

Fighting Falsities – Addressing the Fake News Problem on Social Media

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Abstract—Social Media has changed our society in many ways. A picture, video, or article can become viral within hours and make its way around the world instantly. The viral nature of social media allows propaganda and fake news to propagate across an individual's entire social network well before the truth has time to catch up.

There will always be propaganda, but the nature of social media, where users are shown content that they are likely to click on or share, makes this even more dangerous. Fake news has affected millions around the world, and many of them are not even aware of it.

We envision a product that will be integrated with Facebook and Twitter (as well as other major social networks) to flag content as fake news or propaganda as soon as it is posted, rather than rely on users to report it.

I. THE PROBLEM I'VE NOTICED

I know I am not the only one that has noticed this – the Internet is loaded with fake news all over the place, and no place spreads it faster than social media. Social media uses complex algorithms to show users content that their browsing habits indicate they would click/share.

This allows false stories to reach millions of people, with the intention of pushing a false narrative to disingenuously sway public opinion, well before the truth can reach them.

Often, the truth is lost among the chaos that fake news creates. This affects elections and governments. People voting when they don't have the facts is bad. People voting when they don't have the facts but *think* they do is worse.

We've all read about it in the news and experienced it firsthand. I see it when I make the mistake of going on Facebook; my parents (especially my father) consume it. You see a friend's parent post a wacky link on Facebook and you just think "how the hell...?"

Then you realize that 20 people liked it, and you begin to understand the magnitude of it.

It happens every day, to people of all ages, in all countries. It is a global problem. Bad actors are able to use fake news to mislead the public and to de-legitimize the press, which is meant to keep governments in check.

When the press is weakened, all opposition is weakened, and authoritarian governments are enabled. Turkey and Russia

are two present-day examples of places where this occurred. We cannot allow this to continue to happen.

II. EVIDENCE FOR THIS PROBLEM

Brexit and the election of Donald Trump are two obvious examples of fake news affecting the outcome of an election.

The Washington Post wrote an article about how fake news helped Trump win here: <https://www.washingtonpost.com/news/the-fix/wp/2018/04/03/a-new-study-suggests-fake-news-might-have-won-donald-trump-the-2016-election/>

The Hill wrote a similar article about this as well: <http://thehill.com/policy/cybersecurity/381449-researchers-say-fake-news-had-substantial-impact-on-20>

I believe that there are three main reasons that fake news is so effective:

A. Wide-Reaching With Immediate Results

Content spreads on the Internet very quickly. Facebook and Twitter show users content that they are likely to click on, so as soon as fake news is posted by a page that a user follows they will see it and may even be notified of it.

These posts and advertisements are often targeted towards particular people and/or personalities to make them more believable, which makes them more likely to view it and share it.

It can reach hundreds of friends/followers in one's social network very quickly. Each person that shares it is introducing hundreds of new people to it. As it propagates across the entire spectrum of social media it only spreads faster.

See NBC's article about lies spreading faster than the truth here: <https://www.nbcnews.com/health/health-news/fake-news-lies-spread-faster-social-media-truth-does-n854896>

B. Confirmation Bias

The people that are most likely to believe fake news believe it because it lines up with their own beliefs. This is called confirmation bias, where an individual is likelier to believe something if they agree with the narrative behind it.

For example, if I believe that Hillary Clinton is a Satanist witch, and I see an article about her leading a pedophilia ring, I might be inclined to believe it. Also, the issue of groupthink arises: if 20 people like a post, that gives it legitimacy. As more people view or share a fake news post, it becomes more and more of a threat.

See USA Today's article about this: <https://usatoday.com/story/money/columnist/2018/05/15/fake-news-social-media->

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David Mednikov is with the Big Baller Brand. Like Lonzo Ball he attended UCLA and unlike Lonzo Ball he graduated from there.

confirmation-bias-echo-chambers/533857002/

C. Profitability

Fake news generates a lot of money. Advertising online is a huge business, so ad publishers make money, ads sold on fake news sites make money, clicking a link makes money, etc.

Fake news relies on individuals too. Fake news authors and propagandists are paid decent compensation since they often work on behalf of governments or wealthy organizations. As long as people need to eat they will be willing to set their ethics aside to get paid.

Despite that being done at a lower level, the higher levels of this industry (such as the company *Cambridge Analytica*) are dealing with many millions of dollars.

See this article BBC wrote on the profitability of fake news: <https://www.bbc.com/news/av/business-38919403/how-do-fake-news-sites-make-money>

AdPerfect, a service offering advertising solutions for newspapers and publishers, also wrote an article on this: <https://www.bbc.com/news/av/business-38919403/how-do-fake-news-sites-make-money>

III. FAKE NEWS IN REAL-TIME

Facebook knows your browsing habits. They show you a post that they think you'll click. It links to a story with a powerful image and a message that resonates with your belief.

You share it with your social network, hoping other people can see what you did and get the feeling you felt. Only there's one problem. The image is 4 years old and from something unrelated. The story is made up, and any reported statistics are just as fake.

You just shared fake news, and before someone could tell you it's fake, 5 people already viewed it. Some of them shared it to their social network. The lie spreads everywhere before the truth catches up to those that are willing to listen to it.

IV. HOW SOFTWARE WILL ADDRESS THIS PROBLEM

For this software system to work, it would need to be widely adopted by the two major social media platforms where content is shared: Facebook and Twitter.

The product would require an elaborate algorithm that would anonymously track thousands of social media accounts, comment sections, and other sources that are associated with fake news. Similar to [Hamilton 68](#), it would analyze these for trends, common phrases, linked articles, etc.

What websites are being linked to? What hashtags and word combinations are being clicked and shared? What region are these posts originating from? What time of day are they peaking at? Are they using a proxy server?

By keeping track of data such as this, we can create a model for what looks like fake news and what doesn't. By combining several sources into one algorithm, we can provide a more complete picture than Facebook and Twitter currently provide.

These sites currently flag news that other users have reported to be fake, but that is not as effective as real-time flagging, considering how fast the lies can spread.

A user's news feed would look mostly the same, but posts that are found to be fake will be visibly flagged to the user.

There will be a warning that shows some details about the source of the fake news without revealing identifying information, so that the source can continue to be monitored without being compromised.

Users that share content that is fake will be notified and flagged as well. Facebook and Twitter will need to have some sort of policy to address accounts that knowingly or repeatedly share fake news.

In order to operate this service we will need to maintain a large database with entities for articles, topics, accounts, websites, hashtag trends, phrases, account aliases, users, etc.

V. WHAT MAKES IT EFFECTIVE

Instead of relying on users to flag news as fake, it will be analyzed and flagged using artificial intelligence. This way we can be one step ahead of the fake news providers, and we can get past the issue of the social media echo chamber, where false stories do not get flagged for several reasons.

Currently, if I share a fake story on Facebook and everyone that sees it has similar opinions to mine, it could easily pass as real, since no one in my network would recognize it as fake, or at least call me out for it. Using artificial intelligence can help alleviate this problem, so that the first person to see it after I post it already sees that it's likely fake.

VI. THREE FEATURES

- 1) *Clear Picture of Current Prevalent Trends in Fake News*
Users should be able to get a clear picture of what popular trends/words/phrases are being tossed around by fake news sites and accounts, as well as what websites they are linking to and what articles/photos they are sharing.
- 2) *Immediate Analysis and Flagging*
Newly-posted content should be analyzed in real-time so that our system will know if it is fake as soon as it is posted. That way the first user to see it will already be notified that it may be fake.
- 3) *Fake News Penalties*
Facebook and Twitter will financially penalize verified users that are flagged for repeated violations of the fake news policy. By taking away the financial incentive, or adding a financial liability to the equation, the root of the problem is easier to address. Non-verified users will have their accounts suspended for repeated offenses. If financial penalties do not deter verified accounts, their accounts will be suspended as well.

VII. HOW THIS WILL HELP THE WORLD

The effectiveness of fake news on huge social networks such as Facebook and Twitter would decrease significantly if the fire could be put out before it was started.

This product would make it easier and faster to flag fake news before it gets spread around disguised as the truth. Users would be more aware of the information they're seeing and sharing, and purveyors of fake news would be punished.

The world is more peaceful when its leaders are not authoritarians that lie to their own people. Stopping their manipulation of public opinion through social media is a good step.