

The Russian Strategy for Interference and Influence on Reddit: An Analysis of Infiltrating New Social Media Platforms [★]

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Abstract. The Russian troll farm, the Internet Research Agency (IRA) has invested substantial effort in influencing foreign elections through the use of information operations (IO) on social media. Using accounts that were recently revealed as controlled by the IRA, this paper analyzes how Russia infiltrated the platform Reddit to sow political discord. Four distinct phases of their IO campaigns were discovered during this analysis, giving researchers important insight into how Russia infiltrates new forms of social media, what their objectives were surrounding elections since 2016, and how future adversarial accounts can be automatically detected.

Keywords: Foreign interference · social media · influence campaigns.

1 Introduction

In 2017, the popular social media platform Reddit announced that they had discovered 944 accounts they suspected to be linked to the Russian troll farm, the Internet Research Agency (IRA) [3]. In late 2019, 61 more accounts were found to have been under the control of Russia in a multi-platform campaign. Even though the accounts were suspended, Reddit kept the posts from these actors on their site. In this paper, these posts are analyzed as a guide to better understand how the IRA came to slowly infiltrate Reddit over six years using distinct and targeted campaigns to achieve their objectives by seeking out subgroups (called subreddits) and promoting polarizing messaging.

2 Related Work

There has been extensive work looking into the content of the IRA's Twitter posts. A recent analysis of these posts surrounding the 2016 US presidential

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election showed that these accounts were engaging with specific communities of diverse ideologies on the Twitter platform to exploit distrust. “Racist stereotyping, racial grievances, the scapegoating of political opponents, and outright false statements were... the most common appeals found among the most replied-to IRA tweets” [8].

Fewer papers have been published looking at the IRA’s involvement with the Reddit platform. One paper presented at the 10th ACM Conference on Web Science analyzed the top subreddits and performed topic modeling to extract an understanding of what content was published where [9].

This paper adds the more recent cross-platform dataset and delves further into the change of the accounts’ objectives over time.

3 Background

Reddit is the 6th most visited site in the United States with over 430 million monthly active users [1]. With users spending an average of 15 minutes on the site daily, Americans spend longer on the platform than any of the other top fifty Alexa sites [4]. Globally, Reddit ranks as the 20th most visited site in the world [4].

Users interact with Reddit by subscribing to any of the 138,000 active sub-communities called subreddits and then posting content (news articles, images, or text) that others within these communities may upvote or downvote. The number of upvotes minus the number of downvotes is the score of a post. Furthermore, users may engage with the original poster by commenting on the post and starting threads of dialogue with other users about the post. The ability to self-identify into a community with meaningful dialogue differs from Twitter, where users must create their own communities through a series of evolving hashtags and following specific users.

In a 2016 study of the site’s demographics, Pew Research Center found Reddit’s users to be male (71%), between the ages of 18 and 29 (59%), and highly reliant on the platform for news [7]. 45% of all Reddit users reported “learning something about the presidential campaign or candidates on the site in a given week.” [7]. This platform is viewed as a trustworthy source of news for the younger generation as they believe they are receiving information from their own communities.

4 Data description

The primary dataset was created by using the list of 944 IRA-affiliated Reddit accounts to pull all of their posts through the Reddit API and Python’s praw [2] package. This dataset initially contained 5258 posts ranging from 2011 through 2018; however, Reddit made a post from each account when it was suspended saying “this account is banned.” After removing these posts, the dataset contained 4320 posts.

The smaller secondary dataset of 61 Russian accounts was included [5]. Reddit found these accounts by learning of their cross-platform coordinated postings on Facebook and was able to confirm it by finding patterns of vote manipulation. This dataset consisted of 176 posts made from 2017 through 2019.

Additionally, a Bitcoin dataset was used to track the daily value of Bitcoin and compare it to the activity on the Bitcoin-related subreddits. For this, the Gemini BTC/USD daily values of bitcoin was used [6].

5 Analysis

When analyzing the primary dataset’s user behavior over time, three time periods emerge as windows in which users had significant activity on Reddit. As seen in Fig. 1, the accounts working on each campaign are largely abandoned by the time the campaign ends. Campaign 1 takes place prior to 2016; campaign 2 covers 2016 through June 2017; campaign 4 started in July 2017. It’s important to note that Reddit shut down these accounts in 2018, so the final trajectory of campaign 3 was not accomplished by the IRA.

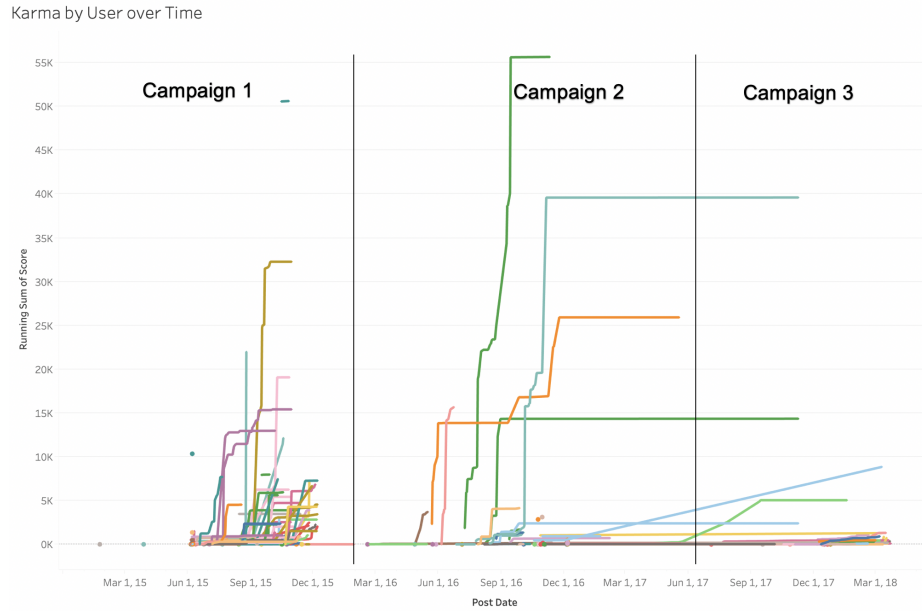


Fig. 1. Lines in this plot show each user’s cumulative post score over time. From visual inspection, three time periods for campaigns are present.

These users posted to 454 subreddits which were manually placed into 12 (and one "Other") categories that represented the different topics in which the IRA

focused. In Fig. 2, the running count of the number of posts made to each of these categories over time is shown. The changes in category involvement between the different campaigns suggest that the campaigns targeted different communities which are analyzed in more depth below. Since the smaller dataset of 61 Russian accounts was found through a cross-platform initiative with Facebook, these posts were treated as a separate, fourth campaign that also takes place during the same time period as parts of campaigns two and three.

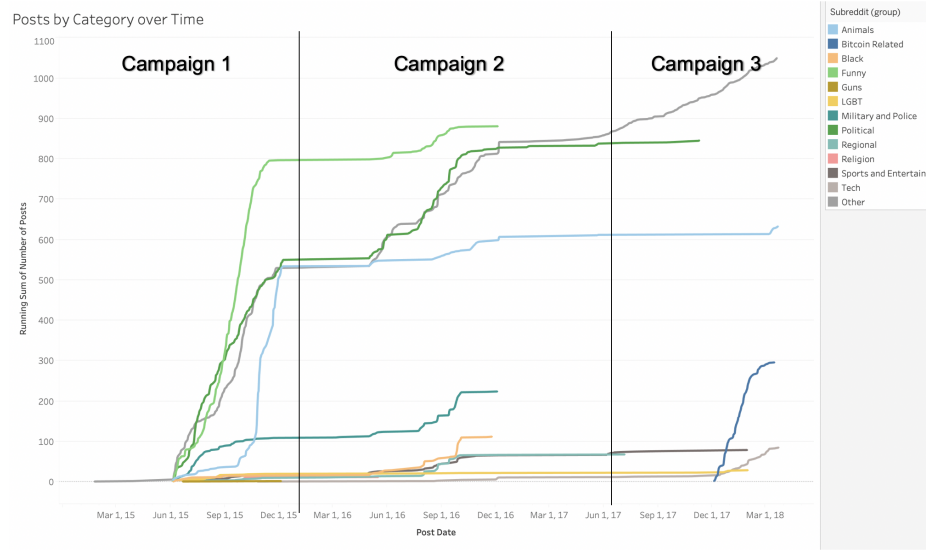


Fig. 2. Lines in this plot show the running count of the number of posts made to each of the 13 categories over time.

5.1 Campaign 1: Pre-2016

Campaign 1 shows an original batch of IRA-linked Reddit accounts that were made in 2015 and then abandoned by 2016. In this time period, 165 authors published 2,602 posts that received a cumulative score of 334,800 and 22,133 comments. Posts in this time corresponded to a rise in the "animal" subreddit category from these users. Below is a visual (Fig. 3) to illustrate the co-posting network of IRA posters in this time period. Thicker links between the categories are indicative of users heavily posting to subreddits in both categories, and nodes are sized based on the number of posts to that category during that campaign. Most of the categories have some posts, but the primary focus during this campaign is to "Funny", "Political", and "Animal" subreddits. As they were trying to gain a foothold in the new Reddit platform, the IRA posted "innocent"

content as to not raise the attention of people who would view them as Russian trolls.

The greatest offender of the animal posts was u/Deusexmachina112. When looking at the posts from this user, all of her posts were made in 2015. While the animal posts seem innocuous at first (posting to r/cats, r/AnimalsBeingBros, r/aww, r/foxes, r/Hedgehog, and r/puppies), this user is also beginning to plant seeds of doubt in American politics and institutions by posting articles to a few news subreddits with titles such as "Things are bad and getting worse for Jeb Bush" and "Student's violent arrest caught on video; officer under investigation." This behavior typifies the behavior seen by actors during the first infiltration campaign.

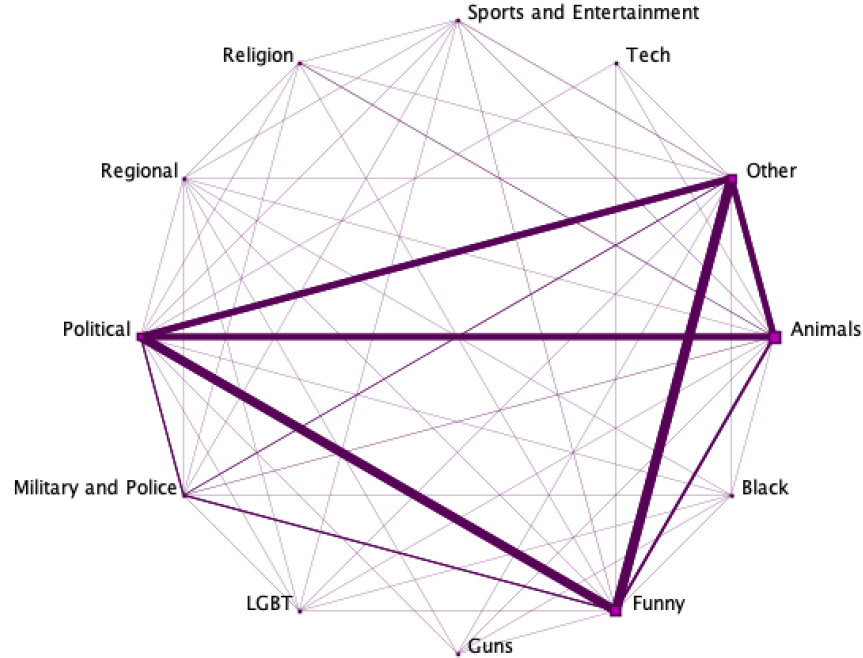


Fig. 3. Co-Posting network for posts made during Campaign 1.

5.2 Campaign 2: 2016- mid 2017

The behavior of the IRA changes when analyzing the year of the USA presidential election, 2016, and slightly beyond. In this time period, 106 authors published

1,134 posts that received a cumulative score of 180,510 and 7,708 comments. In Fig. 4, the political category of subreddits dominates all others. In addition, an alarming number of users are posting to Black interest subreddits as well as Military and Police and Political. While some of the posts to the Black interest subreddits were supportive of African-American culture (posting articles with titles such as "South Africa's first black female pilot is inspiring girls to aim high"), the majority of these posts were posting polarizing content about police brutality (with titles such as "COPS SADISTICALLY TASER A COMPLIANT BLACK MAN").

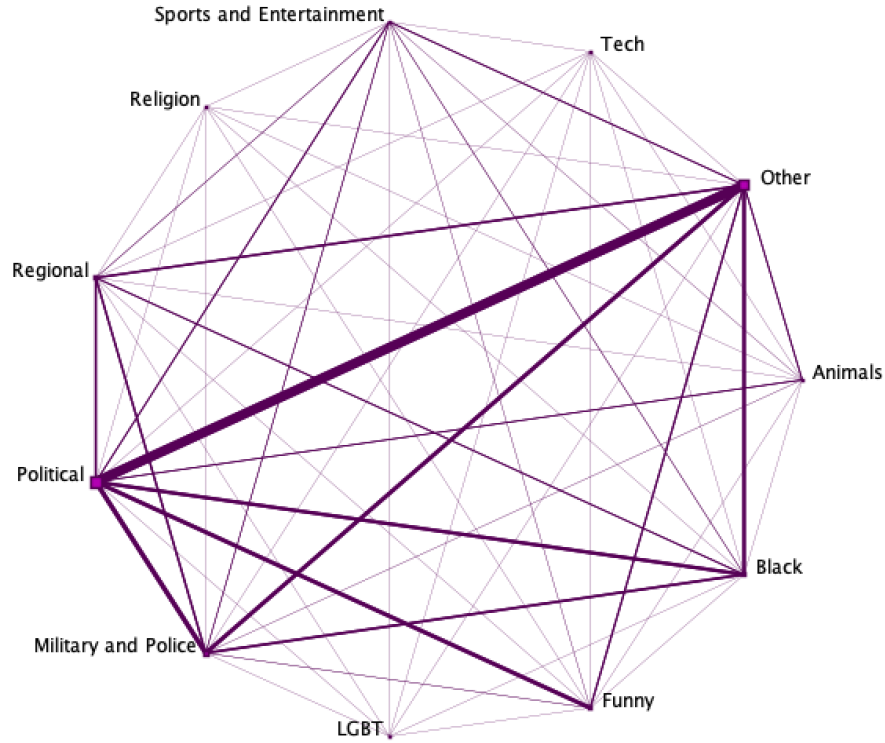


Fig. 4. Co-Posting network for posts made during Campaign 2.

However, during this campaign, some IRA accounts start posting in an inorganic fashion to Regional subreddits. User "Kevin_Milner" is the top poster to regional subreddits. If he were assigned to infiltrate a specific region, he would have posted to one or two subreddits dedicated to local areas, but this user

posted to 13 regional subreddits (mapped in Fig. 5). Almost all posts by this user in these subreddits were about police brutality or acts of terror just before the 2016 election. Mr. Milner’s goal appears to have been to sow discord in subreddits that make fun of the police but also giving regional communities something to fear.

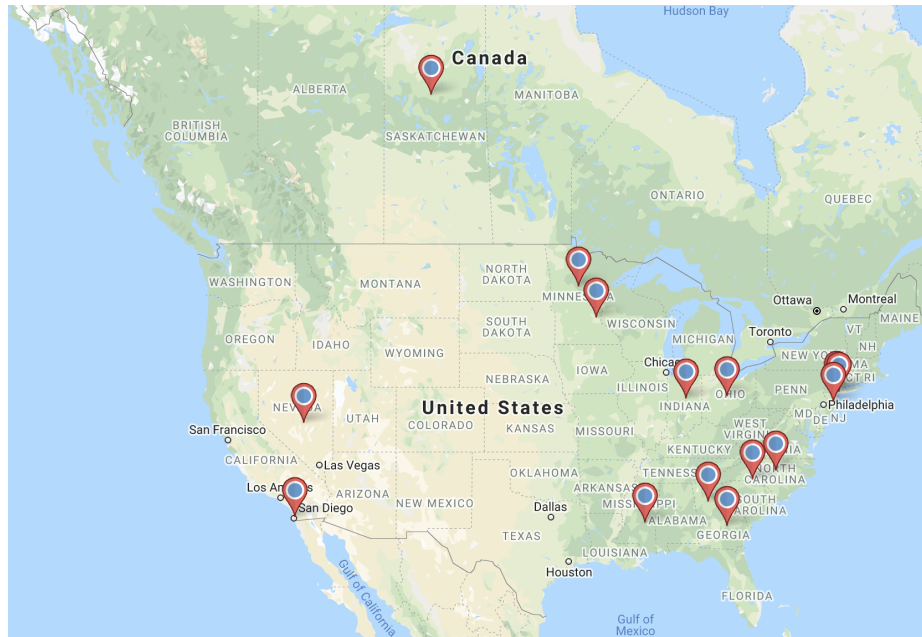


Fig. 5. Map showing the various locations all the regional subreddits u/Kevin_Milner infiltrated.

5.3 Campaign 3: mid 2017-2018

In this time period, 53 authors published 584 posts that received a cumulative score of 22,421 and 2,485 comments. Before the accounts were suspended by Reddit, the third campaign was marked by a drastic decrease in political posts (as well as no posts at all to the Black-interest, Religion, and Military/Police categories) and a peculiar increase in posts to Bitcoin (and Technology) subreddits. Their co-posting network is visualized in Fig. 6

When analyzed in conjunction with the daily closing value of Bitcoin over time, the number of posts increased as the currency gained value in late 2017; however, by mid January, as the value of the coin was plummeting, and so was their interest. Overall, the IRA posted somewhat indiscriminately with regards to the value of Bitcoin. Any further plans with regards to their Bitcoin presence remains remains unknown due to Reddit abruptly suspending the accounts.

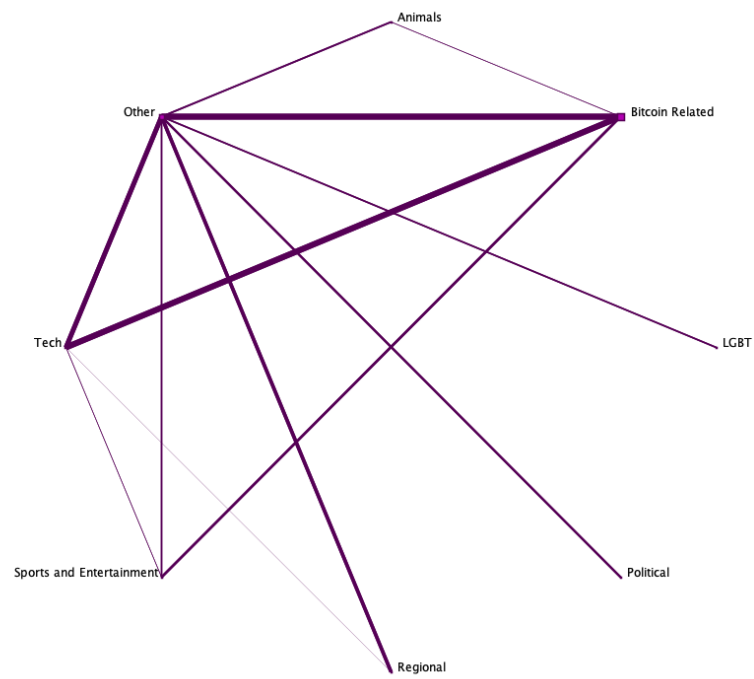


Fig. 6. Co-Posting network for posts made during Campaign 3.

5.4 Campaign 4

The fourth campaign occurred at the same time as parts of campaigns two and three, but it was completed in conjunction with a misinformation campaign with Facebook. In this time period, 43 authors published 175 posts that received a cumulative score of 1,905. The 79 subreddits that the Russians posted to were manually categorized into 5 categories (plus an "other" group). While there were some posts to African, Asian, and USA-related subreddits, the majority of the posts were to European (which had 99 posts), Latin American (18 posts), and World politics (17 posts), as seen in the network in Fig. 7. Posts to European subreddits were critical of political activities in Ukraine, Germany, and France. In particular, a series of posts to German subreddits were made following the 2017 German federal election. Other posts centered around the impact of Brexit on other countries like Spain.

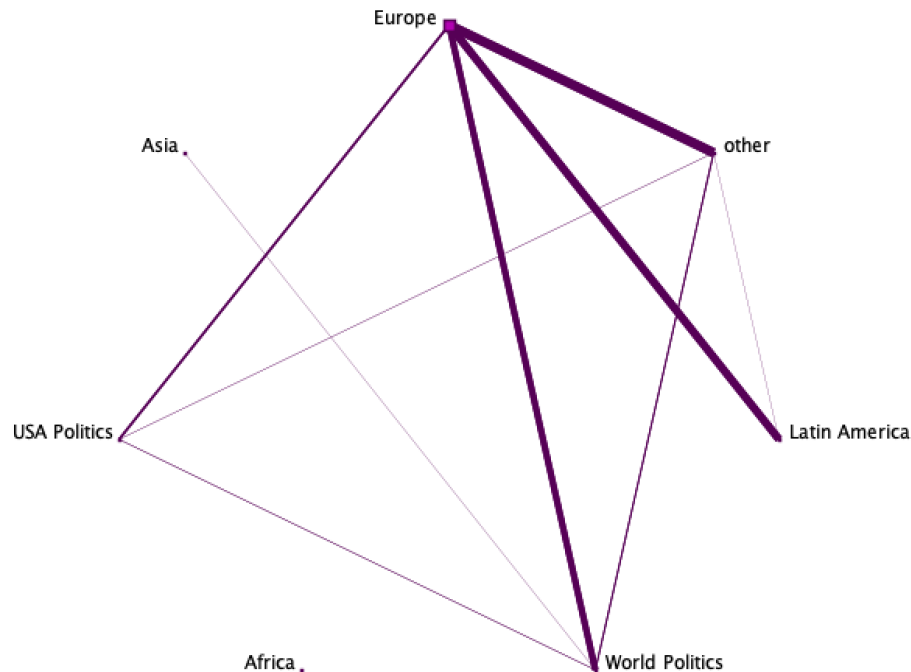


Fig. 7. Co-Posting network for posts made during Campaign 4.

6 Conclusion

Reddit is an understudied platform that is trusted by its users and has experienced known interference from Russian agencies. Due to its anonymous nature, platform users have a harder time distinguishing an organic user from a foreign adversary. When polarizing news articles are shared on Reddit, users become more inclined to share the content to their own personal networks on Facebook; since the posters are no longer foreign troll accounts, Facebook is unable to remove the content on claims of foreign interference. It is critical to understand the missions of foreign adversaries as they infiltrate new social media platforms to spread their messages. In this paper, four distinct IO campaigns were analyzed to find the following conclusion: 1) during initial exploration, the Russians mask most of their political messages behind an overwhelming amount of wholesome content in an effort to not be detected by the platform; 2) during elections, they will find smaller subcommunities that are more susceptible to polarizing news and exploit their emotional fears and distrust for the establishment; 3) on platforms that extend to multiple countries, the Russians will try to pin members of some countries against one another. However, the final conclusion is the most promising - in their effort to post news with the same themes to smaller communities (either to 13 different regional subreddits like u/Kevin_Milner did or by posting in European and Latin American subreddits posing as citizens), the Russians revealed themselves as not organic users of the platform. By mapping out the entire Reddit network in future work, the subreddits can be automatically categorized (as they were manually in this paper) and suspicious behavior like that of u/Kevin_Milner can be instantly flagged to find more malicious accounts still lingering on the platform.

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