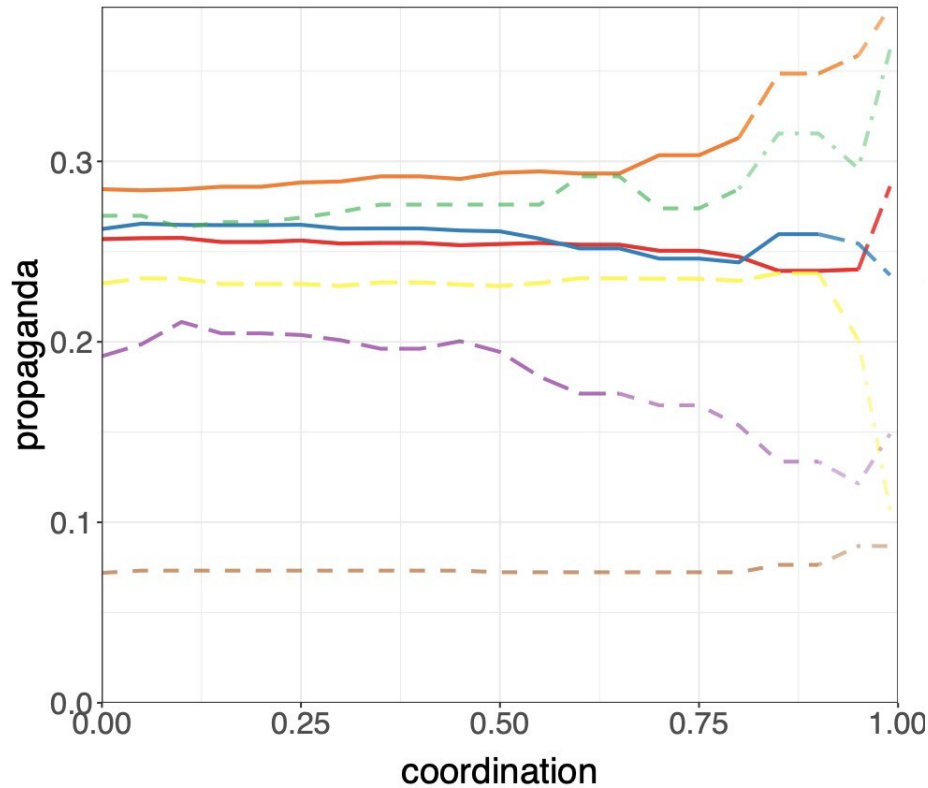
AJDABIYAH , Libya | Thu Apr 7 , 2011 6:34 pm EDT AJDABIYAH , Libya -LRB- Reuters -RRB- - Rebels fighting to overthrow Muammar Gaddafi said five of their fighters were killed when NATO planes mistakenly bombed a rebel tank column near the contested port of Brega in eastern Libya... ”In rebel-held eastern Libya, wounded rebels being brought to a hospital Ajdabiyah said their trucks and tanks were hit on Thursday by a NATO air strike outside Brega. ~~NATO said it was investigating an attack by its aircraft on a tank column in the area along the Mediterranean coast on Thursday , saying the situation was “unclear and fluid .”~~ Rebels said at least five of their fighters were killed when NATO planes mistakenly bombed a rebel tank column near the contested port. “A number of vehicles were hit by a NATO strike ”, officers from UN concluded. The fighting for Brega , the only active front , has dragged on for a week and has entered a daily pattern of advances back and forth with neither side making major gains ...

Table 1: An example of our generated fake news. Given an authentic news article, our approach first identifies a salient sentence, which it then replaces with a plausible but disinformative sentence that is coherent to the context. Finally, it generates a propaganda sentence to make the article resemble human-written fake news.



Detector	Training Data	Acc.
GROVER-Large	Ours (gold)	66.8
	Ours (silver)	62.1
	GROVER-generated	59.5

Coordination – Propaganda Connection in the UK Elections



**WebSci'2022
best paper award**

ACM WebSci'2022 (best paper award): *The Spread of Propaganda by Coordinated Communities on Social Media*
Kristina Hristakieva, Stefano Cresci, Giovanni Da San Martino, Mauro Conti, Preslav Nakov



Multimodality

Propaganda Detection in Memes: COVID-19

Appeal to Fear; Black & White Fallacy



Whataboutism



Propaganda in Memes: Political



(a)



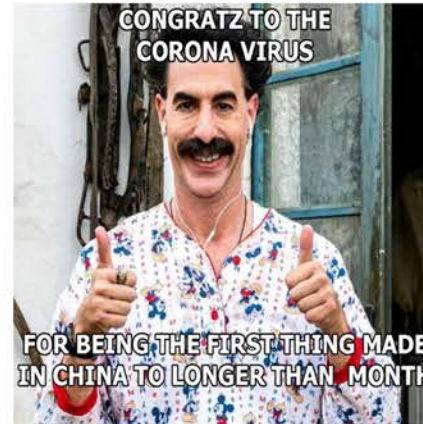
(b)



(c)



Detecting Harmful Memes and Their Targets



Type:

- Fake news
- Hate speech
- Attacks, sarcasm
- ...

Harmfulness:

- very harmful
- partially harmful
- harmless

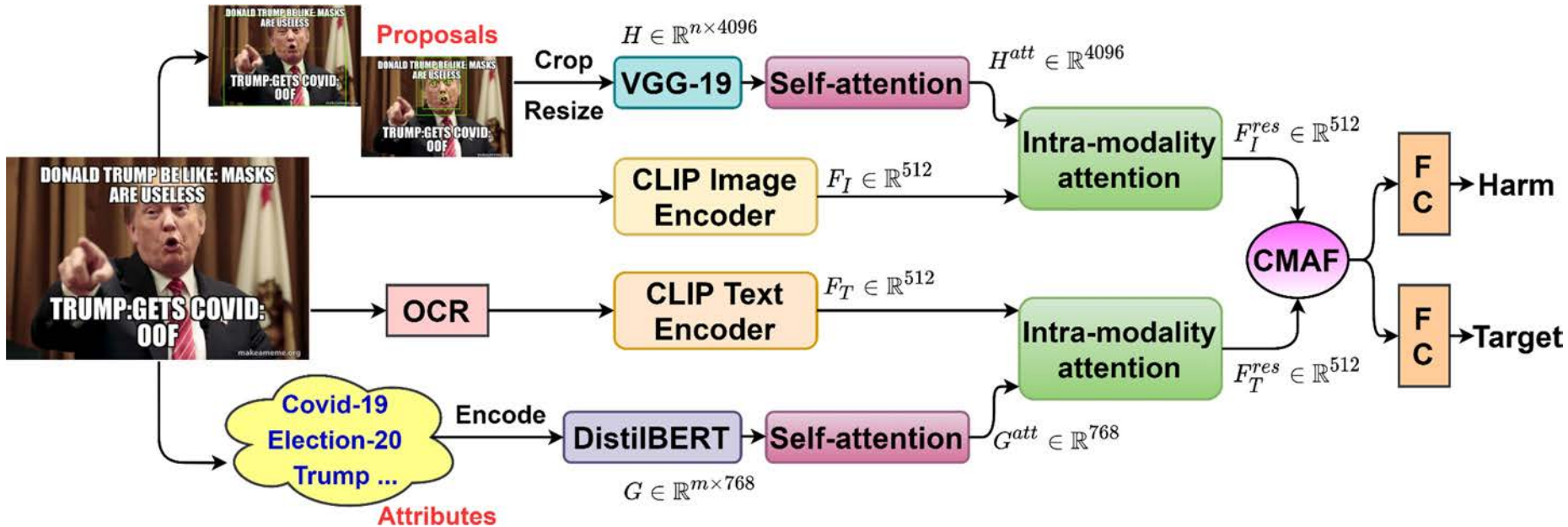
Target:

- individual
- organization
- community/country
- society/general public/others

ACL'2021 (Findings): *Detecting Harmful Memes and Their Targets.*

Shraman Pramanick, Dimitar Dimitrov, Rituparna Mukherjee, Shivam Sharma, Md. Shad Akhtar, Preslav Nakov, Tanmoy Chakraborty

Detecting Harmful Memes and Their Targets



Detecting the Specific Target of Harmful Memes

In 1993, Bill appointed Hillary to head the White House Health Care Reform Committee



But now that Trump is appointing his son in law as an advisor, Democrats remembered there's an anti-nepotism policy

Candidates:
bill clinton,
hillary clinton,
white house,
donald trump,
democrat

Harmful:
bill clinton,
hillary clinton,
democrat

Not-harmful:
white house,
donald trump

Who is the Hero, the Villain, the Victim?



[Barack Obama, John F. Kennedy, Abraham Lincoln] [Donald Trump]

(a)



[Green Party, Jill Stein]

(b)

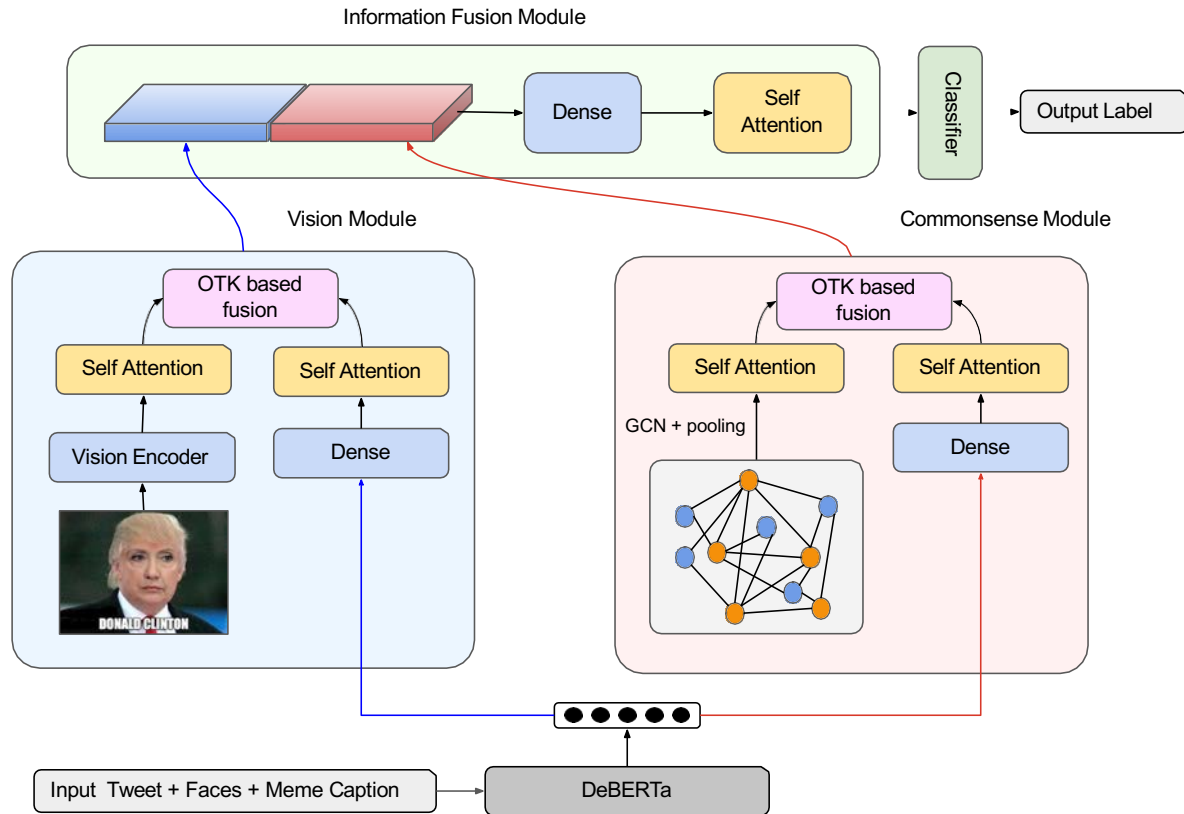


[Women, Poor, Minorities]
[Republican Party]

(c)

Figure 1: Examples of heroes, villains and victims, as portrayed within memes.

Who is the Hero, the Villain, the Victim?



Explaining Why a Hero, a Villain, a Victim

TRUMP 2 WEEKS AGO:

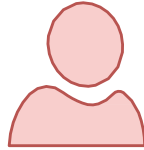


TRUMP TODAY:



Entity: democratic party

Role: victim



democratic party is depicted as being unfairly criticized

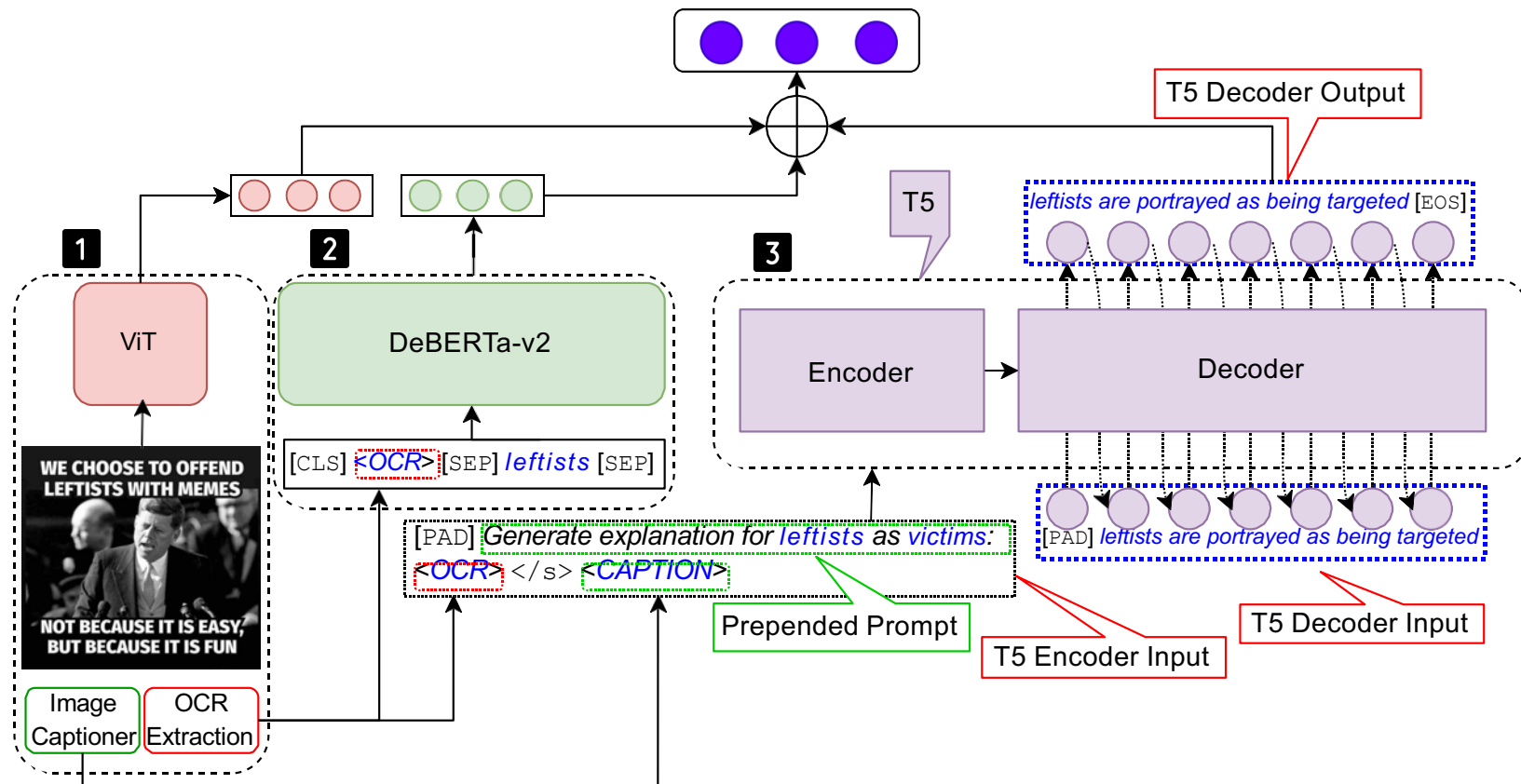


The democratic party is portrayed as a victim of false allegations



the democratic party is portrayed as being falsely accused of a hoax

Explaining Why a Hero, a Villain, a Victim





**From “Fake News”
to “Infodemic”**

“We are not just fighting a pandemic;
we are fighting an infodemic.”



World Health
Organization



World Health
Organization

To help alleviate suffering and save lives, WHO has been working night and day in five key ways:

1. Helping build countries' capacity to prepare and respond
2. Providing accurate information and fight the infodemic, together with numerous partners
3. Ensuring supplies of essential medical equipment for frontline health workers.
4. Training and mobilizing health workers.
5. Accelerating research and development.

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>

The coronavirus is the first true social-media “infodemic”

Social media has zipped information and misinformation around the world at unprecedented speeds, fueling panic, racism .. and hope.

by **Karen Hao** and **Tanya Basu**

February 12, 2020

On January 19—a week before the Lunar New Year—Tommy Tang left

Shenzhen with his girlfriend to visit her family in Wuhan for the holiday.

They had heard of the novel coronavirus (now officially known as COVID-19), but as far as they knew, it was localized to a small area. The local

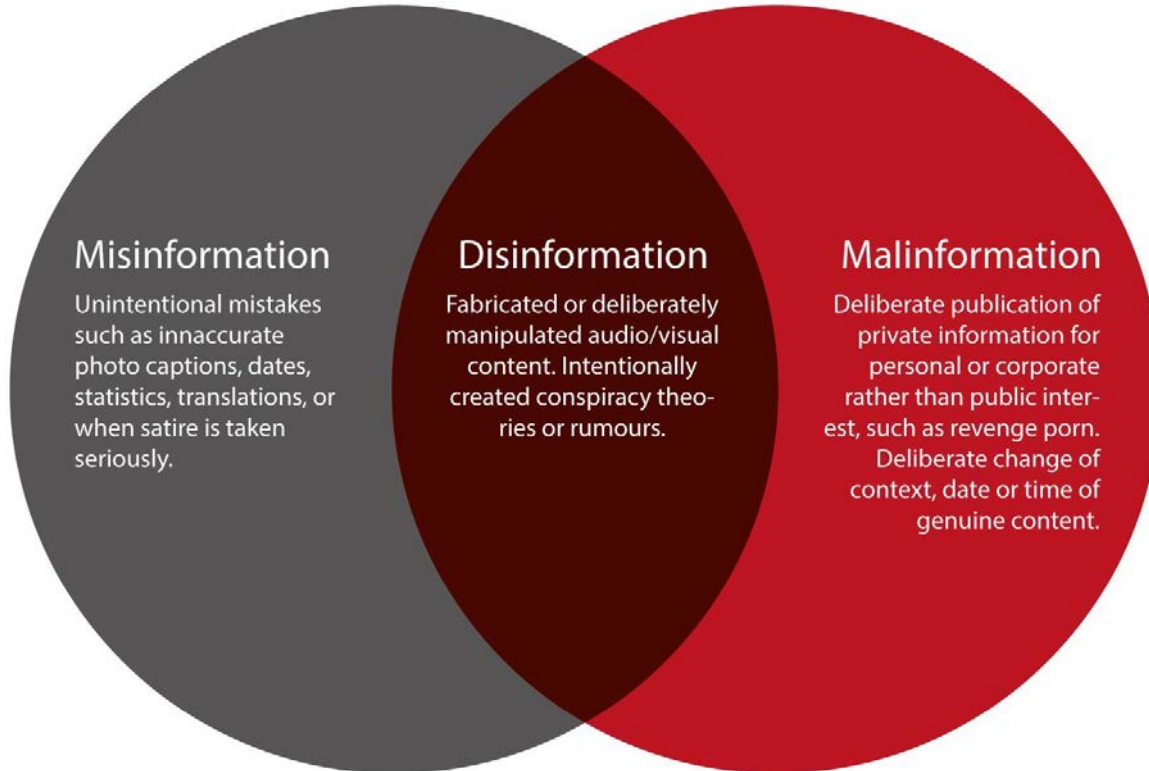
government had assured people that it would only affect those who visited a specific food market and contracted it directly from wild animals.

<https://www.technologyreview.com/2020/02/12/844851/the-coronavirus-is-the-first-true-social-media-infodemic/>

TYPES OF INFORMATION DISORDER

FALSENESS

INTENT TO HARM



<https://medium.com/1st-draft/information-disorder-part-3-useful-graphics-2446c7dbb485>

Evolution of the Terminology

1. “Fake news”: focus on factuality
2. Disinformation: factuality + harm
3. “Infodemic”: focus on harm

COVID-19 Infodemic: Holistic Approach

قاعده في البيت خالد جاسم @khalidjassem74 · Mar 16
غير صحيح مايتم تداوله حالياً عن قيام مروحيات عسكرية برش مبيدات ضد فايروس كورونا في سماء جميع أنحاء البلاد ، هذي اشاعة ،

Military helicopters spray pesticides against Coronavirus.

This is rumor!

(a) rumor in Arabic and English

AND SO THE ZOMBIE APOCALYPSE BEGINS.... MAKE READY YOUR WEAPONS PEOPLE...

Coronavirus: Huge queues as Americans panic buy guns amid virus outbreak | US News | Sky News



Coronavirus: Huge queues as Americans panic buy guns amid virus outbreak
People buying more guns and ammunition have reportedly said they are preparing for a breakdown in public order over COVID-19.
news.sky.com

3:00 PM · Mar 17, 2020 · Twitter for Android

(b) spreading panic

Nameste 🙏 Twitter 😊

Today I wanna share something useful & effective for all of us 🙏

GOOD NEWS!!! Wuhan's Corona virus can cure itself by a bowl of freshly boiled garlic water. The old Chinese doctor proved its effectiveness. Many patients have also proven it to be effective.

9:20 AM · Mar 11, 2020 · Twitter for Android

(d) bad cure

Along with Chinese food, Italian food is on the list of things I do not order anymore #coronavirus #MoshUp

3:41 AM · Mar 9, 2020 · Twitter for Android

(e) xenophobic/racist/prejudices

After weeks of the Federal Government dragging its feet on COVID-19 testing, Trump just admitted in front of the cameras he wants to manipulate the measurement of the outbreak for his personal political benefit.

1:40 AM · Mar 7, 2020 · Twitter Web App

(f) blaming/accusing the authorities

Replying to @spectatorindex

If the Corona virus enters Spain
He will enter from the Barcelona defense side

11:05 PM · Mar 14, 2020 · Twitter for Android

(c) joke

Germany is conducting 160k Covid-19 tests a week. It has a total 35k ventilators, 10k ordered to be made by the govt. It has converted a new 1k bed hospital in Berlin.

It's death rate is tiny bcos it's mass testing allows quarantine and bcos it has fewer non reported cases.

10:43 AM · Mar 20, 2020 · Twitter for iPhone

(g) advice/discussion of action taken

My body, my health. We don't need a killer like Bill Gates telling us what's healthy for us.

This is the absolute insult to our intelligence.

#NWO #5G #Agenda21 #ID2020

#coronavirus #COVID19

Think my Coronavirus is killer? Wait till I roll out the Mandatory Vaccine!



4:47 PM · May 12, 2020 · Twitter for Android

(h) conspiracies



**Can We Win
the War on “Fake News”?**

Complex Problem, No Easy Solution

- **Need for cooperation**
 - social media / technology companies
 - governments
 - international organizations
 - journalists, fact-checkers, media, NGOs, etc.
 - researchers: academia, industry

Finland is winning the war on fake news. What it's learned may be crucial to Western democracy

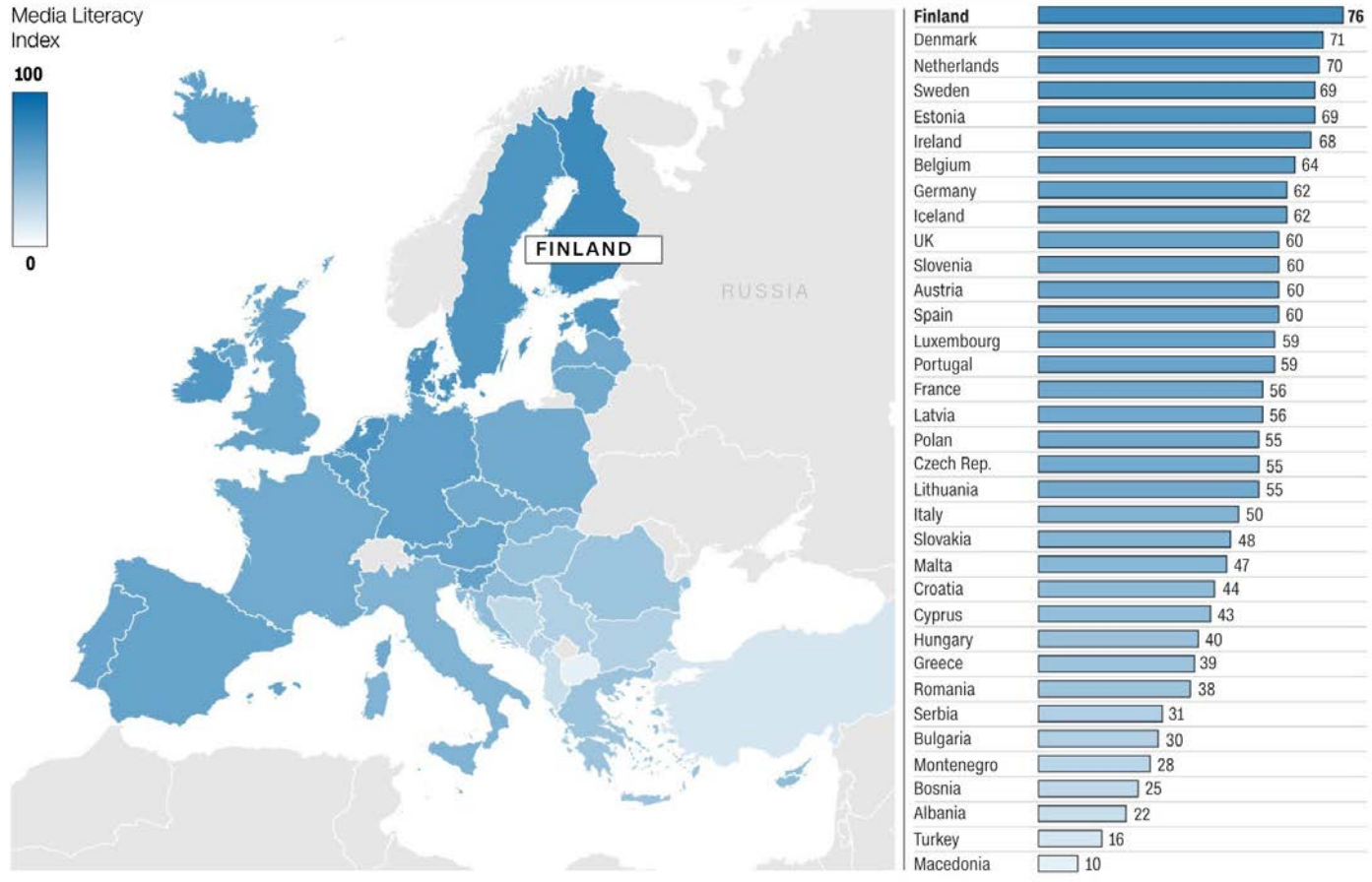
By Eliza Mackintosh, CNN
Video by Edward Kiernan, CNN



<https://edition.cnn.com/interactive/2019/05/europe/finland-fake-news-intl/>

Media literacy across Europe

Finland ranked first out of 35 countries in a study measuring resilience to the post-truth phenomenon





Conclusion



अफवाह सुनना नहीं, सुनना तो
मानना नहीं।

integamshi



DO NOT LISTEN TO RUMOUR, BUT, IF YOU
DO, DO NOT BELIEVE IT.

integamshi





MOHAMED BIN ZAYED
UNIVERSITY OF
ARTIFICIAL INTELLIGENCE

MSc & PhD PROGRAMS & SCHOLARSHIP OPPORTUNITIES

“ ”

MBZUAI is the world's first AI university, specializing in research and graduate-level study

MBZUAI is an open invitation from Abu Dhabi and the UAE to the world to unleash the full potential of AI



WHAT IS MBZUAI?

GREAT FACULTY

- World-class academic leadership and international faculty in CV, ML, and NLP— top-40 in world in all three areas, along with only 10 other universities (csrankings.org)
- World-renowned faculty including Eric Xing, Michael Jordan, Le Song, Tim Baldwin
- Currently 4 full-time NLP faculty, with aim to reach 14 by end of 2023
- New departments of HCI, Robotics, and CS to open in 2022-23

GREAT FACILITIES

- Top-class student experience on a brand-new campus in an international environment
- World-leading computing infrastructure

GREAT FINANCIAL SUPPORT

- Outstanding student support package through its scholarship program so students can focus on learning and research



SURPRISING STATISTICS

- Age = 2
- Total faculty = 40
- Total researchers = 120
- Total students = 250
- Student gender mix = 31%female
- Total nationalities represented among students = 40
- Language for all instruction (and most of everything) = English
- On-campus pools, gyms, games rooms = 1 x 1 x 1
- On-campus restaurants = 8
- Green energy = 100% (from our own solar farm)
- Major international collaborations: Weizman Institute of Science, IBM



MBZUAI PROGRAMS

MBZUAI offers MSc and PhD programs:

MSc Programs (2 years)

- Master of Science programs in in Computer Vision, Machine Learning, and NLP (with Robotics and CS to be added in 2023)
- First year of coursework, internship over the summer semester, and second year largely research

PhD Programs (4 years)

- PhD programs in in Computer Vision, Machine Learning, and NLP (with Robotics and CS to be added in 2023)
- First year of coursework, internship over the summer semester, and second to fourth years largely research

Also faculty and post-doc opportunities



MBZUAI SCHOLARSHIPS

All full-time students admitted to MBZUAI receive the following support:

- Full tuition waiver
- Competitive stipend (= approx. USD\$2200 [MSc] or USD\$2800 [PhD] per month)
- Free on-campus accommodation (studio apartment)
- Annual travel to and from home country
- Health insurance



MBZUAI ADMISSION CRITERIA

For MSc Programs

Degree

Bachelor's degree in a **STEM field** such as Computer Science, Electrical Engineering, Computer Engineering, Mathematics, Physics and other relevant Science and Engineering majors

Academic Grades

Student should have a minimum undergraduate **CGPA of 3.2 (on a 4.0 scale)**

English Language

Valid certificate copies of either a standard TOEFL iBT with a minimum total score of 90; IELTS Academic with a minimum overall score of 6.5; or EmSAT English with a minimum score of 1550

Graduate Record Examination (GRE)

General score is **optional** and would be considered in the evaluation of the applicants

For PhD Programs

Degree

Bachelors' and Master's degrees in a **STEM field** such as Computer Science, Electrical Engineering, Computer Engineering, Mathematics, Physics and other relevant Science and Engineering majors

Academic Grades

Student should have a minimum **CGPA of 3.2 (on a 4.0 scale)** for **both Bachelors and Masters** degrees

English Language

Valid certificate copies of either a standard TOEFL iBT with a minimum total score of 90; IELTS Academic with a minimum overall score of 6.5; or EmSAT English with a minimum score of 1550

Graduate Record Examination (GRE)

General score is **optional** and would be considered in the evaluation of the applicants

3 Recommendation letters

APPLY NOW

<https://mbzuai.ac.ae/study/admissions>

MBZUAI is accepting applications now for Fall 2023 – early application recommended

For PhD applications, best to work with potential supervisor in developing research proposal

QUESTIONS?

Do you have questions about the programs or how to apply? Help with grade equivalence from your degree? Help finding the right supervisor?

Contact Prof Tim Baldwin

timothy.baldwin@mbzuai.ac.ae