

Research Paper Summary

Summary of research paper #1 “The Spread of true and false news online”

This research paper aims to demonstrate the dispersion of both authentic real and fake Twitter news stories from 2006 to 2017. The researchers in this study used six credible fact-checking organizations to differentiate between real and fake news. This is accomplished by analyzing the legitimacy of all rumors in cascade by parsing the title, body, and judgment of each rumor investigated. Each retweet cascade represents a rumor spreading on Twitter, which is quantified in terms of depth, size, maximum breadth, and structural virality. Data indicate a significant rise in the amount of false political rumors between 2012 and 2016. The distribution patterns of real and false news were further examined by the researchers, who discovered that fake news spreads farther, faster, wider, and more broadly than real news. The impact of fake news is more evident in politics than in any other area, including terrorism, natural disasters, research, urban legends, and financial facts. The research further looks at the user characteristics that are found in the cascades and why false news is shared rather than real news. According to the findings, people who spread false news are authenticated users, follow a large number of users, are followed by a large number of users, and tweet more often. On the contrary, we also learned that users who originally send the fake news have lower followers. Based on information theory and bayesian decision theory, researchers discovered that people are more attracted to novel news. To show the novelty, researchers tested true and fake news and found that fake news is seen as more original than true news, and as a result, people share it more often.

Furthermore, the Latent Dirichlet Allocation topic model is used in this analysis to quantify the information gap between background tweets and rumor tweets, and the topic distribution among background tweets and rumor tweets is compared for each user who was exposed on Twitter for 60 days. In this analysis three metrics are used for comparison: information uniqueness, KL-divergence, and Bhattacharya distance. This research also addresses the emotional factors associated with reporting, such as how fake news inspires terror, disgust, and surprise in responses, while real stories evoke suspense, sorrow, happiness, and loyalty. To validate the findings, the researchers performed a four-stage robustness analysis. First cluster-robust standard errors used for all analysis. Second, bias in data selection is resolved by generating a second dataset of rumors that were never evaluated by fact-checking organizations. Third, a cutting-edge bot identification algorithm is used to classify and discard bot accounts, and then the results are compared with and without bots in the study. Fourth, test the robustness of bot detection techniques, as well as the sensitivity of the analysis. They found that, unlike humans, bots transmit both real and false news at a consistent rate.

Summary of research paper #2 “Framing and Agenda-setting in Russian News: a Computational Analysis of Intricate Political Strategies”

This research thesis examines government media manipulation by comprehending two concepts: agenda setting and framing. Study observed 13 years of Russian newspaper Izvestia to recognize

the government's tactics for distracting the Russian public by citing the US while the Russian economy is in decline. Researchers used embedding-based approaches to cross-lingually project from English frames to Russian frames and discovered that these news stories listed failing US morality and risks to the US. The study hypothesizes that the government uses agenda setting to exploit the public in fragile political institutions. This is determined by first counting the number of times the United States appears in the news, which is inversely proportional to Russian GDP. Then, Granger causality is applied to measure expanded US press coverage during a period of Russian stock market decline. The author then proposed that framing theory would help to understand why the media focuses on the United States during an Russian economic crisis. For that they used the annotations of the Media Frames Corpus to derive lexicons for each frame, which then translate into Russian to identify media exploitation tactics. Study indicates that the method used in this analysis outperforms the baseline model (logistic regression with bag of words). Furthermore, they calculate normalized pointwise-mutual information (nPMI) between the US and each frame by projecting the mutual information score to approximate which frames are associated with US-focused news versus other content. The study revealed 3 major strategies by Russian media: villainizing the US, describing threats to the US, and advocating the Russian military over the US military. This research differs from previous studies in that it uses economic data to display trends in news articles, while previous work was mostly concerned with analyzing news stories to find patterns in economic data.

Research study comparison: First, both the studies mentioned the political context in their research. The first research paper is concerned with detecting the spread of real and fake news stories majorly focused on politics, while the second research paper is concerned with observing trends in citing the US in Russian news papers when their economy suffers a downturn. Second similarity is that both researchers used the logistic regression technique in their experiments; for example, the first research article used it to quantify users' probability of retweeting a rumor, while the second research article used it as a baseline method to classify all frames in a document. Third, we also discovered that both studies used the topic model in their methods; the first used the Latent Dirichlet Allocation topic model to assess the novelty of true and false news, while the second used the structural topic model approach to compare information on framing lexicons.

Questions: 1) This study focuses on patterns from 2006 to 2017, but what if the pattern shifts after 2017? Is there a clear trend that can be seen in two or three years? If not, does this imply that researchers would repeat the study in 2-3 years?

2) The writers attribute the spread of fake news to people's preference for novelty as well as emotional trends. Will there be any other causes, such as bias and stereotypical thinking?