CS 3001-C: Computing, Society, and Professionalism

Munmun De Choudhury | Associate Professor | School of Interactive Computing

Week 13: Algorithmic Manipulation
April 4, 2022

A Lack of Control

Impacting Real World Outcomes:
The Positive Side

Defining "fake news"

Sources of misinformation/disinformation

- Rumors and fiction

- Governments and politicians

- Vested interests

- The media

Lewandowsky et al 2012

The societal costs of misinformation

Examining the Alternative Media Ecosystem Through the Production of Alternative Narratives of Mass Shooting Events on Twitter
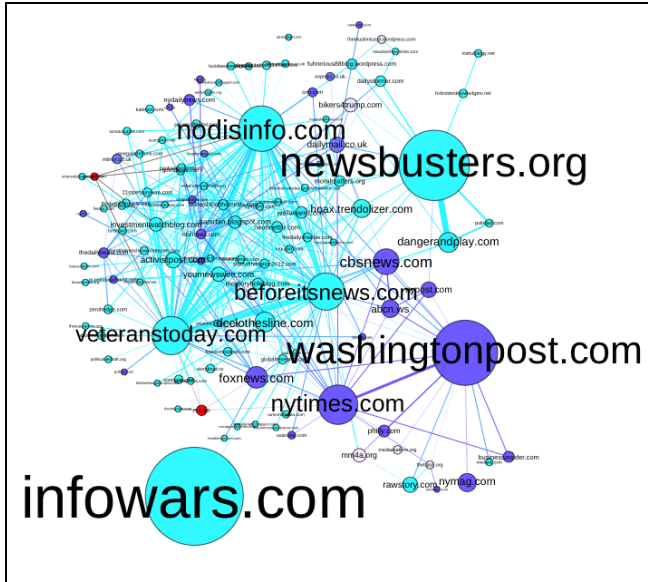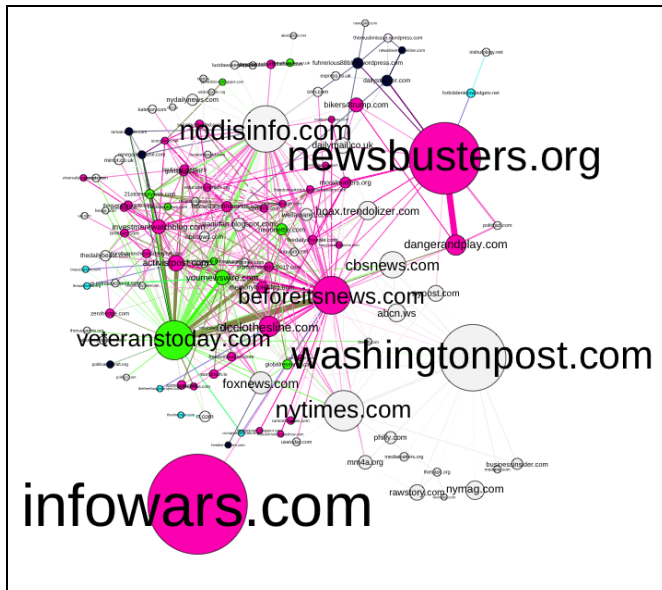
Summary (2)

Leaning	Description
U.S. Alt Right	U.S. focused, anti-mainstream media, pro-Christian, anti-LGBT, anti-feminist, anti-globalist, climate change denying
U.S. Alt Left	U.S. focused, anti-mainstream media, anti-corporatist, critical of police, pro-prison reform, pro-BlackLivesMatter
International Anti-Globalist	Internationally focused, anti-globalist or anti-New World Order/Cabal, anti-corporatist, conspiracy-focused
White Nationalist and/or Anti-Semitic	primarily white-nationalist or anti-Semitic positions
Muslim Defense	primarily challenges mainstream narratives of terrorist attacks by Muslims
Russian Propaganda	primarily supports Russian interests, anti-globalist

Renewed interest

Fake news on Twitter during the 2016 U.S. presidential election

Nir Grinberg[1,2]*, Kenneth Joseph[3]*, Lisa Friedland[1]*,
Briony Swire-Thompson[1,2], David Lazer[1,2]†

The spread of fake news on social media became a public concern in the United States after the 2016 presidential election. We examined exposure to and sharing of fake news by registered voters on Twitter and found that engagement with fake news sources was extremely concentrated. Only 1% of individuals accounted for 80% of fake news source exposures, and 0.1% accounted for nearly 80% of fake news sources shared. Individuals most likely to engage with fake news sources were conservative leaning, older, and highly engaged with political news. A cluster of fake news sources shared overlapping audiences on the extreme right, but for people across the political spectrum, most political news exposure still came from mainstream media outlets.

I n 1925, *Harper's Magazine* published an article titled "Fake news and the public," decrying the ways in which emerging technologies had made it increasingly difficult to separate rumor from fact (*1*). Nearly a century later, fake news has again found its way social media have described its spread within platforms (*5*, *6*) and highlighted the disproportionate role played by automated accounts (*7*), but they have been unable to make inferences about the experiences of ordinary citizens.

Outside of social media, fake news has been

We distinguished among three classes of fake news sources to allow comparisons of different operational definitions of fake news. The three classes correspond to differences in methods of generating lists of sources as well as perceived differences in the sites' likelihoods of publishing misinformation. We labeled as "black" a set of websites taken from preexisting lists of fake news sources constructed by fact-checkers, journalists, and academics (*8*, *9*) who identified sites that published almost exclusively fabricated stories [see supplementary materials (SM) section S.5 for details]. To measure fake news more comprehensively, we labeled additional websites as "red" or "orange" via a manual annotation process of sites identified by Snopes.com as sources of questionable claims. Sites with a red label (e.g., Infowars.com) spread falsehoods that clearly reflected a flawed editorial process, and sites with an orange label represented cases where annotators were less certain that the falsehoods stemmed from a systematically flawed process. There were 171 black, 64 red, and 65 orange fake news sources appearing at least once in our data.

Voters on Twitter

To focus on the experiences of real people on Twitter, we linked a sample of U.S. voter reg-

The spread of true and false news online

Media's Next Challenge: Overcoming the Threat of Fake News

Jim Rutenberg
MEDIATOR   NOV. 6, 2016

The impact of social media "fake news"...

The challenges of bots

Social bots distort the 2016 U.S. Presidential election online discussion

by Alessandro Bessi and Emilio Ferrara

Abstract

Social media have been extensively praised for increasing democratic discussion on social issues related to policy and politics. However, what happens when this powerful communication tools are exploited to manipulate online discussion, to change the public perception of political entities, or even to try affecting the outcome of political elections? In this study we investigated how the presence of social media bots, algorithmically driven entities that on the surface appear as legitimate users, affect political discussion around the 2016 U.S. Presidential election. By leveraging state-of-the-art social bot detection algorithms, we uncovered a large fraction of user population that may not be human, accounting for a significant portion of generated content (about one-fifth of the entire conversation). We inferred political partisanships from hashtag adoption, for both humans and bots, and studied spatio-temporal communication, political support dynamics, and influence mechanisms by discovering the level of network embeddedness of the bots. Our findings suggest that the presence of social media bots can indeed negatively affect democratic political discussion rather than improving it, which in turn can potentially alter public opinion and endanger the integrity of the Presidential election.

Contents

Introduction

Various computational social science studies demonstrated that social media have been extensively used to foster democratic conversation about social and political issues: From the Arab Spring (González-Bailón, et al., 2011; Howard, et al., 2011), to Occupy Wall Street (Conover, et al., 2013a; Conover, et al., 2013b) and many other civil protests (Varol, et al., 2014; González-Bailón, et al., 2013) (Bastos, et al., 2014), Twitter and other social media seemed to play an instrumental role to involve the public in policy and political conversations, by collectively framing the narratives related to particular social issues, and coordinating online and off-line activities. The use of digital media to discuss politics during election times has also been the subject of various studies, covering the last four U.S. Presidential elections (Adamic and Glance, 2005; Diakopoulos and Shamma, 2010; Bekafigo and McBride, 2013; Carlisle and Patton, 2013; DiGrazia, et al., 2013; Wang, et al., 2016), and other countries like Australia (Gibson and McAllister, 2006; Bruns and Burgess, 2011; Burgess and Bruns, 2012), and Norway (Enli and Skogerbø, 2013). Findings that focused on the positive effects of social media such as incrementing voting turnout (Bond, et al., 2012) or exposure to diverse political views (Bakshy, et al., 2015) contributed to the general praise of these platforms as a tool to foster democracy and civil political engagement (Shirky, 2011; Loader and Mercea, 2011; Effing, et al., 2011; Tufekci and Wilson, 2012; Tufekci, 2014; Yang, et al., 2016).

However, as early as 2006, Philip Howard raised concerns regarding the possibility of manipulating public opinion and spreading political misinformation through social media (Howard, 2006). These issues have been later proved true by several studies (Ratkiewicz, et al., 2011a; Ratkiewicz, et al., 2011b) (Metaxas and Mustafaraj, 2012) (El-Khalili, 2013; Ferrara, 2015; Woolley and Howard, 2016; Shorey and Howard, 2016). Of particular concern is the fact social media have been demonstrated effective in influencing individuals (Aral and Walker, 2010). One way to perform such type of manipulation is by using social bots, algorithmically controlled accounts that emulate the activity of human users but operate at much higher pace (e.g., automatically producing content or engaging in social interactions), while successfully keeping their artificial identity undisclosed (Hwang, et al., 2012; Messias, et al., 2013; Ferrara, et al., 2016).

Evidence of the adoption of social media bots to attempt manipulating political communication dates back half a decade: during the 2010 U.S. midterm elections, social bots were employed to support some candidates and smear others, by injecting thousands of tweets pointing to Web sites with fake news (Ratkiewicz, et al., 2011a). The research community reported another similar case around the time of the 2010 Massachusetts special election (Metaxas and Mustafaraj, 2012). Campaigns of this type are sometimes referred to as astroturf or Twitter bombs. Unfortunately, most of the times, it has proven impossible to determine who's behind these types of operations (Kollanyi, et al., 2016; Ferrara, et al., 2016). Governments, organizations, and other entities with sufficient resources, can obtain the technological capabilities to deploy thousands of social bots and use them to their advantage, either to support or to attack particular political figures or candidates. Indeed, it has become increasingly simpler to deploy social bots, so that, in some cases, no coding skills are required to setup accounts that perform simple automated activities: tech blogs often post tutorials and ready-to-go tools for this purposes [1], [2], [3]. Various source codes for sophisticated social media bots can be found online as well, ready to be customized and optimized by the more technical savvy users (Kollanyi, 2016). We inspected several of these readily available bots and this is a (non-comprehensive) list of the capabilities that they provide: Search Twitter for phrases/hashtags/keywords and automatically retweet them; Automatically reply to tweets that meet a certain criteria; automatically follow any users that tweet something with a specific phrase/hashtag/keyword; Automatically follow back any users that have followed the bot; Automatically follow any users that follow a specified user; Automatically add users tweeting about something to public lists; Search Google (and other engines) for articles/news according to specific criteria and post them, or link them in automatic replies to other users; Automatically aggregating public sentiment on certain topics of discussion; Buffer and post tweets automatically. Most of these bots can run in cloud services or infrastructures like Amazon Web Services (AWS) or Heroku, making it more difficult to block them. Finally, a very recent trend is that of providing Bot-As-A-Service (BaaS): companies like RoboLike (https://robolike.com/) provide "Easy-to-use Instagram/Twitter auto bots" performing certain automatic activities for a monthly price. Advanced conversational bots powered by more sophisticated Artificial Intelligences are provided by companies like ChatBots.io that allow anyone to "Add a bot to services like Twitter, Hubot, Facebook, Skype, Twilio, and more" (https://developer.pandorabots.com/).

First Evidence That Social Bots Play a Major Role in Spreading Fake News

Automated accounts are being programmed to spread fake news, according to the first systematic study of the way online misinformation spreads

by Emerging Technology from the arXiv   August 7, 2017

Fake news and the way it spreads on social media is emerging as one of the great threats to modern society. In recent times, fake news has been used to manipulate stock markets, make people choose dangerous health-care options, and manipulate elections, including last year's presidential election in the U.S.

Clearly, there is an urgent need for a way to limit the diffusion of fake news. And that raises an important question: how does fake news

CNBC

Search quotes, news & vi

MARKETS   BUSINESS   INVESTING   TECH   POLITICS   CNBC TV   WATCHLIST   PRO 🔒
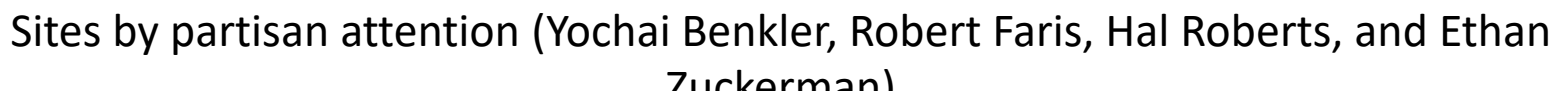
MAKE IT ↗

TECH

Zuckerberg tells Congress Facebook is not a media company: 'I consider us to be a technology company'

PUBLISHED WED, APR 11 2018•10:27 AM EDT | UPDATED WED, APR 11 2018•10:51 AM EDT

Michelle Castillo
@MISHCASTILLO

SHARE f 🐦 in ✉

Sites by partisan attention (Yochai Benkler, Robert Faris, Hal Roberts, and Ethan Zuckerman)

MEDIA 09/27/2017 08:53 pm ET

830

Mark Zuckerberg: 'I Regret' Rejecting Idea That Facebook Fake News Altered Election

He admitted this after Donald Trump claimed that Facebook was "always anti-Trump."

By Carla Herreria

LIVE

JO LING KEN

TODAY

0:01   02:43   CC HD

Facebook CEO Mark Zuckerberg admitted on Wednesday that he was wrong to dismiss the idea that fake news shared on the giant social network affected last year's presidential election.

Zuckerberg's statement came in response to a tweeted attack from President Donald Trump hours earlier. Trump claimed that Facebook was "always anti-Trump" and accused it of colluding with news outlets that the president has deemed to be "fake news."

Facebook targets 'false news' amid growing pressure from advertisers

By Marianna Spring
Specialist disinformation and social media reporter

30 June 2020

What's missing?

Get the whole story
not just a headline.

Images can be faked.

Check what other people say.

scam alert
30 mins

covid-19

FACEBOOK

Facebook's new media literacy campaign will ask users questions about what they see online

Mother Jones

MEDIA | **JANUARY 17, 2021**

Deplatforming Trump Is Already Having a Huge Impact

A new report finds election misinformation online has fallen 73 percent since the president's ban from Twitter.

MADISON PAULY
Reporter
Bio | Follow

Working to Stop Misinformation and False News

We know people want to see accurate information on Facebook – and so do we.

False news is harmful to our community, it makes the world less informed, and it erodes trust. It's not a new phenomenon, and all of us — tech companies, media companies, newsrooms, teachers — have a responsibility to do our part in addressing it. At Facebook, we're working to fight the spread of false news in three key areas:

- **disrupting economic incentives** because most false news is financially motivated;

- **building new products** to curb the spread of false news; and

- **helping people make more informed decisions** when they encounter false news.

Asia

Anti-social network

In Myanmar, Facebook struggles with a deluge of disinformation

Weeks before an election, Burmese social media are awash with fake news and vitriol

So social media sites are starting to label fake news or take down posts. Is this enough? What else can be done to stop the spread of fake news?