

The Observatory on Social Media  
Biannual Report

November 2020 - May 2021



## Where We Are Now

The Observatory on Social Media is doing well in its second year. This booklet is an update for our funders, advisory boards, and fellow researchers on our activities in the last six months. It's been a tough winter with another local spike of Covid cases and a very cold spell in Bloomington. Nevertheless, we have made a lot of progress since November 2020. With vaccinations and spring sunshine, things are looking brighter now and we look forward to some exciting new projects over the next few months.

We are thrilled to announce that our Director, Fil Menczer, has not only recently been promoted to the rank of Distinguished Professor, but he has also been made a Fellow of the ACM. We are also delighted to announce that Sarah Beverton has joined the team as a Software Developer. The Observatory now has six Primary Investigators, eight Core Staff, and sixteen students currently working on the many ongoing projects. Many thanks to everyone who has contributed to the Observatory!

John Bryden  
*Executive Director*



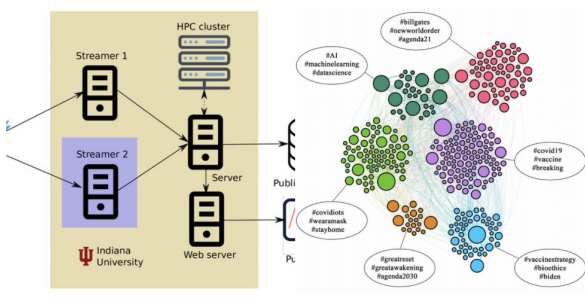
# OSoMe

The Observatory on Social Media (OSoMe, pronounced *awe•some*) is a joint project of the Center for Complex Networks and Systems Research (CNetS) at the Luddy School, the Media School, and the Network Science Institute (IUNI) at Indiana University. OSoMe unites data scientists and journalists in studying the role of media and technology in society, and building tools to analyze and counter disinformation and manipulation on social media.

## Twitter

@OSoMe\_IU  
On Thursday, @mdeverna2 will present our paper at @ICWSM #ICWSM2021 about CoVaxxy: A Collection of English-language Twitter Posts About COVID-19 Vaccines. The dataset is available at [doi.org/10.5281/zenodo...](https://doi.org/10.5281/zenodo.1111111)

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## Tools



Hoaxy

Visualize the spread of claims and fact checking.



Botometer

Check how bot-like a Twitter user behaves.



BotSlayer

Set up your own system to detect coordination and bot amplification on Twitter.



CoVaxxy

Visualizing the relationship between COVID-19 vaccine adoption and online (mis)information

Our new website [osome.iu.edu](https://osome.iu.edu) better disseminates our research, publications, tools, software, data, and more.

## New Data Journalism Certificate

Indiana University has completed the assessment of a 100% Online Graduate Certificate in Data Journalism, to be taught by OSoMe faculty.

The 12-credit certificate is intended for professional journalists. Courses will be taught in tandem with our Master's in Media data journalism concentration.



# OSoMe Tools

Our latest tool is [CoVaxxy](#). This dashboard monitors vaccine misinformation and vaccine uptake rates across US states. It shows information about which hashtags have been spreading through the Twitter vaccine conversation, and which website sources are being shared. The site has been visited by over 2K users in more than 30 countries since its launch in February.

## CoVaxxy

Visualizing the relationship between COVID-19 vaccine adoption and online (mis)information



### Online Discussion and Vaccine Adoption: Geography ③

Control and compare the maps by selecting data to visualize with each map's respective dropdown

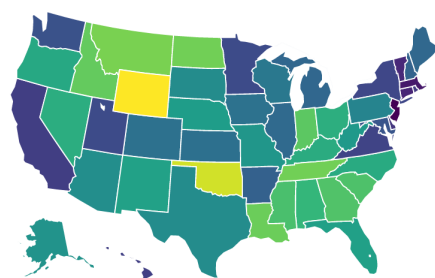
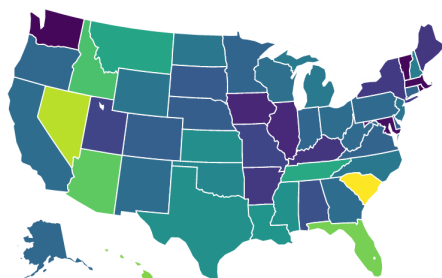
Twitter discussion map

Vaccine adoption map

Percentage of tweets that include low credibility sources



Percent of state unwilling to accept vaccine (survey)

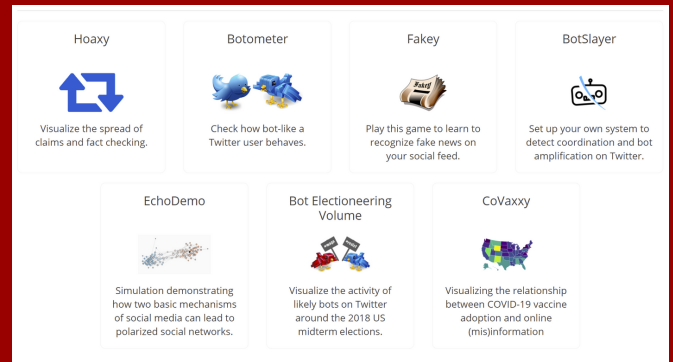


## Botometer

Botometer identifies bot-like Twitter accounts. Under the hood, it extracts characteristics from a Twitter account's profile, content, actions, and social network and employs machine learning to perform the estimation. Botometer is our most widely used tool. In the last six months it has over 41M API requests and 69K website visitors. We also have some exciting upgrades with Botometer. Specifically, we have recently expanded the capabilities of Botometer to work with a new Ensemble of Specialized Classifiers technique, increasing its accuracy on accounts with novel bot-like behaviors. In the near future we plan to port Botometer and BotometerLite to the new Twitter V2 API.

## Hoaxy

Hoaxy allows users to visualize the spread of claims, fact checking, and other information across Twitter. In the last six months the website has had 23K visitors. We have been updating the low-credibility sources that Hoaxy is tracking to maintain its relevance. In the near future, we plan to improve the interface and add new features including Full Archive Search functionality through leveraging the new Twitter V2 API.



We have several tools available to the public at [osome.iu.edu/tools](https://osome.iu.edu/tools).

## BotSlayer

This tool detects suspicious coordination and bot amplification of Twitter accounts. We've recently reached over 600 downloads. BotSlayer is used by organizations in countries like Mexico, Brazil, Venezuela, UAE, Hong Kong, Turkey, China, Iran, Jordan, Ghana, and Guatemala to combat political disinformation and manipulation campaigns, protect free and fair elections, and journalists reporting on governmental affairs. The past few months have been devoted to improving the robustness of the software. The future roadmap in the upcoming months will include an overhaul of the backend, an upgrade to Twitter v2 API, and a major improvement in the campaign detection algorithm.



## Grants Submitted:

- NSF Expeditions – Reasoning About Misinformation: A Principled Approach
- NSF HNDS 2021 – A Collaborative Infrastructure for Social Media Data Collection
- IES Transformative – Digital Media Literacy at Scale: Developing the Social Media Training Simulator (SMTS)

## Projects Awarded:

- SSRC – How Does Facebook Influence Parliament?
- DARPA – UPSCALE: Universal Population Segmentation and Characterization Algorithms for OnLine Environments
- Open Technology Fund – Observatory on Social Media

## Presentations, tutorials, workshops:

- Conference on Social-Cybersecurity in Times of Crisis and Change, CMU, Nov 2020
- CounterBalance Seminar Series, Santa Fe Institute, Nov 2020
- Panel on Trust and Authenticity on Social Media, America's Role in the World, Hamilton Lugar School of Global and International Studies, Indiana University, Dec 2020
- Keynote, The social side of sight, International Journal of Press Politics Symposium on Visual Politics, Jan 2021
- PSA Parliaments Annual Conferences: How does Facebook influence parliament? Jan 2021
- Trusted Web podcast, Jan 2021
- Invited talk, Braver Angels Media Action Group, Feb 2021
- Edward R. Murrow Program for Journalists – Media Responsibility in an Age of Disinformation (A Regional Project for Africa), International Visitor Leadership Program, US Dept. of State, Mar 2021
- (Anti-)Social Media: Threats and Threads of a New World Order in conjunction with IU HLS and Jindal University, Apr 2021
- Keynote, European Observatory against Disinformation, Apr 2021
- Center for Social Media and Politics Annual Conference, NYU, Apr 2021
- Sorbonne-IU-UNAM webinar series: The Great Inventions that Changed the World, Apr 2021

## Publications

- Media Effects: A Narrative Perspective. J Shanahan. *Cambridge University Press*.
- Fakey: A Game Intervention to Improve News Literacy on Social Media. N Micallef, M Avram, F Menczer, S Patil. *Proceedings of the ACM on Human-Computer Interaction*.
- The impact of online misinformation on US COVID-19 vaccinations. F Pierri, B Perry, MR DeVerna, KC Yang, A Flammini, F Menczer, J Bryden. *arXiv preprint*.
- Reconsidering informed and participatory Citizenship in contemporary media ecosystems. ME Grabe, O Bas, In S. Coen, P. Bull. *The Psychology of Journalism*.
- Image Bite Analysis: Understanding the Visual Framing Process in Media Politics. ME Grabe, EP Bucy. *Journal of Visual Communication*.
- Theorizing inconsistent media selection in the digital environment. M Gui, J Shanahan, M Tsay-Vogel. *The Information Society*.
- CoVaxxy: A Collection of English-language Twitter Posts About COVID-19 Vaccines. MR DeVerna, F Pierri, BT Truong, J Bollenbacher, D Axelrod, N Loynes, KC Yang, F Menczer, J Bryden. *Proc. Intl. AAAI Conf. on Web and Social Media*.
- Uncovering coordinated networks on social media. D Pacheco, PM Hui, C Torres-Lugo, BT Truong, A Flammini, F Menczer. *Proc. Intl. AAAI Conf. on Web and Social Media*.
- Right and left, partisanship predicts (asymmetric) vulnerability to misinformation. D Nikolov, A Flammini, F Menczer. *The Harvard Kennedy School Misinformation Review*.
- On the challenges of predicting microscopic dynamics of online conversations. J Bollenbacher, D Pacheco, PM Hui, YY Ahn, A Flammini, F Menczer. *Applied Network Science*.
- The COVID-19 Infodemic: Twitter versus Facebook. KC Yang, F Pierri, PM Hui, D Axelrod, C Torres-Lugo, J Bryden, F Menczer. *Big Data & Society*.
- An Agenda for Disinformation Research. N Bliss, E Bradley, J Garland, F Menczer, SW Ruston, K Starbird, C Wiggins. *CRA Computing Community Consortium*.
- The Manufacture of Political Echo Chambers by Follow Train Abuse on Twitter. C Torres-Lugo, KC Yang, F Menczer. *arXiv preprint*.
- Tackling misinformation: What researchers could do with social media data. IV Pasquetto, ST Briony, and others. *The Harvard Kennedy School Misinformation Review*.
- Detection of novel social bots by ensembles of specialized classifiers. M Sayyadiharikandeh, O Varol, KC Yang, A Flammini, F Menczer. *Proc. 29th ACM Intl. Conf. on Information and Knowledge Management*.
- Asymmetrical perceptions of partisan political bots. HY Yan, KC Yang, F Menczer, J Shanahan. *New Media & Society*.