

Future Leaders Summit 2022

The COVID-19 Infodemic: prevalence and real-world impact

Kaicheng Yang
Ph.D candidate in Informatics
Indiana University

COVID-19 pandemic



COVID-19 misinformation

 **Garret Lewis** ...

18. marraskuuta kello 9.36 · 

The largest randomized clinical trial mask study has finally come out. It's from Denmark and proves masks offer NO protection from COVID. About 3000 people wore a mask and about 3000 didn't. Mask wearers had a 1.8% infection rate. Non-mask wearers had a 2.1% infection rate. So masks offer you an extra .3% of protection, which is statistically insignificant.

<https://www.acpjournals.org/doi/10.7326/M20-6817>

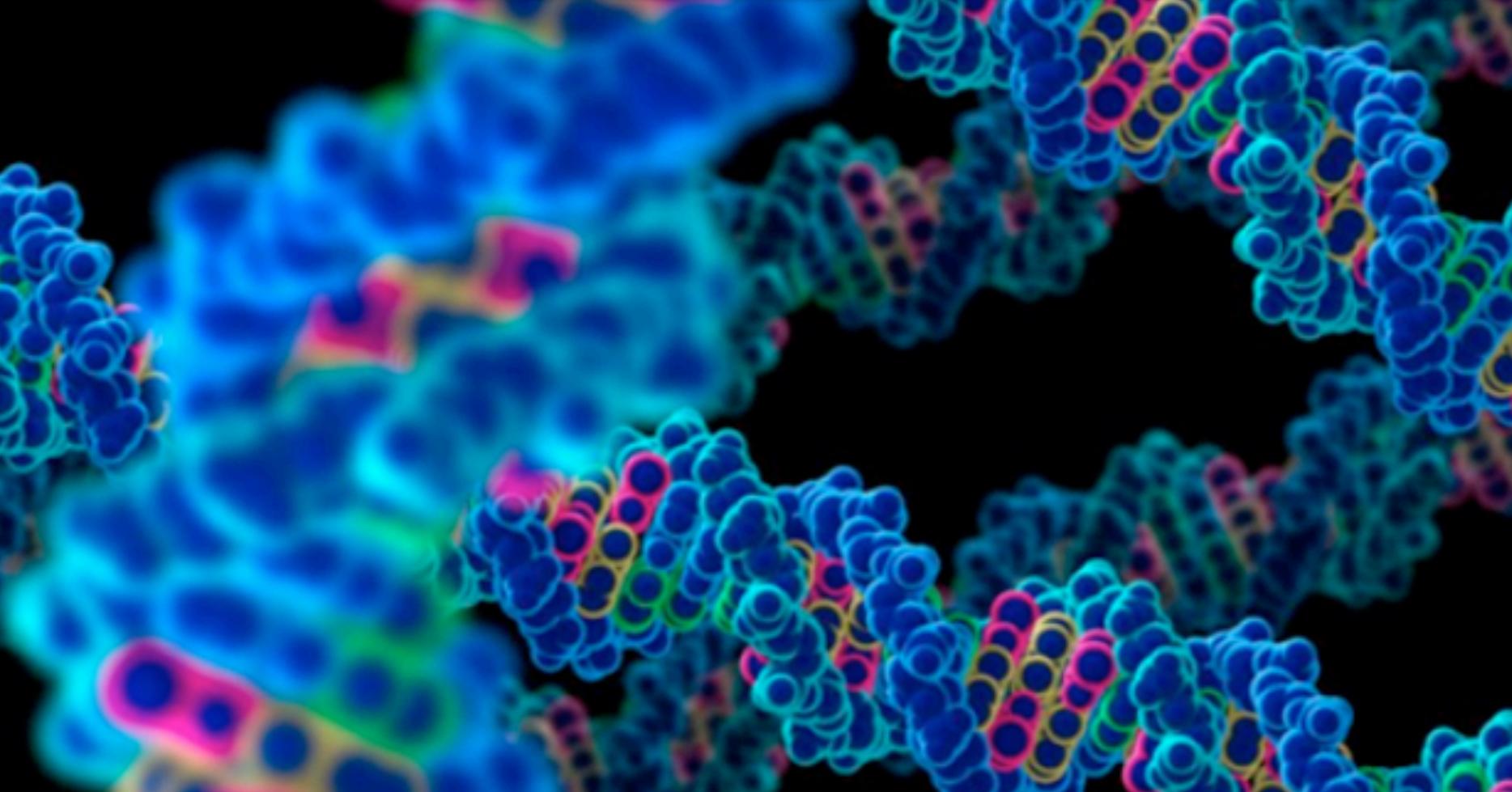
 120 40 Comments 108 Shares

 Like  Comment  Share

 **WorldTruth.TV** ...

August 3 · 

Fast-Tracked Covid-19 Vaccine Alters Human DNA, Turns People Into Genetically Modified Property



WORLDTRUTH.TV

 Fast-Tracked Covid-19 Vaccine Alters Human DNA, Turns People Into Genetically Modified Property

COVID-19 misinformation

 **Dr. Simone Gold**
@drsimonegold ...

How many people have taken ivermectin or hydroxychloroquine for Covid-19 within the first 72 hours of symptoms and did not have to go to the hospital?

Share your stories below. AFLDS will read all of them.

2:50 AM · Oct 30, 2021 · Twitter for iPhone

5,326 Retweets **221 Quote Tweets** **16.1K Likes**

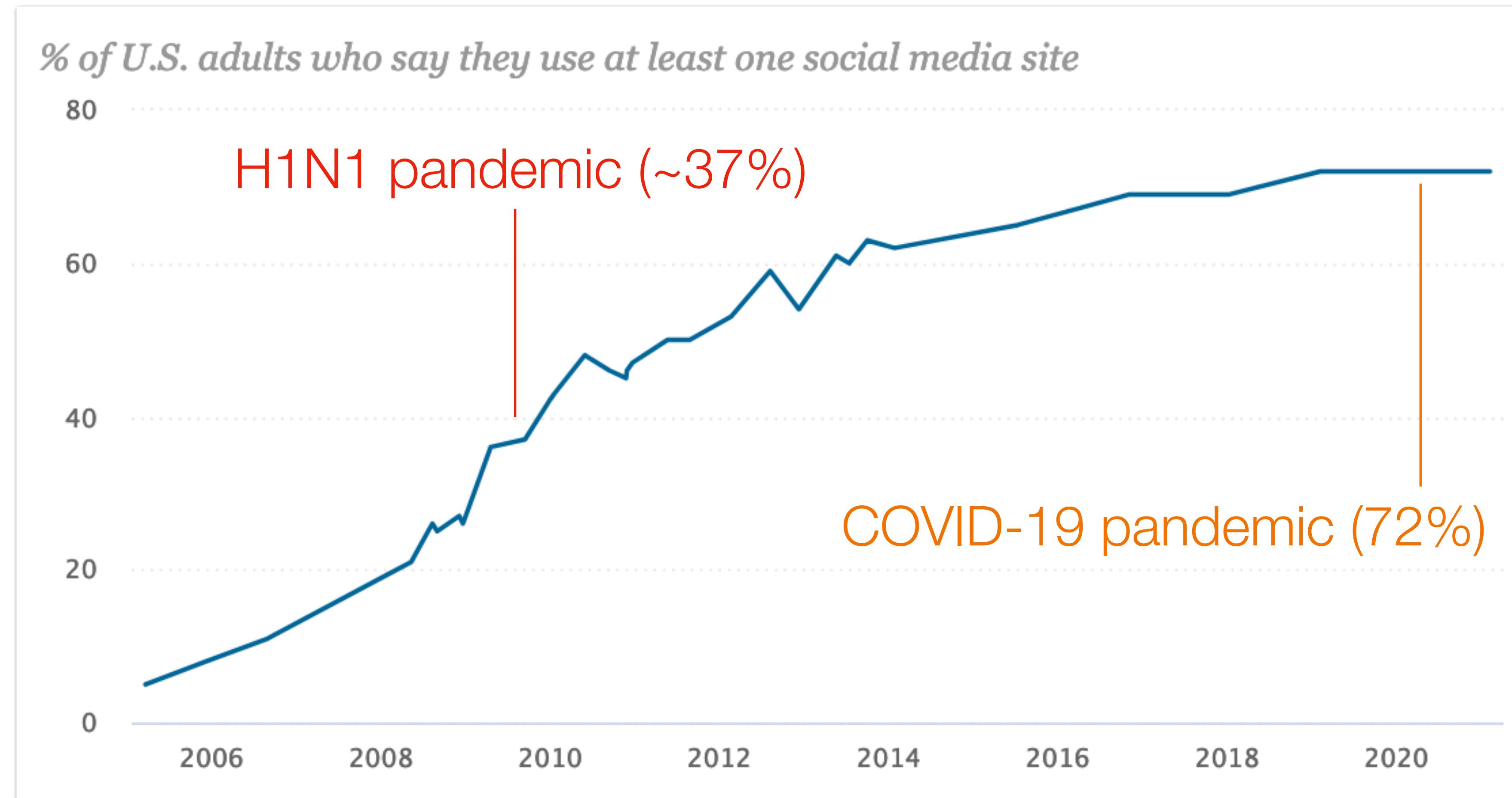
COVID-19 infodemic

“ We’re not just fighting an epidemic
we’re fighting an **infodemic** ,”

— WHO Director-General Tedros Adhanom Ghebreyesus

Why focus on social media?

Social media adoption rate increased significantly in the past decade



Data collection



COVID keywords | English

53M tweets from 12M users



COVID keywords | English

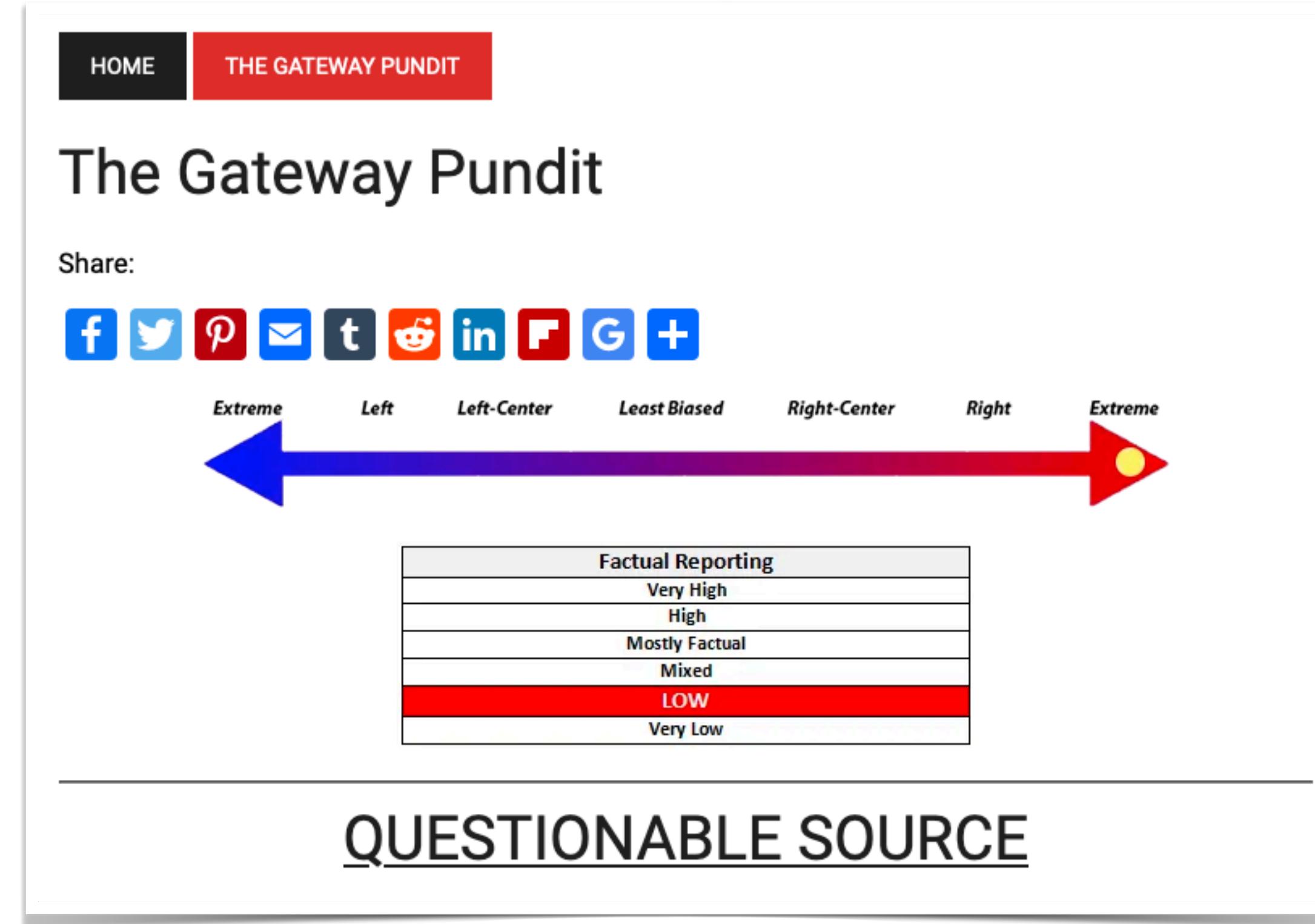
37M posts from 140k pages/groups

Jan 1 to Oct 31, 2020

Identification of misinformation at scale

Links	Low-credibility?
https://beforeitsnews.com/prophecy/2020/05/5g-whistleblower-coronavirus-test-spreading-virus-you-cannot-catch-the-coronavirus-unless-you-take-the-covid-19-test-or-covid-19-vaccines-exposing-the-covid-19-lie-great-videos-2511687.html	Yes
https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html	No
https://humansarefree.com/2020/04/covid-19-and-5g-whats-the-connection.html	Yes
https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html	No

Identification of misinformation at scale



Media Bias/Fact Check

- low or very low factual-reporting level
- questionable sources
- conspiracy-pseudoscience sources

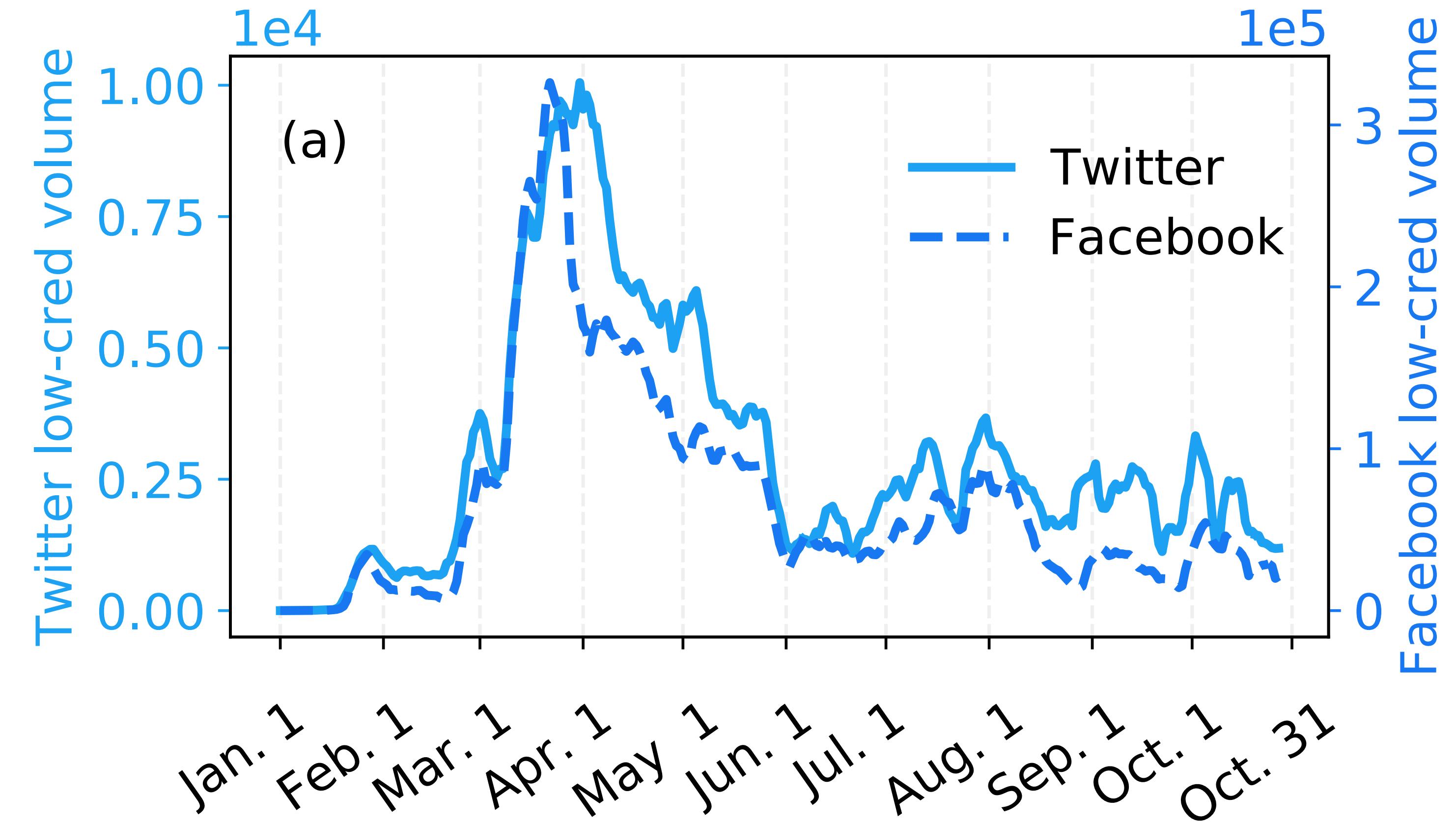
674 low-credibility sources

<https://mediabiasfactcheck.com/the-gateway-pundit/>

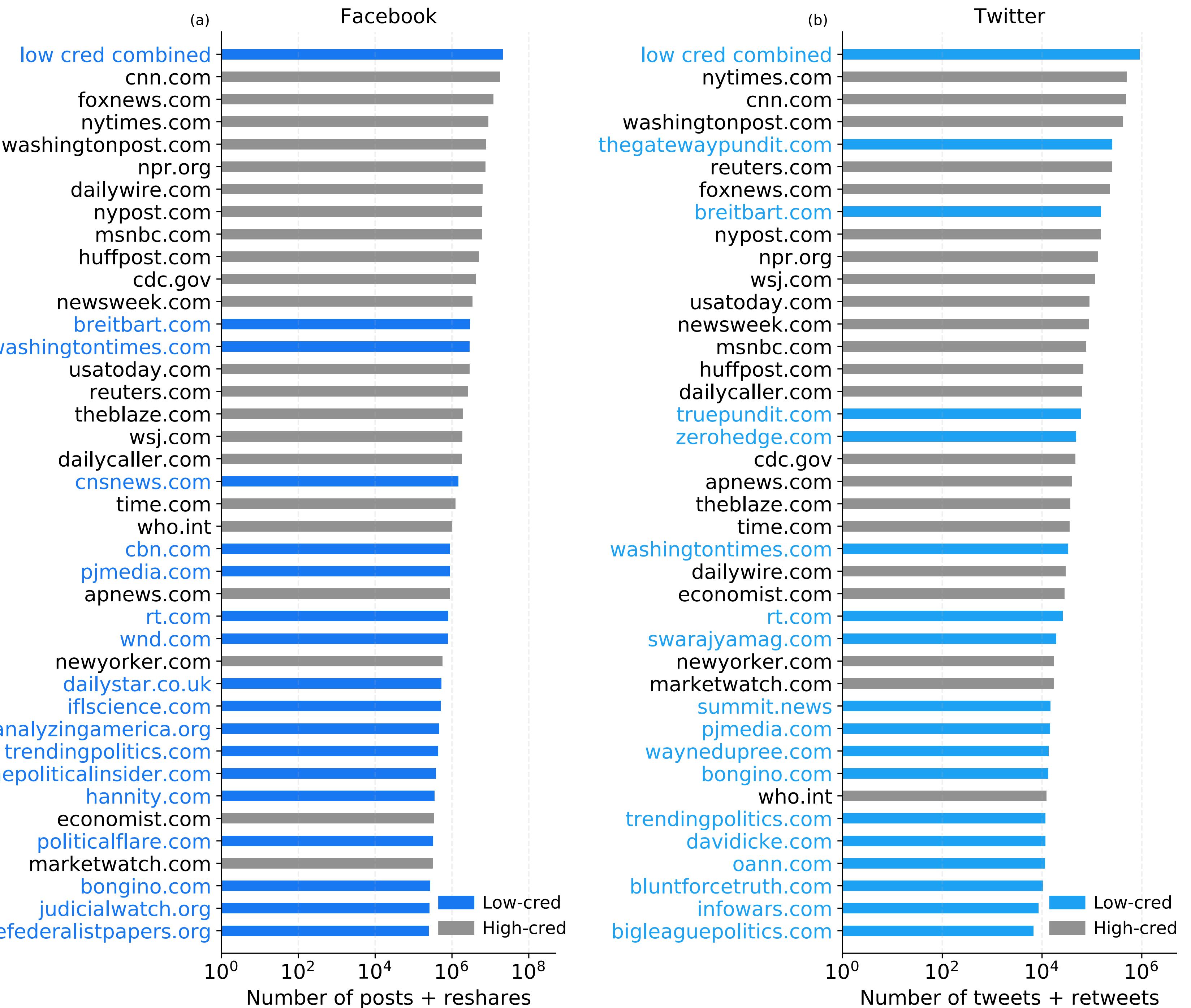
High-credibility sources

Domain	Political leaning
huffpost.com	left
newyorker.com	left
msnbc.com	left
newsweek.com	left
cnn.com	center left
nytimes.com	center left
economist.com	center left
time.com	center left
washingtonpost.com	center left
reuters.com	center
apnews.com	center
npr.org	center
usatoday.com	center
wsj.com	center
foxnews.com	center right
marketwatch.com	center right
nypost.com	center right
dailycaller.com	right
theblaze.com	right
dailywire.com	right
cdc.gov	N/A
who.int	N/A

Infodemic content surge



Prevalence of individual sources: low vs. high



Infodemic super spreaders

The screenshot shows the homepage of thegatewaypundit.com. At the top, there are navigation links: Home, About, Privacy, ProTrumpNews, Store, and MORE. Social media icons for Facebook (circled in orange) and Twitter (circled in orange) are located in the top right. Below the header, the text "GATEWAY PUNDIT" is prominently displayed, with the subtitle "We report the truth — and leave the Russia-Collusion fairy tale to the Conspiracy media". A large image of a crowd is visible in the background.

Jim Hoft (@gatewaypundit) - [Follow](#)

TGP Founder - Where Hope Made a Comeback - Top Choice of those who seek truth and fulfillment
© St. Louis, Missouri thegatewaypundit.com
Joined January 2009
1,468 Following 394.9K Followers

The screenshot shows the Facebook page for "Gateway Pundit". The cover photo features several people, including a man in a tuxedo and a woman in a "MAGA" hat. The page name "THEGATEWAYP" and the tagline "Where Hope Finally" are at the top. A post from "Gateway Pundit" is visible, showing a photo of a person on a phone screen displaying the Gateway Pundit website. The post has 657,126 likes.

Gateway Pundit (verified) News & Media Website

Sign Up | Like | ...

thegatewaypundit.us17.list-manage.com

657,126 people like this

Home Posts Videos Photos About Community

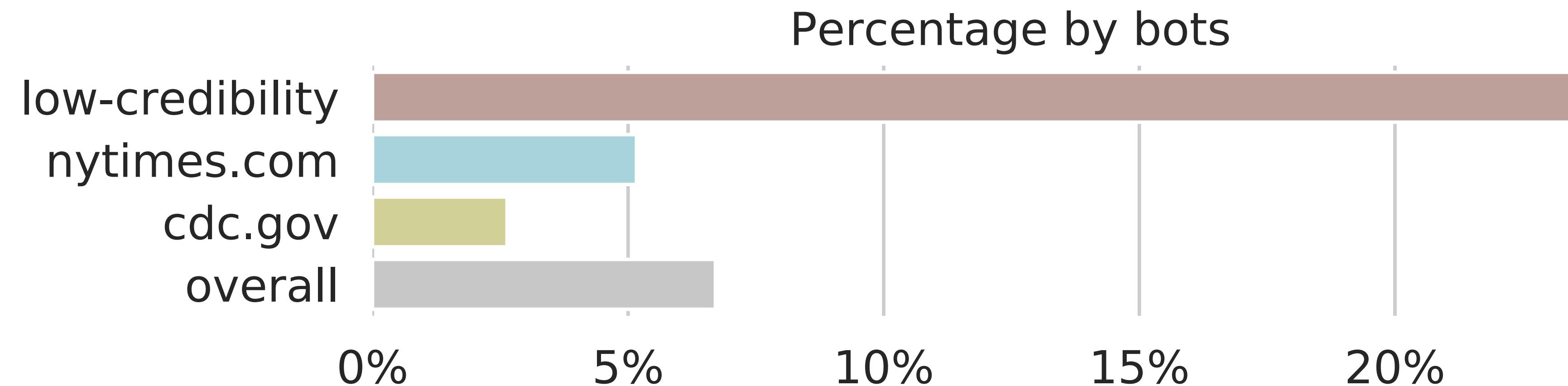
About

Website <http://thegatewaypundit.com/>
Send Message
News & Media Website

Twitter: 20% retweets
Facebook: 68% reshares

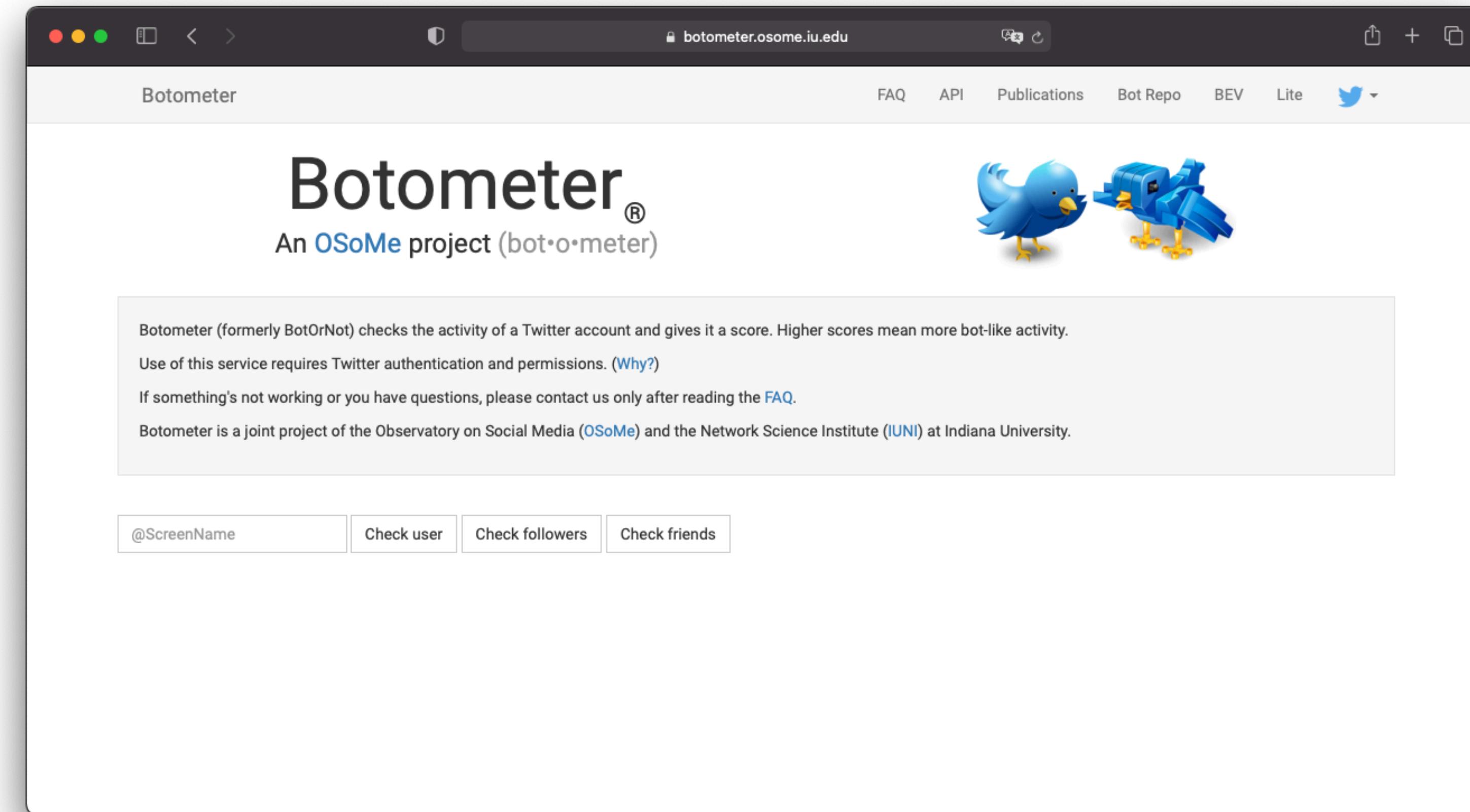
This account was suspended

Bots are used to spread COVID-19 misinformation

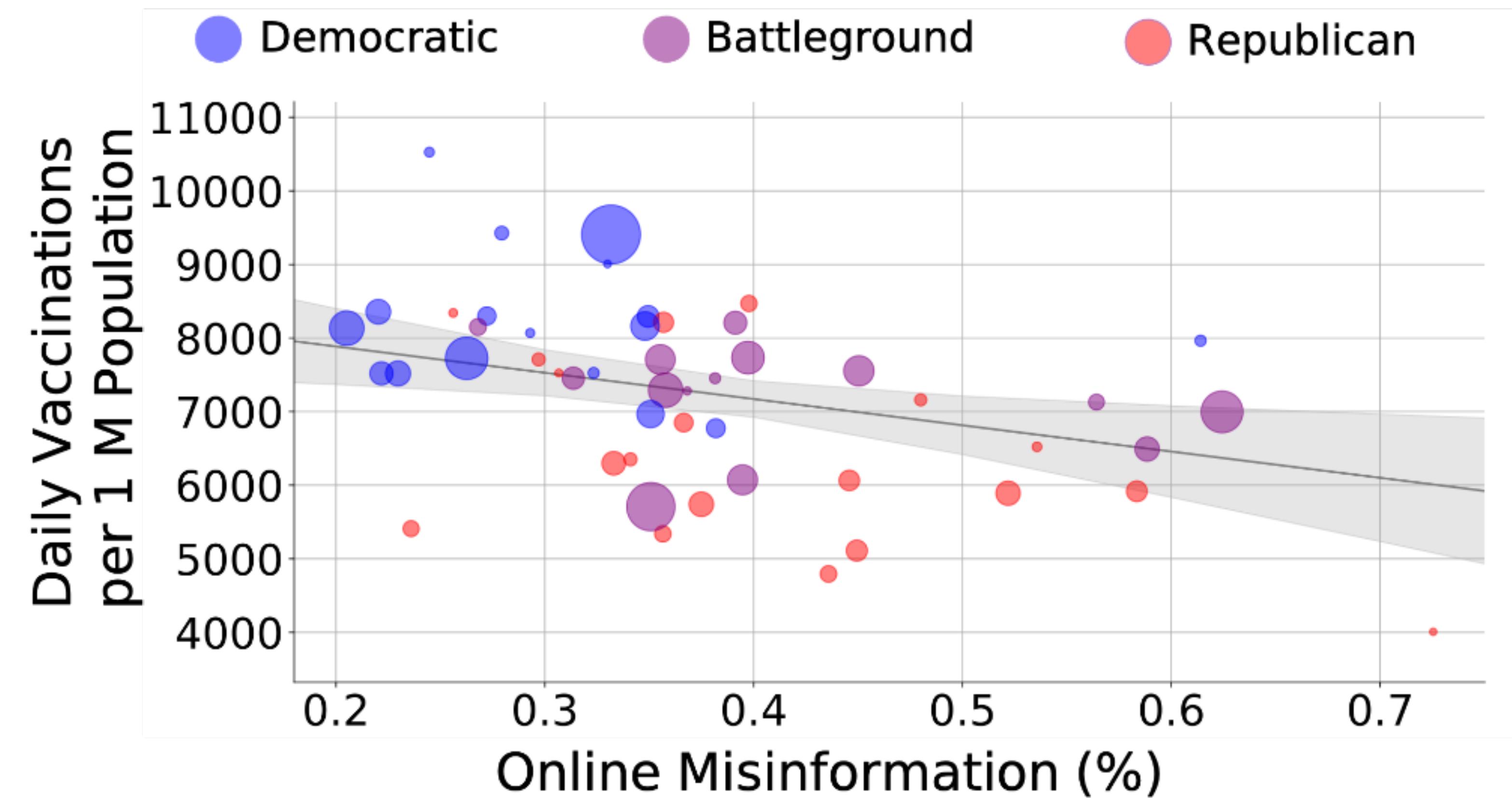


Bot detection

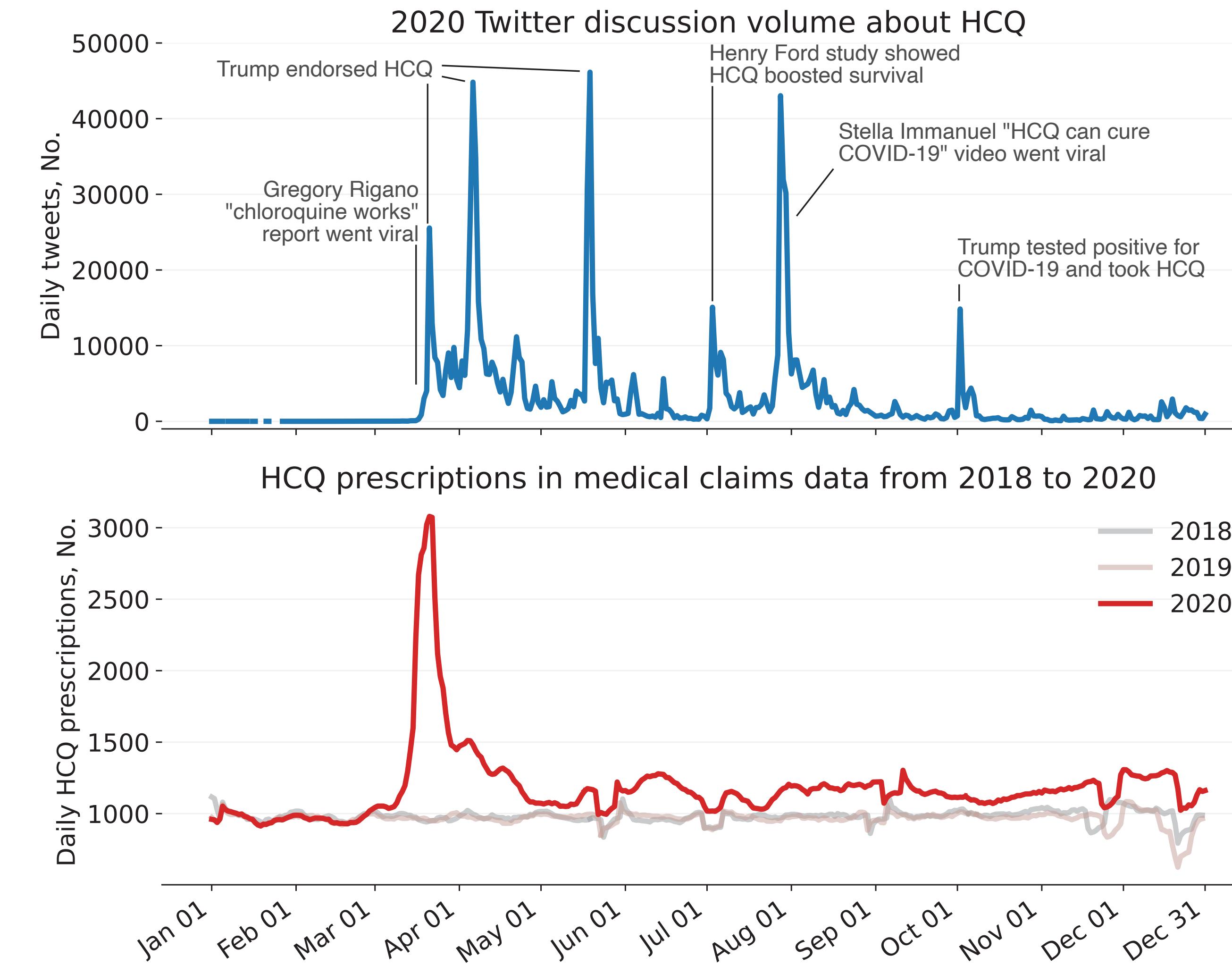
<https://botometer.osome.iu.edu/>



Online vaccine misinformation is linked to COVID-19 vaccination refusal



Online misinformation about Hydroxychloroquine (HCQ) is linked to increased off-label prescriptions



Take-home messages

- Proportion of online COVID-19 Infodemic content is small but viable
- Disseminated by influential accounts and malicious social bots
- Associated with real-world adverse outcomes

Email: yangkc@iu.edu

Website: www.kaichengyang.me

Twitter: [@yang3kc](https://twitter.com/yang3kc)