

Social Media Fake News: A Review of Case Studies and Psychology

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Abstract— As the amount of digital consumption people intake has increased, so has the fake news problem. Much of news has turned from magazines and newspapers to online news sites. Unreliable sources online emerge among official news sites and produce fake news. With bots and fooled people, fake news is spread extremely fast on social media. There are many reasons in psychology that explain and provide reasons behind how people believe fake news and spread it on social media. Understanding this can cause us to be able to slow the spread of fake news as well as the amount of fake news believed by people. Detecting fake news is beneficial to stopping fake news spread, as less people will be fooled by fake news and unreliable sources. There have been many detection approaches developed over the years to combat fake news on news sites and social media. The purpose of this review is to analyze the psychology behind fake news spread on social media and detection research of fake news on social media and from official news outlets.

Keywords— case study, detection, fake news, psychology, social media

I. INTRODUCTION

Fake news is false or inaccurate information that may be distributed with the intent to deceive those who read it. In fake news, there is misinformation and disinformation. Misinformation is false information that is spread regardless of an intent to mislead, while disinformation has intent to mislead. There are many types of fake news.

Types of fake news: [1]

1. Satire/parody
2. False connection
3. Misleading content
4. False context
5. Imposter content
6. Manipulated content
7. Fabricated content

Each type of fake news has a different purpose and usage. Satire and parody have no intention to harm but have potential to fool. Misleading content is the deceptive use of information to frame an issue

or individual. Imposter content is when genuine credible sources are impersonated to make people more likely to believe the information. A form of imposter content is when fake news websites utilize a variation of a credible source website name. [2] An example of this is when PolitiFact made a website called politicono.com as a parody website to show how imposter websites can trick people. [3] False connection is when headlines, visuals, or captions don't support the content. False context is when genuine content is shared with false contextual information. Fabricated content is when new content is false and designed to harm and deceive. Manipulated content is when genuine information and imagery is exploited to deceive.

FIRSTDRAFT		MISINFORMATION MATRIX						
		SATIRE OR PARODY	FALSE CONNECTION	MISLEADING CONTENT	FALSE CONTEXT	IMPOSTER CONTENT	MANIPULATED CONTENT	FABRICATED CONTENT
POOR JOURNALISM								
TO PARODY	✓							
TO PROVOKE OR TO 'PUNK'								
PASSION								
PARTISANSHIP								
PROFIT								
POLITICAL INFLUENCE								
PROPAGANDA								

Fig. 1 Intentions and categories of fake news [1]

Official online news sources and news on social media have become more popular through the years. In a case study which surveyed 215 residents in Victoria to find how vulnerable groups accessed emergency-related news, it was found that 73% of respondents used social media for their emergency-related news. Additionally, 40% believed that social media could be more accurate than official sources. [4]

According to NewsGuard, from 2019 to 2020, engagement with the top 100 news sources increased from 8.6 billion reactions to 16.3 billion reactions. [5] Within these official news sources, there can be biased information. Each news source has different levels of partisan bias which show how credible the information they spread may be. [6]

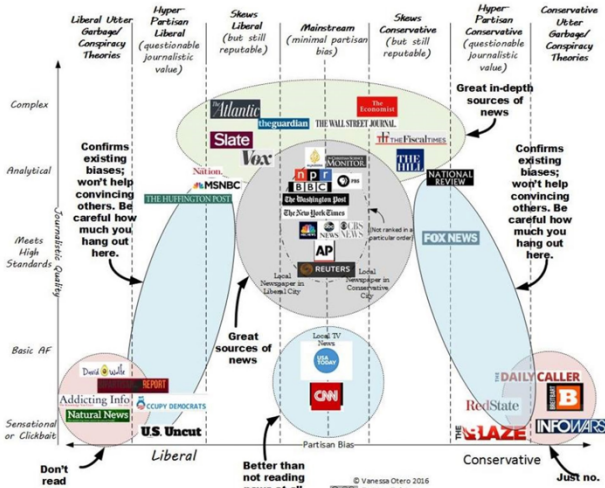
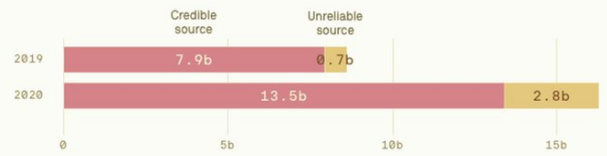


Fig. 2 Official news outlets and their credibility and bias [6]

The growth of online news on social media also causes spread of fake news and rise of unreliable sources. Unreliable sources online have been getting 9% more interactions from 2019 to 2020 [5].

Fake news in official news sites and social media spreads fast, especially in tense times such as election and pandemic years. It can be very harmful as it causes people to believe false information and can cause them to do unreasonable actions. People have less time to check news, so they use social media. When social media fake news articles are being shared by verified people accounts, people tend to believe it. Credible big name news agencies like CNN say that their influence is diminishing [7] as people start to turn to social media and other places for their news. On social media, unreliable sources exist and continue to expand.

Social media interactions by source credibility



Data: NewsGuard; Chart: Sara Wise/Axiom

Fig. 3 Social media interactions by source credibility in 2019 and 2020. Interactions on unreliable sources grow in a faster rate than the growth of social media interactions [7]

Fake news spreads especially fast on social media. This is largely because social media algorithms are mostly biased toward outrage and tend to push content that people have an emotional reaction to and therefore are likely to engage with. Furthermore, a 2018 study by MIT Sloan professor Sinan Aral and Deb Roy and Soroush Vosoughi of the MIT Media Lab found that falsehoods are 70% more likely to be tweeted than the truth. [8] People tend to be drawn to information that seems unusual, and fake news is often different and unusual.

In this review, we analyze the psychology of fake news on social media and fake news detection research in social media and on official news outlets.

II. METHODOLOGY

The question we asked for our analysis was “How does fake news spread on social media involving psychology and case studies, and what detection approaches have been developed?”. We used the keywords “fake news”, “fake news psychology”, “social media fake news”, “fake news detection”, and “fake news case studies” to find sources. The sources are from 2016 to 2021.

TABLE 1
THE YEAR DISTRIBUTION OF THE PAPERS REFERENCED BY THIS
REVIEW PAPER

Year	Amount
2016	5
2017	6
2018	4
2019	2
2020	7
2021	10

Amount vs. Year

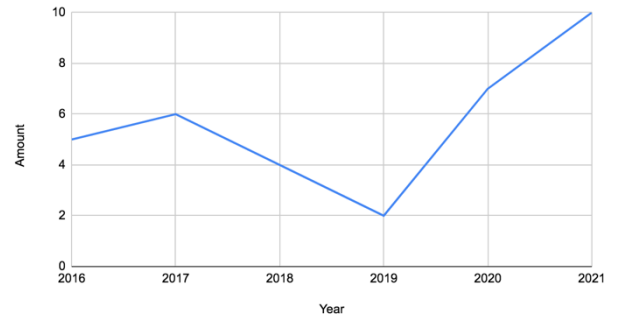


Fig. 4 Visual presentation of the year distribution of the reference papers

III. RELATED WORK

TABLE 2
SUMMARY OF THE RELATED RESEARCH WORK ON FAKE NEWS: APPROACHES AND RESULTS

Name	Year	Paper type	Summary	Results	Platform
The current state of fake news: challenges and opportunities [9]	2017	Research	Explained 2 opposite approaches, human intervention and using algorithms, and proposed an algorithm solution.	Analyzed an algorithm and talked about the advantages and disadvantages of it.	Websites
Detecting Fake News in Social Media Networks [10]	2018	Research	Aimed to create a solution that could detect and filter out sites with fake news. They proposed a tool that would analyze wording in titles and factors of websites to filter out sites with fake news. They collected URLs and extracted features from webpages and used attributes like containing question or exclamation marks.	Demonstrated good results and planned to expand the approach using R.	Websites
TI-CNN: Convolutional Neural Networks for Fake News Detection [11]	2018	Research	Used a dataset with data from more than 20,015 news and 240 websites. The real news is from official news websites like the New York Times and Washington Post. Their dataset was focused on the 2016 election. They used word frequency, amount of capital letters, and the amount of detail in description to analyze the text. They also analyzed properties of images in fake news.	Proposed a Text and Image information based Convolutional Neural Network model to detect fake news from websites.	Websites
Fake news outbreak 2021: Can we stop the viral spread? [12]	2021	Review	They analyzed methods used in fake news detection. They analyzed twitter accounts as human or bot and gender of human accounts. *contains chart of fact-checking research papers	They analyzed fake news detection methods and identification of user accounts on Twitter.	Twitter
The Psychology of Fake News [13]	2021	Review	The paper focused on online news articles misleading content.	For results, they provided explanations for why fake	Websites

			They analyze the psychology behind why people may fall for fake news and talks about current approaches in fighting it.	news spreads like it does with psychology.	
Systematic Literature Review on the Spread of Health-related Misinformation on Social Media [14]	2019	Review	They extracted data from 57 studies. They analyzed the key features of the studies. They divided the topics into 3 sections, vaccine and communicable disease, chronic noncommunicable disease, and others. Most studies used content analysis, 7 used experimental designs, and some used survey instruments. *they include an appendix table with characteristics of included studies	They found that literature is dominated by vaccine and infectious disease. They say that they need to characterise the scale and nature of the phenomenon better for next steps.	Social media (twitter, facebook, websites, etc.)
COVID-19-related Fake News in Social Media [15]	2020	Research	The study analyzed details of fake news. The study found that health-related fake news was 67.2% of all fake news. The two main sources of fake news are online media and mainstream media, and online-produced fake news is 94.4%. 63.2% of the COVID-19-related fake news has negative intentions.	Their study has a focus on Indian social media fake news related to COVID-19 and analyzes both digital and analog data. After the data collection, it was seen that fake news is more prevalent on four social media platforms: Facebook, WhatsApp, Twitter, and YouTube. The result shows that social media produces N=125 COVID-19-related fake news in a span of 84 days, from 29 January to 11 April 2020.	Facebook, WhatsApp, Twitter, and YouTube

IV. SIGNIFICANCE AND NEGATIVE IMPACT

Fake news on social media and from official news outlets is a big issue. Fake news is not only distracting, but it can be harmful. Nowadays, people have less time to check news, so they use social media to get updated on information. When social media fake news articles are being shared by verified people accounts, people tend to believe it.

Conspiracy theories [16], theories asserting that a secret of great importance is being kept from the public [17], can get around quickly with fake news because they fit narratives that people want to believe. In 2018, it was found that there were more than 6.6 million tweets linking to fake and conspiracy news publishers in the month before the 2016 election. [18]

Fake news spreads especially fast in times like the elections and pandemic. This is because of information overload [19]. People have limited capacity to pay attention, and consequently most people click only on the top 3 links shown when searching an event. Additionally, bots interact with

websites fast and can cause unreliable news sources to be boosted. Machine learning models estimate that 63 percent of a random sample of all accounts are bots or automated accounts [18]. When information load is lower, the quality of shared information is higher. Researchers at Indiana University Bloomington simulated the limited capacity to pay attention with memes.

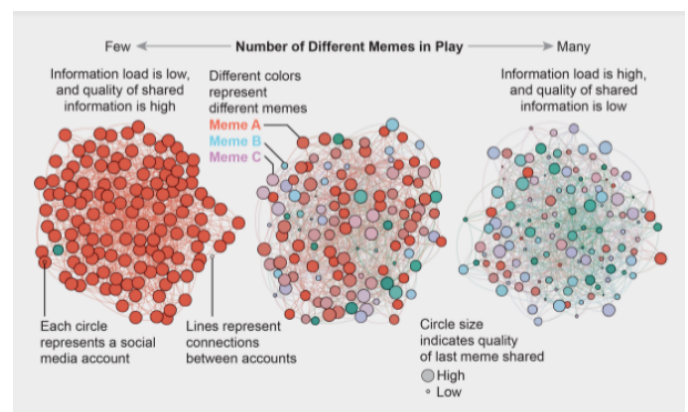


Fig. 5 How memes influence information overload and quality of information. Each node in the network is a social media user. Memes infiltrate the connections between the accounts, reducing the quality of information shared. [19]

When people hear a variety of different opposing information about a situation, they prefer information from people they trust or information that agrees with their biases. Search engines and social media platforms continuously provide users information that they are more likely to agree with, which causes polarization. Bots and automated accounts that impersonate human users are created to manipulate as well. When bot infiltration is low, the overall quality of shared information is high. Researchers at Indiana University Bloomington simulated bots included in the social network.

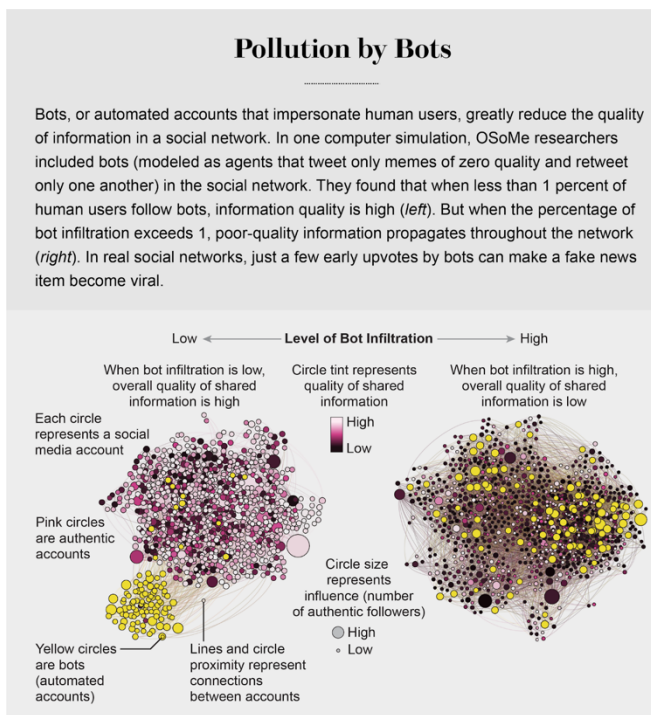


Fig. 6 How bot infiltration in social media networks causes the quality of shared information to decrease. Bots disrupt connections between authentic accounts. [19]

COVID-19 and the chaos in the beginning of lockdown in 2020 is an example of the results of information overload. It is also an example of how fake news is significant and harmful because misinformation about the vaccine, masks, and legitimacy of the virus can cause people to die. Misinformation that masks were harmful to peoples' lungs spread fast on social media. [20] People spread this fake news quickly on social media and this was harmful to people's health, as people who believed it would have not worn masks and been more exposed to the coronavirus.

In politics, fake news is a threat to American democracy. One case study is the Cambridge Analytica issue. [21] Cambridge Analytica was a company that specialized in using data from social media to build psychological profiles about social media users in various countries. It acquired data for 87 million Facebook users without the users' knowledge or consent. With this data of a person's likes, they were able to predict people's political preferences and issue interests. Political campaign operatives coordinated by Donald Trump's chief strategist, Steve Bannon, used this information to target political advertisements and memes on Facebook that mainly focused on discrediting Hillary Clinton's presidential campaign and influencing Americans on a number of pro-Trump issues. These messages were often inflammatory, sensationalistic, sometimes violent, and false. They exploited data that many Americans never agreed to share with advertisers. This is an important issue because it jeopardizes Americans' privacy by using data without users' consent and spreads false information.

There is another case study where social media was used to spread fake news for political benefit. During and after the 2016 election, Russia's internet research agency created social media accounts to spread fake news that stirred protests and favored presidential candidate Donald Trump while discrediting candidate Hillary Clinton and her associates. [21] They paid Facebook for advertisements that appeared on that site to spread fake news and cause conflict between Americans. The ads focused on controversial social issues such as race, the Black Lives Matter movement, the 2nd Amendment, immigration, and other issues. The Russian agents would instigate protests and counter protests about these issues, and cause Americans to show up to events and fight each other. This was harmful as it caused unnecessary conflict and false news to be spread during a time that people were already very tense and worried.

Fake news politics has gone beyond just being on social media. In a widely known case study, "Pizzagate", a man with a semi-automatic rifle walked into a regular Washington, DC pizza joint and fired shots. The man, Welch [22], was

convinced that the pizzeria contained a hidden pedophilia trafficking ring led by Hillary Clinton and her presidential campaign. He got this information from a lie created by alt-right communities. Fake news websites promoted the lie by citing specific locations such as the pizzeria, and it was then tweeted further by people in the Czech Republic, Cyprus, and Vietnam, as well as many bots, getting the story much additional attention. Political fake news influenced a man to fire shots inside this restaurant, nearly killing innocent people. The spread of information that was knowingly false to the creators had potentially deadly consequences, showing how important and urgent it is to slow the fake news spread and amount. Partisan polarization also drives the spread of fake news on Twitter, which further escalates the problem. [23]

Fake news is used to cause conflict in society, and there have been many situations where that has been shown. Fake news is used by governments as propaganda and to calm down citizens. During the 2016 election, fake news was more prevalent on social media than genuine news. Over 62% of Americans receive their news from social media, which causes them to be very easily influenced by false news. Over the years, the amount of fake news and digital consumption people intake has only increased. While motivations for using fake news may vary, fake news in politics consistently undermines citizens' ability to genuinely participate in the governance of their country and make important decisions regarding the fate of their nation.

V. PSYCHOLOGY ASPECTS

There is psychology behind how people believe and spread fake news. People tend to use mental shortcuts and heuristics when judging news headlines, and familiarity is one key route to intuitive belief. [13] This causes miscommunication between the reader and the author, which causes people to share information that wasn't intended to be perceived the way the sharer did. Additionally, there can be political motivation behind how people believe fake news, as people are more likely to believe news that agrees with their political partisanship. People are likely to believe news that

aligns with their beliefs and news that is about topics they are familiar with.

Fake news is made to evoke strong emotion in the reader. People who report experiencing more emotion are more likely to believe false over true news, and instructing people to rely on emotion increases belief in false but not true headlines.

Anonymity is an element that counts into enabling bad behavior and facilitating uncivil discourse in shared online spaces. There are users who spread information while knowing it is false. This could be minimized if there was less anonymity on the internet. Allowing users to remain anonymous on the internet can cause users to spread false information with malicious intent that they would be less likely to spread if their identity was known.

Spreading fake news is also sometimes due to people's partisan beliefs. The goal-oriented polarization theory focuses on partisanship as a key driver of fake news sharing. [24] In general, partisans seem to share information from ideologically similar sources and to treat articles shared by political opponents with greater suspicion, suggesting that considerations about the political usefulness of information matter.

The source is an important factor in evaluating news. People are more likely to believe information provided by people whom they view as being credible. Furthermore, social feedback provided by social media platforms also increases belief in news content, which especially causes misinformation to be believed and spread more. Fake news is spread on social media fast. However, social media sharing judgements can be quite far from judgements of accuracy, and people may be willing to share information they think may be inaccurate.

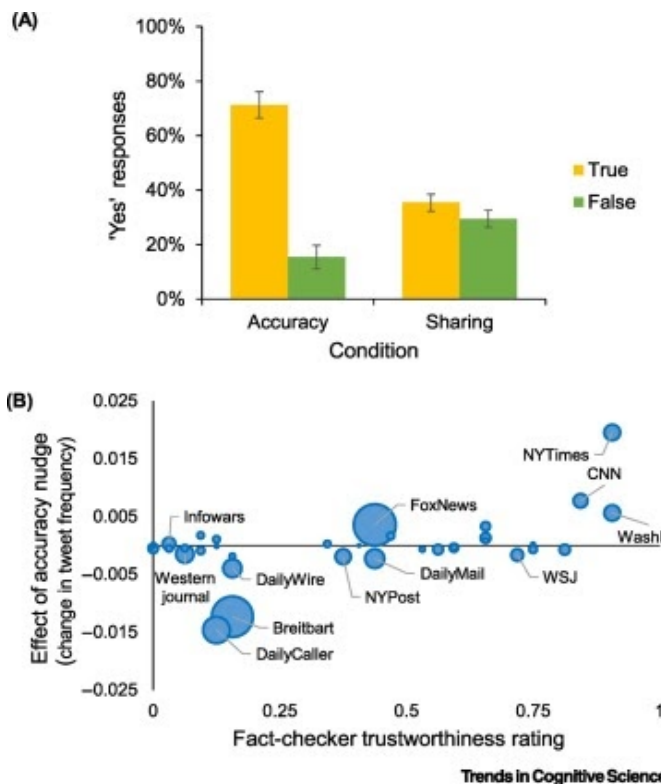


Fig 7 The percentage of yes responses of 1002 people asked whether they believed an official news headline was accurate, and whether they would share them.

Social herding is a factor that causes fake news to spread fast with information overload. [19] People tend to observe others and make decisions based on what other people do. In a 2006 study involving 14,000 Web-based volunteers, Matthew Salganik from Columbia University and his colleagues found that when people can see what music others are downloading, they end up downloading similar songs. When people were isolated into groups where they could see the preferences of others in their circle but had no information about outsiders, the choices of the people rapidly changed. However, the preferences of the groups where no one knew about others' choices stayed relatively stable. This shows that social groups create a pressure toward conformity that causes people to change from their individual preferences. By amplifying random early differences, it can cause separated groups to diverge to extremes.

An example case study of how social herding worked in real life is when in 2016, during the tense election year, a person named Marco Chancon made up a story that Clinton claimed Bernie

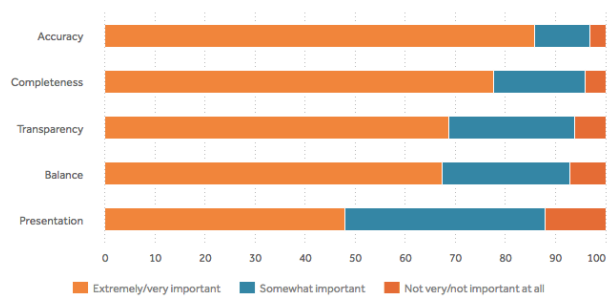
Sanders supporters were a “bucket of losers” in a speech. [25] Chancon had posted his story on his fake news website and was not expecting many people to believe it. However, the story blew up, and Fox News even picked up on the story. Chancon had not expected his fake story to spread so fast. This shows how fast fake news can spread even when the creator did not intend for it to be regarded as credible news, and how people can believe things just because others did as well. In this situation, many people who wanted to believe this story even without evidence spread it because it supported their wants and because it was blowing up.

This social bias is further amplified by what psychologists call the “mere exposure” effect. The “mere exposure” effect is that when people are repeatedly exposed to the same stimuli, such as certain faces, they grow to like those stimuli more than those they have encountered less often. Social media also follows this effect, as people tend to like things they are more familiar with.

People confuse popularity with quality. They believe things that have gone viral must be important, because so many people are talking about it. This causes fake news that has been spread by many people to be believed more and consequently spread more, causing a cycle.

It is important to understand what factors the public cares about in deciding whether digital news is trustworthy. In a survey, Americans rate accuracy as the most important general principle related to trust. [26] 85 percent describe getting the facts right as an extremely or very important factor of a trustworthy source. Completeness, providing all the important news and information, is very important to 77 percent. 68 percent say transparency, the idea that news organizations explain the way they gather and report the news, is very important. 66 percent believe balance, reporting that provides different views, as a key factor of trustworthy sources. Nearly 50 percent believe presentation, having a high quality and professional appearance, is a very important factor for trustworthiness.

Accuracy and completeness are the most important principles of trust in a news source



Data Source: Question: Thinking about the sources you consider trustworthy, how important is each of the following factors?
MEDIA INSIGHT PROJECT
Fig 8 A study showed the percentages of people who believe accuracy, completeness, transparency, balance, and presentation are important for trust in digital news sources. [26]

Although people have views on what principles are important, they believe that factors such as where an unfolding story stands and how much time there has been for reporting change what is important for trustworthiness.

In 2016, the Pew Research Center gave a survey to 1,002 U.S. adults. [27] In the survey, it was revealed that most U.S. adults believe that fake news is having an impact.

Majority say fake news has left Americans confused about basic facts

% of U.S. adults who say completely made-up news has caused ____ about the basic facts of current events



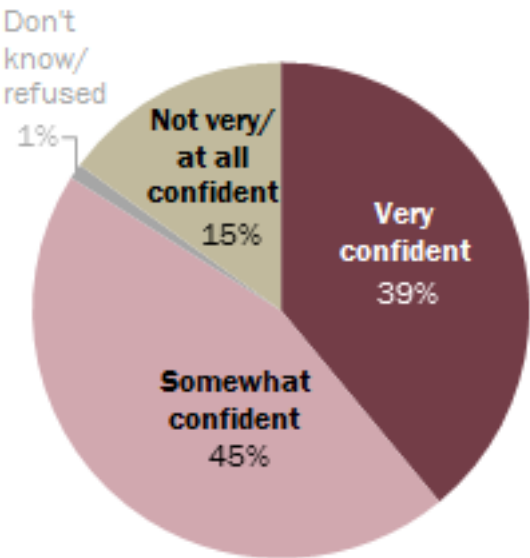
Source: Survey conducted Dec. 1-4, 2016.
"Many Americans Believe Fake News Is Sowing Confusion"
PEW RESEARCH CENTER

Fig. 9 A 2016 survey from the Pew Research Center of 1,002 U.S. adults showed the percentage of adults in the United States who feel confused about basic facts because of fake news, and the extent to which they are confused. [27]

Despite fake news being able to trick many people and Americans see fake news as confusing, Americans are fairly confident in their own ability to detect fake news, with about 39% feeling very confident that they can recognize news that is fabricated and another 45% feeling somewhat confident.

Majority are confident in their ability to recognize fake news

% of U.S. adults who are ____ in their ability to recognize made-up news



Source: Survey conducted Dec. 1-4, 2016.
"Many Americans Believe Fake News Is Sowing Confusion"

PEW RESEARCH CENTER

Fig. 10 A 2016 survey from the Pew Research Center of 1,002 U.S. adults showed the percentage of adults in the United States who are confident in their ability to recognize fake news, and the extent to which they are confident. [27]

Despite being confident in recognizing fake news, 23% of Americans say that they have shared a made-up news story. 14% said they shared a story they knew was fake at the time and 16% said they shared a story they later realized was fake.

About one in four report sharing fabricated news – whether aware at the time or not

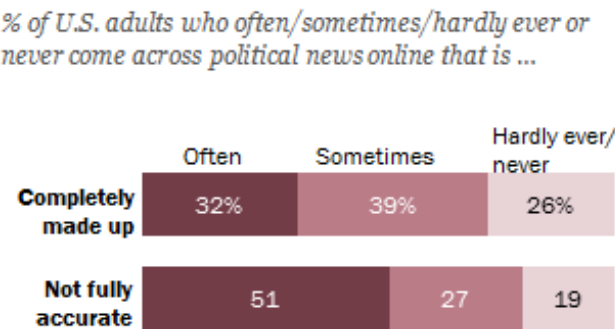


Source: Survey conducted Dec. 1-4, 2016.
"Many Americans Believe Fake News Is Sowing Confusion"
PEW RESEARCH CENTER

Fig. 11 A 2016 survey from the Pew Research Center of 1,002 U.S. adults showed the percentage of adults in the United States who shared a fabricated political news story online that they knew was made up and didn't know was made up, and the percentage of adults in the U.S. that did both. [27]

Overall, 32% of Americans say they often see political news stories online that are made up. This shows how impactful fake news is, especially in politics.

About a third say they often see made-up political news online; 51% say they see inaccurate news



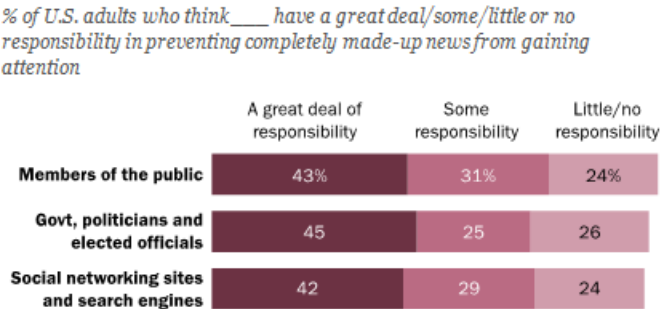
Source: Survey conducted Dec. 1-4, 2016.
"Many Americans Believe Fake News Is Sowing Confusion"
PEW RESEARCH CENTER

Fig. 12 A 2016 survey from the Pew Research Center of 1,002 U.S. adults showed the percentage of adults in the United States who see completely made up political news and not fully accurate political news. [27]

It has been a debate on who should be responsible for combating fake news. Many Americans expect social networking sites, politicians and the public itself to help in preventing the spread of fake news. 45% of U.S. adults say government, politicians and

elected officials bear a great deal of responsibility for preventing made-up stories from gaining attention, 43% say this of the public and 42% say this of social networking sites and search engines.

Public, politicians, social media all receive share of responsibility for stopping spread of fake news



Source: Survey conducted Dec. 1-4, 2016.
"Many Americans Believe Fake News Is Sowing Confusion"
PEW RESEARCH CENTER

Fig. 13 A 2016 survey from the Pew Research Center of 1,002 U.S. adults showed the percentage of adults in the United States who believe members of the public, government officials, or social networking sites should have responsibility to stop the spread of fake news. [27]

VI. DETECTION APPROACHES AND SOLUTIONS

There have been many past studies done for fake news detection that have had high accuracy, using both news websites as well as social media.

In 2018, a downloadable tool that could filter out fake news sites [10] was created. They identified distinguishing qualities about fake news sites compared to legitimate official news sites. They used wording in titles and analyzed the length and punctuation. When making their tool, they collected URLs and extracted features from webpages. The tool created would highlight fake news websites to show the user.

In 2018, a Text and Image information based Convolutional Neural Network model [11] was developed. The dataset, focused on the 2016 election, contained data from more than 240 websites and the real news they used was from official news websites like the New York Times and Washington Post. They use word frequency, amount of capital letters, and the amount of detail in description to analyze the text. They also analyzed properties of images in fake news. Their

experimental results show that the TI-CNN can successfully identify fake news.

In 2014, TweetCred [12], a real time web-based system, was developed to evaluate the credibility of tweets on Twitter. It assigns a credibility score to each tweet on a user time line rating from 1 (low credibility) to 7 (high credibility). The credibility score is then computed using a semi-supervised ranking algorithm trained on a data set consisting of an extensive set of features manually labelled. They performed an evaluation on TweetCred based on its usability, effectiveness, and response time. An 80 percent credibility score was calculated and displayed within 6 seconds. Additionally, 63

percent of users either agreed or disagreed with the generated score by 1–2 points.

In 2017, models RNN and CNN for fake news detection [12] were developed. The experiments were performed on two real-world data sets based on Weibo and Twitter. They addressed the limitation of low accuracy of early fake news detection by classifying news propagation paths as a multivariate time series. The proposed model detected fake news within 5 min of its spread.

The following table shows the research advancements in the past few years in fake news detection.

Table 3/The table talks about previously done detection methods and details of them.

TABLE 3
SUMMARY OF THE RELATED RESEARCH WORK ON FAKE NEWS DETECTION: METHODS AND RESULTS

Detection Method	Year	More information	Result	Platform
A downloadable tool that could filter out fake news sites	2018	They used the wording in titles because clickbait titles tend to have longer words than non clickbait titles. One key characteristic of clickbaits is that they tend to lead readers to web pages containing information that is very different or hardly related to the information highlighted by the link. The approach would examine factors of the website. To do the approach they collected URLs and extracted features from webpages and used attributes like containing question or exclamation marks.	The tool created would highlight fake news websites to show the user. They had good results with many classifying methods, especially Logistic and RandomTree, and plan to expand their approach using R.	websites
Text and Image information based Convolutional Neural Network model	2018	They used a dataset with data from more than 240 websites and the real news is from official news websites like the New York Times and Washington Post. Dataset was focused on the 2016 election. They use word frequency, amount of capital letters, and the amount of detail in description to analyze the text. They also analyzed properties of images in fake news.	They created a text and image information based convolutional neural network model which has strong expandability, which can easily absorb other features of news. Their experimental results show that the TI-CNN can successfully identify fake news.	websites
TweetCred	2014	It assigns a credibility score to each tweet on a user time line rating from 1 (low credibility) to 7 (high credibility). The credibility score is then computed using a semi-supervised ranking algorithm trained on a data set consisting of an extensive set of features and manually labelled by humans.	There was a 80% credibility score of TweetCred.	twitter
RNN and CNN for fake news detection	2017	They used the data network features and introduced a popular network model for the early detection of fake news. They addressed the limitation of low accuracy of early fake news detection by classifying news propagation paths as a multivariate time series.	The proposed model detected fake news within 5 min of its spread.	weibo and twitter

		They used characteristics of each user involved in spreading news. They built a time series classifier by combining CNN and RNN. The experiments were performed on two real-world data sets based on Weibo and Twitter.		
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Fake news is a significant issue which will continue becoming more impactful. However, there are useful methods to combat fake news that have been developed over the years.

One method is attaching warnings to posts that may be false. OSoMe produced a tool [19] to help people understand their own vulnerabilities as well as the weaknesses of social media platforms. The tool is a mobile app called Fakey that helps users learn how to spot misinformation. The game simulates a social media news feed, showing actual articles from low and high credibility sources. Users must decide what they can or should not share and what to fact-check. After users make a choice, they are shown whether the news was from an unreliable or reliable source. Using this tool to allow people to learn how to identify fake news and misinformation through practice. It will cause less people to be tricked by it as they can learn characteristics of fake and credible news while playing the game. According to Statista [28] , the amount of confidence people have in being able to notice fake news has decreased from 2016 to 2019. The tool would help people practice identifying fake news so they can be more confident.

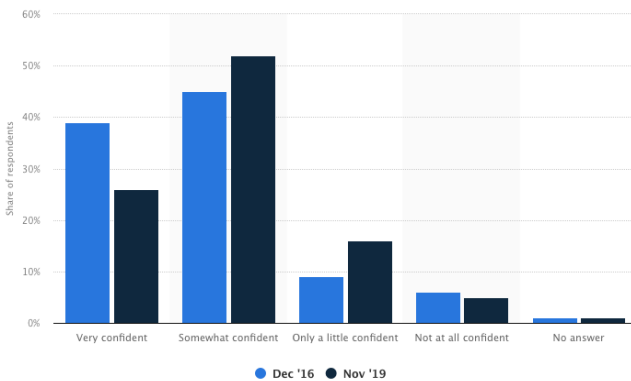


Fig. 14 The amount of confidence people have to notice fake news has decreased from 2016 to 2019. [28]

Another method to combat fake news is using human intervention or algorithms to combat fake news. In November 2016, Facebook reported having a Fake news task team working on the issue. Facebook is shown to be the main leading social media for news among U.S. consumers. [29]

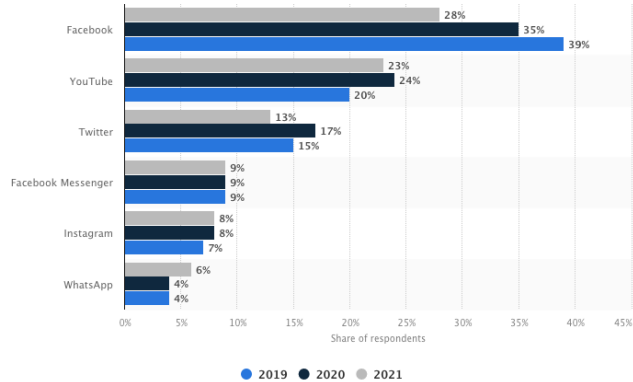


Fig. 15 The top social medias used by U.S. consumers in 2019, 2020, and 2021. Facebook is shown to be the leading social media. [29]

Through their official channels, Facebook promised to reprioritize fake news on its pages, saying one of their news feed values is “authentic communication” and that it's acting to prevent posts that are “misleading, sensational or spammy”. Pages that have been posting fake news have been studied by Facebook's experts and were expected to be seen less frequently in news feeds. In a study, researchers found that Facebook engagements fell from about 160 million a month in late 2016 to about 60 million a month in mid-2018, showing that Facebook had worked to improve the problem. [30]

One case study done for fake news containment shows that strong action against uncredible outlets can reduce their audience. [18] The Real Strategy was referenced by more than 700,000 tweets in their election sample, the second-most linked fake or conspiracy news outlet overall. After being tied to a large-scale harassment campaign and Pizzagate, The Real Strategy’s audience diminished. Their Twitter account was deleted, it was blacklisted on

online forums such as Reddit, and a network of supportive bot accounts was partially disrupted. The postelection sample showed only 1,534 tweets to The Real Strategy, which was a drop of 99.8%, proving that action against fake news outlets has positive results.

Additionally, websites like Forbes have provided lists of credible news outlets that have fired journalists for ethics violations. [31] People can use these lists to understand sources to trust to get credible news, so they can be less likely to be fooled by uncredible sources.

VII. CONCLUSION AND FUTURE WORK

Fake news is significant. There is psychology behind fake news, and the problem of fake news is a useful testing ground for theories in psychology. There are many useful detection approaches for fake news. It is beneficial to implement fake news detectors so that less people are fooled by fake news on social media and on official news sites.

Fake news is a big problem, and digital consumption of news will only continue to increase. Polina Kolozaridi, a researcher at the Higher School of Economics, Moscow, said, "Online interaction will become less in written form, even less than now." The Pew Research Center and Elon University's Imagining the Internet Center conducted a survey with 1,537 in 2016 to predict future impacts of online social interaction. [32] In response to the question of whether in the next decade they believe that public debate online will be more influenced by bad people with malicious intent online, 42% of respondents indicated that they expect "no major change", 39% said they expect the online future will be "more shaped" by negative activities, and 19% said they expect the Internet to be "less shaped" by harassment, trolling, and distrust. As of 2021, the amount of negative false social content online has increased.

In a survey with 215 residents in Victoria, 88% said they expected to use social media as a news source in the future. [33] This is a problem, as websites that provide unreliable news are increasing their social media interactions. In 2019, 8 percent of engagement with the 100 top-performing news sources on social media was dubious, while in 2020,

it became 17 percent. [5] People who get their news from social media will be more exposed to unreliable sources.

Susan Etlinger made a false scenario that ends in what she calls a "Potemkin Internet." [32] The term Potemkin comes from fake villages that were constructed by Russian military leader Grigory Potyomkin in the 18th century. [34] Etlinger wrote that in the next several years there will be an increase in the type and volume of bad behavior online, mostly because there will be a corresponding increase in digital activity. People will try to resolve this bad behavior by pushing bad people into more hidden spaces. The worst outcome that will happen from this is that the internet turns into a "Potemkin Internet", where everything looks reasonably bright and sunny but hides a more troubling reality.

In the next few years, it is predicted that more detection approaches and solutions for fake news will appear and be applied. Marina Gorbis, executive director at the Institute for the Future said that she expects that social networks will develop more social bots and algorithmic filters that would weed out some of the trolls and hateful speech. Additionally, Stowe Boyd, chief researcher at Gigaom, observed, "I anticipate that AIs will be developed that will rapidly decrease the impact of trolls." These improvements will work to decrease the amount of fake news on the internet.

For future work, we plan to create a fake news detection approach after analyzing the current approaches. We also plan to create a solution to help people be able to more easily identify fake news, as well as a tool that can allow people to filter out fake news so they only see real news.

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