

When Machine Behavior Targets Future Voters: The Use of Social Bots to Test Narratives for Political Campaigns in Brazil

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In 2018, the election of Jair Bolsonaro for the Brazilian presidency was associated with dubious propaganda strategies implemented through social media. The purpose of this article is to understand the early development of key communication strategies of his presidential campaign since 2016. We used a combination of observational, discourse, and content analysis based on digital trace data to investigate how Bolsonaro had been testing his campaign targets and segmentation, as well as cultivating bot accounts and botnets on Twitter during the 2016 Rio de Janeiro municipal election. Our research suggests that the automation of different supporter profiles to target potential voter identities and the experimental dissemination of divisive narratives ensured the effectiveness of his communication persuasion. This finding contributes to the growing body of knowledge regarding his controversial online efforts, adding to the urgent research agenda on Brazil's democratic setback.

Keywords: social bots, campaign strategy, political narratives, disinformation, Twitter, Jair Bolsonaro, Brazil

In recent years, social media platforms have been used to spread toxic content, and have been implicated in accusations of public opinion manipulation and online propaganda. Propaganda played a troubling role in boosting Jair Bolsonaro into the Brazilian presidency in 2018 (Hunter & Power, 2019). Bolsonaro, a far-right fringe figure and longtime legislative backbencher, was elected amid accusations of benefiting from a powerful and coordinated social media campaign intended to discredit his left-wing opponent (Phillips, 2018).

Our research suggests that Jair Bolsonaro used the 2016 municipal election to prepare his communication strategy for the presidential dispute in 2018 by testing potential targets and narratives. Bolsonaro developed techniques to increase the visibility of his ideas through the targeted use of social media

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trolls, sock puppets, cyborgs, and bots. These political social media messages exploited preexisting social tensions, such as fractured social cohesion, reduced trust in institutions, and damaged democratic processes.

Thus, using a mixed-method approach, our aim in this article is to contribute to the growing body of knowledge of how the 2018 Bolsonaro presidential campaign strategy was developed. We scrutinized the activity of automated accounts on Twitter during the 2016 Rio de Janeiro municipal election, focusing on bot narratives and frames to discuss how different targets, characters, and discourses were tested to gradually cultivate support and influence the public debate.

In the next section, we briefly present the Brazilian political and social context. Subsequently, we review the literature on the role of automated accounts in disinformation and election campaigns. Thereafter, we describe our method and present the findings, proposing a typology for bots and discussing political activity, behavior patterns, social and moral features, and narratives disseminated. Finally, we discuss how social bots served as a testing machine for modeling the 2018 Brazilian political campaign.

Brazilian Context From 2016 to 2018

In 2016, Brazilian municipal elections took place against a backdrop of national political polarization. The Partido dos Trabalhadores (PT) had won four consecutive presidential elections since 2002, reelecting Lula da Silva and Dilma Rousseff. During the municipal electoral campaign, Dilma Rousseff was impeached and her vice president, Michel Temer, assumed the Brazilian presidency. Unlike any other impeachment in world history, Dilma was betrayed by a member of her own vice president's party (Samuels & Zucco, 2018). Her impeachment was subsequently deemed to constitute an illegitimate process (Narcizo, 2019).

On October 2, 2016, 11 candidates disputed the first round of Rio de Janeiro's election. Five candidates identified as "left" or "center-left": Marcelo Freixo, Jandira Feghalli, Alessandro Molon, Ciro Garcia, and Thelma Bastos. Six other candidates identified as "right" or "center-right": Marcelo Crivella, Pedro Paulo, Índio da Costa, Carlos Osório, Carmen Migueles, and Flavio Bolsonaro.

Marcelo Crivella, former senator and evangelical bishop, and Marcelo Freixo, former Rio State Deputy known for his work in exposing the state militias, made it to the second round. Crivella was elected with 59% of the valid votes. In the first round dispute, despite Flavio Bolsonaro having received only 10% of the valid votes, Jair Bolsonaro admitted that his son's campaign was successful as a test for his own presidential campaign in 2018 (Vettorazzo, 2016).

Since 2017, the Brazilian economic crisis has increased, and the country has been going through remarkable political instability amid recurrent corruption scandals. In 2018, operation "Car Wash," a criminal investigation conducted by former federal judge Sergio Moro inspired by the Italian "Clean Hands" operation, imprisoned ex-president Lula and prevented him from running in the 2018 presidential election ("Brazil Corruption Scandals," 2018).

During the 2018 campaign, candidate Jair Bolsonaro was stabbed by a mentally ill man during a demonstration in the streets ("Jair Bolsonaro," 2019), greatly amplifying the media coverage of his candidacy. After the incident, Bolsonaro canceled his participation in all TV station debates (Azevedo, Trigueiro, & Martins, 2018). Instead, controversially, Bolsonaro recorded an interview with RecordTV, a broadcasting channel owned by a neo-Pentecostal church. It was broadcast simultaneously to the last presidential Globo TV debate of the first round (Cerioni, 2018), giving him an asymmetric visibility, compared with other candidates, three days before the election.

As with Trump and Fox News in the United States (Benkler, Faris, & Roberts, 2018), Bolsonaro guaranteed the support of the mainstream media with Record (Decker, Nascimento, & Junior, 2019), the second-largest broadcaster in Brazil (Grupo de Midia, 2019), despite his electoral coalition having little mandatory airtime for radio and TV political campaign ads. Bolsonaro relied deeply on social media for political marketing to reach the electorate, being accused of benefiting from a powerful disinformation campaign on WhatsApp, illegally financed by business backers (Campos Mello, 2018). Bolsonaro was elected in the second round, with 55% of the valid votes against Fernando Haddad, the PT candidate. Bolsonaro's sons, Flavio and Eduardo, were also appointed to legislative offices with outstanding results.

The Bolsonaro administration nominated Sergio Moro, who had sentenced Lula, as the new Minister of Justice. In July 2019, the U.S. journalist Glenn Greenwald reported ethical failures in the Car Wash operation, revealing that Moro had illegally collaborated with Car Wash prosecutors, scheming to ensure that Lula did not win the election ("*The Intercept* Condemns," 2020).

The Role of Automated Accounts in Disinformation and Election Campaigns

The literature on social bot activity is concerned with false online identities that use computer scripts to emulate and influence human behavior on social media (Ferrara, Varol, Davis, Menczer, & Flammini, 2016). Social bots produce content and interact with other users using automatic posting protocols as a tool for public opinion manipulation tactics in a broader online disinformation strategy (Bastos & Mercea, 2018; Woolley & Howard, 2018). The use of social bots in disinformation campaigns to strategically amplify polarized content began to be discussed publicly worldwide after the Brexit Referendum and the 2016 U.S. presidential elections (Bastos & Mercea, 2018). However, there is evidence that bots have been altering the political debate in Brazil since 2014 (Arnaudo, 2018).

Due to the mutable nature of bots, coupled with their continuous online presence and inevitable interplay with human users, defining a bot is anything but an exact science (Bastos & Mercea, 2018), lacking accuracy in identifying their characteristics, activity patterns, automation degree, and profile types. For example, malignant bots are often automated for some percentage of time, whether that is intraday or over their life cycle, particularly if the operator wants to "age" the account so that it does not look like it was created for one purpose (DiResta, 2019). But the account can be taken over by a human operator when necessary, that is, when it is unveiled or reported by the press or when it is time to perform an influence operation by content curation.

Tracking the evolution of bots and human behavior during elections, researchers have shown that, differently from in 2016, when bots and humans used to tweet at different rates, in 2018 bots were better aligned with human activity trends, suggesting that some bots have grown more sophisticated (Luceri, Deb, Giordano, & Ferrara, 2019). In such a scenario, despite many efforts to suspend malicious actors and maintain a healthy environment on social media platforms, social bots are still active online and can be strategic for disinformation campaigns globally (Bradshaw & Howard, 2019; Ferrara, 2017; Howard, Woolley, & Calo, 2018; Luceri et al., 2019; Shao et al., 2018; Stella, Cristoforetti, & Domenico, 2019; Stella, Ferrara, & De Domenico, 2018; Woolley & Howard, 2018).

Several research articles (e.g., Bastos & Mercea, 2017; Ferrara et al., 2016; Keller & Klinger, 2019; Shao et al., 2018) have tried to analyze the social implications of fake and automated accounts based on rigorous empirical research. Nonetheless, the detection of coordinated campaigns is an open challenge for the research community (Chen & Subramanian, 2018; Cresci, Di Pietro, Petrocchi, Spognardi, & Tesconi, 2017; Luceri et al., 2019; Varol, Ferrara, Davis, Menczer, & Flammini, 2017). And although it is widely known that there are large numbers of active bots on Twitter, the impact bots have on disinformation campaigns also remains an open question (Howard et al., 2018).

What we know is that bots tend to be hypersocial in nature, making far more effort on average than human-owned social media accounts to initiate contact with other users via retweets (Schuchard, Crooks, Stefanidis, & Croitoru, 2019), and that people are likely to connect with bots even though they do not know them personally (Ferrara et al., 2016), especially on Twitter, where connecting and interacting with strangers is one of the main features. In other words, humans are vulnerable to bot action, commonly resharing content posted by automated accounts (Shao et al., 2018).

Benkler and colleagues' (2018) analysis indicate that social bots did not affect the outcome of the 2016 U.S. presidential election, but probably distorted levels of credibility assigned to various narratives and people's faith in reasoned political debate. Social research based on computational analysis has demonstrated that bots can deeply influence the perception of reality and have a political impact by attacking and discrediting journalists and political leaders (Howard et al., 2018). Moreover, bot-led political campaigns tend to intensify social media polarization (Del Vicario, Quattrociocchi, Scala, & Zollo, 2019) and increase the exposure to negative and inflammatory messaging (Stella et al., 2018). Social bots may also play a significant role in spreading low-credibility sources in the early moments before its content goes viral, targeting users with many followers through replies and mentions (Shao et al., 2018).

Social bots as a tool for disinformation campaigns thrive on polarized discourses by mobilizing supporters in opposing clusters, but clusters do not have to convince each other of a prevailing or minority opinion. However, just like other kinds of communication processes, disinformation should not be viewed only as a matter of transmission and diffusion; it is also one of cultivation and ritual, in which rich cultural dynamics between the sender and the receiver mediate the effects of media messages in a process of cultural resonance of social behavior, ideas, and beliefs (Xia et al., 2019) that take time to be constructed.

Social bots need to find offline reverberation to their messages to be able to target existing organic movements, cultivate narratives, and shape behaviors. As a part of psychological operations, disinformation

demands groundwork and planning, taking time to develop, mature, and accumulate empirically applied knowledge. As such, preparing the ground for a computational disinformation campaign includes modeling narratives that can be easily absorbed and shared by a broader online population (Levinger, 2018); constructing trolls and testing their cultural infiltration capability (Jensen, 2018); fabricating bots in advance to “age” the account and to avoid detection; microtargeting influencers, followers, and new users; and creating methods that enable real-time experimentations (Baldwin-Philippi, 2016; Tufekci, 2014) to promote successful campaigns of persuasion.

Method

To investigate bot characteristics and activities on Twitter during the 2016 Rio de Janeiro municipal election, we resorted to a mixed-methods approach based on digital trace data. Given our aim to understand automated political discussion on Twitter, our analysis consisted of a combination of content analysis and observational techniques. Considering our purpose, nonobstructive observation was a suitable solution that protected us from ethical issues, such as interacting with bots, which can extend their network and increase their reach potential (Santini et al., 2018).

To study the roles and characteristics of social bots on Twitter during the first round of the elections, we first collected tweets to identify the related accounts. Tweets were extracted via the Twitter Firehose API on a streaming basis between August 17 and October 2, 2016. The filtering criteria used in data collection included the word *Rio*, the names of the main candidates, and campaign hashtags. Our data set consisted of 152,372 tweets posted by 57,616 profiles.

For example, we relied on two criteria to identify and filter automated accounts, such as Gorwa (2017); Chavoshi, Hamooni, and Mueen (2017); and FGV DAPP (2017): (1) tweets must have been published consecutively in less than one second, and at least two times; and (2) a minimum of 10% of the content must have been produced automatically. Twitter-verified accounts were excluded from the corpus even though they use automation mechanisms.

All automated detection approaches present limitations to what they alone can accomplish (Varol et al., 2017). For example, Botometer, a powerful and well-accepted tool to detect bots automatically, estimates false positives and false negatives to hover at around 26% of the data (15% and 11%, respectively; Davis, Varol, Ferrara, Flammini, & Menczer, 2016). To reach this parameter, developers consider human annotation a ground truth to measure the Botometer’s algorithm confidence of interval (Varol et al., 2017; Yang et al., 2019). To deal with this limitation, we performed a manual validation based on our observational analysis to identify automation indicators in each profile, presented and interpreted in the following section. We identified 3,101 automated profiles responsible for 19,915 tweets.

Results

To analyze the content posted by all 3,101 bots, we ranked the 25 hashtags and 25 mentions with the highest count in our data set (see Figure 1). According to this result, #tvonline and #Bolsonaro2018 were the most popular hashtags during the 2016 municipal elections.

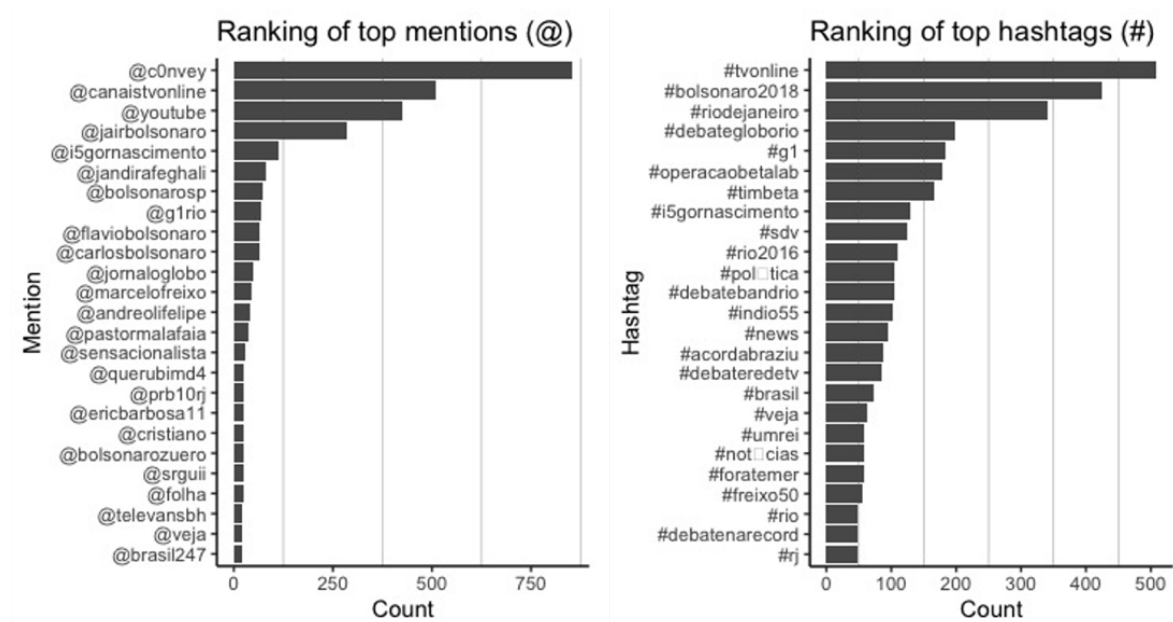


Figure 1. Most popular hashtags and mentions.

The three most mentioned profiles by the bot accounts were not related to political content sharing: @c0nvey (854 mentions), @canaistvonline (509 mentions), and @youtube (426 mentions). Jair Bolsonaro was the most mentioned politician profile in our data set (286 mentions), with more mentions than the three other most mentioned candidates altogether: @jandirafeghali (79 mentions), @flaviobolsonaro (66 mentions), and @marcelofreixo (43 mentions). The other candidates were not in the top mentions ranking.

Despite a data collection strategy based on keywords and hashtags related to the Rio de Janeiro municipal election, the popularity of #Bolsonaro2018 and @jairbolsonaro among bot tweets may indicate that key communication strategies of Jair Bolsonaro's 2018 presidential campaign had been tested since 2016. This could indicate an attempt to fabricate discourses and distort real discussions online.

Regarding sharing and engagement, 719 bots retweeted 4,146 posts (20.8% of the total 19,915 bot posts) from 1,234 unique users. We plotted a retweeted user network (see Figure 2) to visualize communities of influence, defined here as a retweet relationship between two Twitter users (Cherepnalkoski & Mozetic, 2015). In Figure 2, the yellow nodes represent 690 bots in our data set that posted a retweet. The 1,206 gray nodes, such as @jairbolsonaro and @indio, are the accounts retweeted by these bots (that may be real users or bots). The red nodes represent 29 bots in our data set that both retweeted and were retweeted.

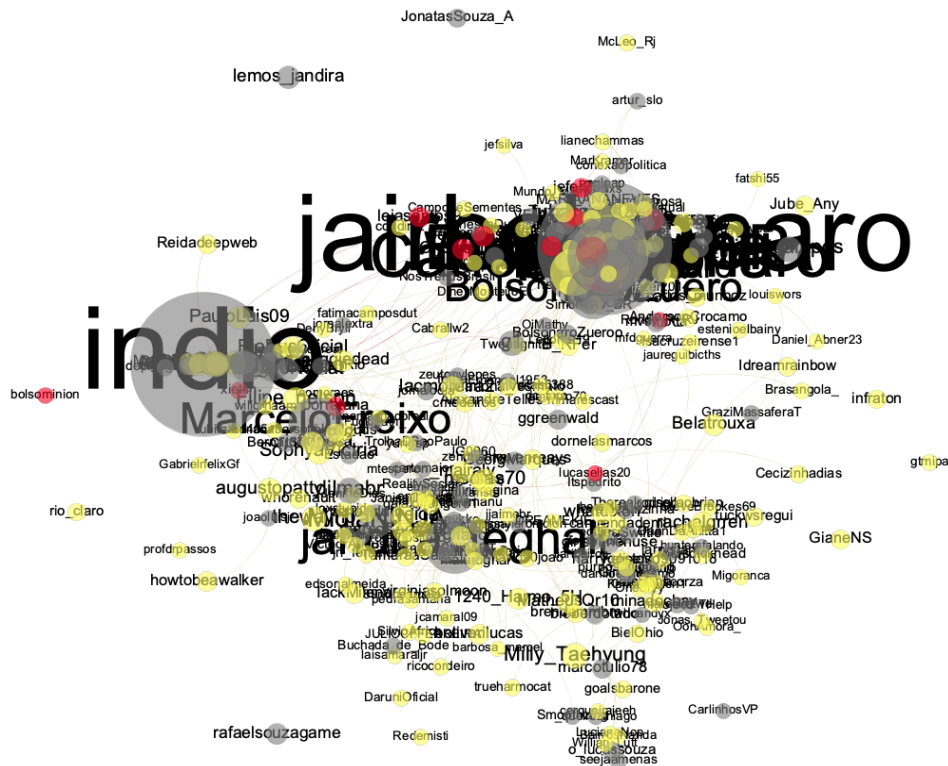


Figure 2. Retweeting and retweeted user network (designed using Gephi's Force Atlas layout). Nodes represent Twitter accounts and links represent bots' retweets. Gray nodes are retweeted accounts (real users or bots). Red nodes are bots that both retweeted and were retweeted, and yellow nodes are bots that only retweeted. Nodes were sized according to the retweeting frequency (30–300); the account names (node labels) were scaled proportionally to the respective node size. The network consisted of 1,925 nodes and 2,600 edges, of which 332 nodes and 816 edges remained visible after a degree range filter was applied (5 to 74 degrees).

One can identify bot networks retweeting the candidates Marcelo Freixo (99 retweets, 33 degrees), Jandira Feghali (113 retweets, 59 degrees), and Índio da Costa (327 retweets, 44 degrees) in Figure 2. However, the largest retweet network is associated with Jair Bolsonaro, who was not even running in the 2016 election. The Jair Bolsonaro botnet is highly centralized and interconnected, with 302 retweets and 74 degrees. His node is the biggest hub on the network. According to this graph, Bolsonaro's botnet contains more red nodes, indicating that his tweets were being retweeted by bots, and then retweeted by other bots. Our data set suggests that this botnet was developed with a greater degree of strategic organization and coordination, indicating that the Jair Bolsonaro presidential campaign was using bots on Twitter during the 2016 municipal election to prepare the ground for the 2018 electoral campaign.

Heavy Bots Typology

After identifying the automated accounts, we verified a different posting pattern among the bots and classified their accounts based on the amount of tweets (see Figure 3).

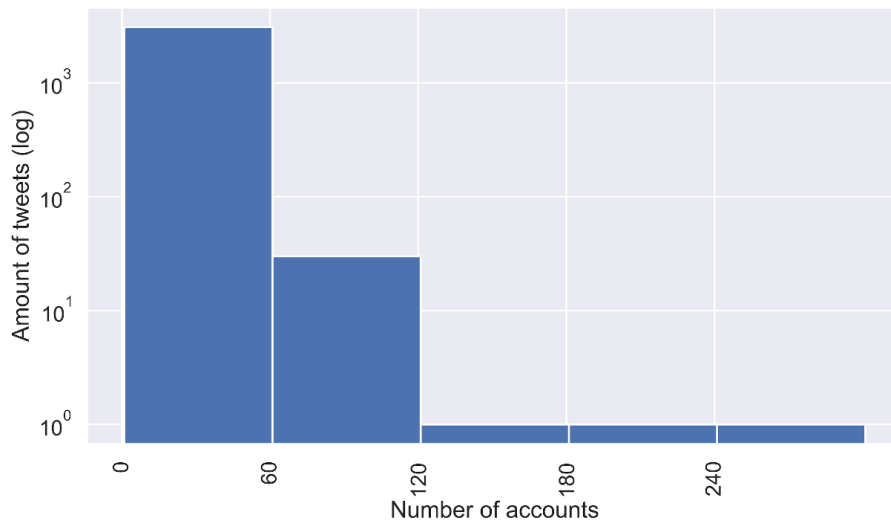


Figure 3. Sample bots histogram. This histogram represents the distribution of tweets per account. The amount of tweets (log scale) was plotted in function of the number of accounts.

To carry out qualitative analysis, we defined the 61 most active bots as our sample because of their widespread capacity and impact on Twitter (see Table 1). We acknowledge that this sample is not statistically representative, but these active accounts have a higher chance of providing significant and pertinent information about the conceptual behavior of bot accounts because they represent 1.96% of bots but were responsible for 20.12% of the tweets.

Table 1. Bot Classification Based on Posting Pattern.

Classification	Accounts (n)	Tweets (n)	Average tweet per account (n)
Light bot	2,588	7,444	2.88
Medium bot	453	8,463	18.68
Heavy bot	61	4,008	65.70

Twelve coders conducted an interpretative observational analysis of the bots’ profiles. The accounts were examined by at least two coders, and reliability was guaranteed by our manual validation. The analysis was based on profile images and information, interactions, mentions, sources, followers and following relations, tweet content, themes, and overall posting behavior. Following the content analysis of the heavy bot tweets, we classified these accounts into three categories: user-generated bot, media spambot, and

political bot. We subdivided the political bot category into two subcategories: inciting agent bot and campaigner bot (see Table 2).

Table 2. Heavy Bots Typology.

Type	Accounts (<i>n</i>)	Tweets (<i>n</i>)	Type of content tweeted
User-generated bot	35	2,354	Promotional hashtags
Media spambot	115	1,374	Links to traditional media websites
Political bot: Campaigner	10	373	Political content in moderate tone
Political bot: Inciting agents	10	946	Political content in overly passionate tone

User-generated bot accounts presented an automated behavior stimulated by a promotional program called TIM Beta offered by the telecom company TIM, a subsidiary of Telecom Italia in Brazil. The purpose of the program is to induce TIM mobile phone users to extensively disseminate specific hashtags on Twitter (#TimBeta, #BetaLab, #OperaçãoBeta, #MissãoBeta), thereby earning them points that are converted into call minutes. Because TIM Beta users automate their Twitter accounts, behaving like a bot, we identified among all bots 117 user-generated bots that tweeted 1,347 times.

We identified 35 accounts that only posted links on Twitter to traditional media websites, which we categorized as media spambots. This pattern indicates that media bots probably work to boost traditional media website audiences and amplify their social relevance (Santini, Salles, Tucci, Ferreira, & Grael, 2020). Our result converges with the Pew Research Center report published in 2018 (Wojcik, Messing, Smith, Rainie, & Hitlin, 2018) that demonstrates that automated accounts post a substantial share of the links to online media outlets on Twitter.

Among the heavy bots, we found 20 accounts that behaved like political bots (Woolley & Howard, 2016), spreading artificial opinion on Twitter. They presented two different behavior patterns, and we classified them accordingly: 10 accounts as campaigners (see Table 2) and 10 as inciting agents (see Table 3).

We defined campaigners as bots that endorse a candidate, pretending to be real online political fans or "citizen marketers" (Penney, 2017). They promote political opinions and agendas to their peers and engage in peer-to-peer media-spreading activity. Campaigner bots labor through likes, posts, and shares, with the purpose of amplifying the reach of favored political messages, rarely attacking competitors personally and assuming a moderate and nonaggressive tone.

We characterized inciting agents as bots that have a predominantly emotional performance with a dramatic discourse to attack an opponent or to advocate a candidate as the only possible safe choice or redemption. They usually exaggerate their diagnosis of social problems, spreading moral judgments and negative feelings for affective contagion. Their opponents are not only political personas, but also ideas, ideologies, and beliefs, which are treated like enemies. The inciting agents constantly defame or endorse a political position with irrational and passionate argumentation, making them an effective tool for disinformation and political polarization.

Political Bot Activity and Behavior Patterns on Twitter

Building on profile observations, we analyzed the political bots' activity and posting behavior on Twitter (see Table 3 and Table 4). We identified 10 political bots that acted in favor of the Bolsonaro family and all behaved as inciting agents. Five campaigner bots supported the candidate Índio da Costa, two defended Jandira Feghali, and three defended Marcelo Freixo.

Table 3. Inciting Agent Campaigner Bots.

Account (@)	Who the bot benefits	Total tweets (<i>n</i>)	Original tweets (<i>n</i>)	Retweets (<i>n</i>)	Frequent mentions and sources
AgnesCampello	Índio da Costa	49	31	18	Índio da Costa Facebook and Twitter accounts
Filipe_nelson	Marcelo Freixo	30	2	28	Marcelo Freixo account; #Freixo50
GlaucoBernardes	Índio da Costa	29	17	12	Índio da Costa account; traditional media accounts
JaymeFernandes_	Índio da Costa	30	16	14	Índio da Costa Facebook and Twitter accounts
NelsonGomes_	Índio da Costa	29	7	22	Índio da Costa account; traditional media accounts
oConsciente	Partido dos Trabalhadores	88	88	0	Left-wing supporter websites
SophyaVictoria	Marcelo Freixo	29	4	25	Indefinable
stelles_13	Partido dos Trabalhadores and Partido Comunista do Brasil	31	31	0	Left-wing content blogs; Cyborg Facebook account
thewayhp	Marcelo Freixo	29	3	26	Indefinable
ToniFejor	Índio da Costa	29	6	23	Índio da Costa account; Traditional media accounts

Table 4. Inciting Agent Bots.

Account (@)	Who the bot benefits	Total tweets (n)	Original tweets (n)	Retweets (n)	Frequent mentions and sources
AndrsnMM	Bolsonaro family	78	3	75	Bolsonaro family Twitter accounts
Arthurdalomba	Bolsonaro family	64	5	59	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts
getuliosantana	Bolsonaro family	75	33	42	Jair Bolsonaro Twitter account; Bolsonaro supporter accounts
MaisDireita	Bolsonaro family	87	20	67	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts
morsan_mg	Bolsonaro family	184	27	157	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts
narky57	Bolsonaro family	49	17	32	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts
neivacr	Bolsonaro family	102	55	47	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts
tovaga	Bolsonaro family	130	46	84	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts
WeldsonGuedes	Bolsonaro family	119	3	116	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts
Xavier_BR	Bolsonaro family	58	3	55	Bolsonaro family Twitter accounts; Bolsonaro supporter accounts

The behavior of all of the political bots indicates the existence of computational routines (automation indicators) combined with human curation. Almost all of the political bots spread a massive number of retweets. A relatively easy computational routine, retweeting can indicate support and endorsement. Five campaigner bots that supported the candidate Índio da Costa stopped tweeting immediately once he was out of the dispute, a strong indication that these accounts were automated for the elections and then abandoned. As reported by Bastos and Mercea (2018), the abandonment of any formerly highly active Twitter account is also an indication that the account is a bot.

Fourteen accounts (all 10 inciting agents and four of the campaigners) explicitly used at least one Twitter automation service (i.e., ifttt, buffer, Dlvr.it) to manage their Twitter accounts. These services allow the partial or total automation of the social media account, which can be executed via programmed shared content, queuing of tweets, and "evergreen content recycling" (DeMers, 2017). We then identified the events that triggered the bots' activities. In almost every case, when the supported politician's name was mentioned in a tweet from a known source, a tweeting or retweeting activity occurred. The content sources were usually either the politician's Twitter and/or Facebook official account or hyperpartisan websites.

Despite being increasingly sophisticated, automated routines still struggle to adapt and create original and personal content, still depending on human supervision and management (Varol et al., 2017).

Thus, as indicators of human curation, we could identify posting original content, including personal comments and opinions on posts, using natural language, having other social media profiles, and sharing personal pictures and information on Twitter feeds. All of the inciting agents presented human curation, as did eight of the 10 campaigners. This result points to the complexity of identifying political bots on Twitter automatically. Although the accounts were automated by pieces of code, human intervention was constantly observed on these profiles.

Social and Moral Features of Bots

We analyzed the extent to which bots simulated real people's accounts and which human characteristics they assumed during the 2016 Rio de Janeiro municipal elections, given that "sophisticated bots can generate personas that appear as credible followers, and thus are more difficult for both people and filtering algorithms to detect" (Ferrara et al., 2016, p. 99). To analyze the personification of accounts and the respective social and political characteristics, we interpreted the available profile data, such as name, photos, account description, and posted content.

Twitter profiles present limited personal information (Ferrara et al., 2016) and some sociodemographic data were inaccessible, but our observational analysis allowed us to characterize the majority of the accounts. We identified the age group of 12 profiles, with a balanced distribution among them: five profiles between 15 and 29 years old, three profiles between 30 and 59 years old, and four profiles over 60 years old. Most of the profiles were displayed as men (14 male profiles, four female, and two undefined) and White (nine White people, three mixed-race, and eight undefined). None of the profiles simulated a Black person. The Brazilian population, with 51.4% women and 54.9% non-White (Instituto Brasileiro de Geografia e Estatística, 2017), differs considerably from the political bot demographic distribution. Nonetheless, this social profile (White, male, in an apparently economically active age) represents the political and economic elites in Brazil (Kalil, 2019).

Interestingly, this diagnosis can be related to the intention of the creators and administrators of the political bots: On creating impersonators to act in the political debate, the puppet masters reproduce and make use of a logic of social dominance, in which certain groups have more competence and authority to issue an opinion (Bourdieu, 2000), and thus attempt to guide and manipulate the circulation of messages.

Only seven profiles showed religious inclination, all of which were aligned to neo-Pentecostal precepts. The evangelical community today represents 29% of the Brazilian population (Datafolha, 2016). The neo-Pentecostal church Universal Church of the Kingdom of God owns some of the most important national broadcast media outlets in Brazil, recently boasting a significant online presence (Reporters Without Borders & Intervozes, 2017). Although neo-Pentecostal political figures represent an important political alliance for Bolsonaro, religious communication business and grassroots evangelical groups also played a key role in the 2018 presidential election.

Both types of bots, campaigners and inciting agents, cited names from national and international politics in the discussion, shifting the municipal debate into a general context. They cited Donald Trump and

Nicolas Maduro, with frequent references to Lula and Dilma Rousseff, former presidents from the PT, and Jair Bolsonaro.

Testing Political Narratives

Through the interpretation of the content conveyed and information displayed by political bots, we found evidence that these accounts faked militant behavior online, mimicking ordinary people and becoming a source of political and partisan information. We observed that the dissemination of conservative content was prominent in terms of content and scale. Inciting agents disseminated these conservative messages that, when analyzed in connection, indicated that Jair Bolsonaro was synthetically promoting and testing narratives so as to infiltrate social networks and improve social adherence to political information through profiling.

Sadler (2017) indicates that citizens produce mental stories as a mechanism for interpreting the meaning of individual tweets in terms of their relationships to other material. This means that ordinary users make sense of political discussion on Twitter by contextualizing fragmentary tweets within larger narrative configurations and identifying objects of interpretation. It was particularly important to Bolsonaro's communication strategy to be able to microtarget potential voters who shared a common range of diffused values, capturing antisystemic tendencies and criticizing corruption in financial, moral, and religious terms.

The inciting agents in our data set built on some of these assumptions to support Jair Bolsonaro and the political agenda of his family. For example, the bots indicated the moral differences between Bolsonaro and other politicians, as tweeted by the bot @MaisDireita: "The only truly independent candidate has arrived on the timeline and he is not involved in corruption! #Bolsonaro2018." In another post, the same account indicated that Bolsonaro would be the only possible option to bring morality to the country. In 2018, Bolsonaro resumed this anticorruption journey, by posting in his own feed:

Brazil is giant and honest. The citizens can no longer stand to be slaughtered while rewarding evildoers. We do not deserve to be governed from within the prison or by its political allies. From North to South, the population demands urgent changes! We're in this together!

Jair Bolsonaro indicated during the campaign that he was against abortion, sex education in schools, and LGBTI rights, presenting himself as a family protector, fighting against communism and depraved indoctrination. This goes hand in hand with some of the inciting agents' posts, which demanded militarized schools and the end of gender education. The pro-Bolsonaro bots presented a far-right political-ideological leaning and the majority displayed photos and information about their moral and religious opinions, such as @maisdireita, who posted, refuting progressive agendas: "Sexuality for children at schools! Unbelievable!!! In Rio, they want similar guidelines! Over our dead bodies!"

Bolsonaro falsely accused his opponent, Fernando Haddad, the PT candidate, of creating and distributing a so-called "gay kit," insisting that the material was given to children to teach them how to become homosexual (Bracho-Polanco, 2019). Bolsonaro associated sexuality education in schools with a moral disorder and argued that it was being used as an instrument aimed at the corruption of children (Kalil,

2019). Bolsonaro equated moral and political disorders, as also exemplified in our data set, for example, in @tovaga's post: "Flávio Bolsonaro defends resources for more medications, not for the Gay Parade."

In relation to the narrative against communism, inciting agents repeatedly attacked left-wing parties, especially the PT and its supporters, forging a kind of antileft troop against progressive agendas. The attacks took on the form of cursing, disqualification, and personal insults. There was always an attempt to intensify the speech through the use of exclamation marks, irony, and mockery, for example, @neivacr: "And there are people who defend and believe in this charlatan!!! And what about the crocodile tears??? 'What a fraud, Lula!' hahaha." Bolsonaro, for example, accused the PT in 2018 of supporting communism through corruption: "The PT financed dictatorships; has treasurers, marketers and a former president in jail for corruption; wants to end Car Wash, in addition to controlling the media and internet. If someone threatens democracy, it is the PT!"

Inciting agents adopted an aggressive tone defending the military dictatorship and arming the civilian population to promote social order, like @arthurdalomba, who sarcastically retweeted: "Congratulations pro-gun control supporters. Society, according to the human rights bastards, is increasingly more protected." These automatically disseminated narratives coupled the left with authoritarianism and corruption. Similarly, Bolsonaro indicated that his main issue with dictatorships, such as Maduro's government in Venezuela, is their relationship to communism but not the military aspect of the administration. The candidate posted on Twitter that communism is a "despicable and murderous ideology that is known for destroying everything wherever it goes."

Bolsonaro tested, in the 2016 campaign, the creation of a "chain of equivalence" (Laclau, 2007) connecting the elite's neoliberal agenda to the religious conservative agenda, and explored that avenue in his 2018 presidential election. That is, he converged different narratives into the same meaning: the great anticorruption dissatisfaction originally directed against the left, and the religious and moral conservatism that saw feminism and the LGBTI movement as a threat to the traditional family. It is important to highlight that unsuccessful narratives might have been employed and abandoned after tests carried out by Bolsonaro's campaign, but because it is beyond the scope of this analysis, failed strategies remain a research agenda. The inciting agent bots mimicked the grassroots supporters of the Bolsonaro family, stimulating a polarized political debate with false accusations and twisted facts.

Discussion

Our results and analysis indicate that Jair Bolsonaro was preparing the ground for the 2018 presidential campaign using the municipal candidacy of his son Flavio Bolsonaro in 2016 as a laboratory for modeling, profiling, and testing communication strategies and narrative acceptance by potential voters. Our data set shows that a digital army had been gradually built online to support Jair Bolsonaro, composed by trolls, bots, cyborgs, sock puppets, and volunteers, called "virtual anonymous militia" by the Brazilian press (Amorim, 2019), because his family is openly apologist and in favor of local armed militias (Struck, 2019).

Jair Bolsonaro himself credited his election to his social media campaign (de Andrade & Maia, 2018) that officially did not stand out on online ads (D'Agostino & Oliveira, 2018), but by apparently "spontaneous"

grassroots support. Bolsonaro's campaign has shown significant parallels with Donald Trump's communication strategy, for example, the use of violent discourse and politically incorrect statements; the support of bots, sock puppets, and hyperpartisan websites; and the decisive alliance with evangelical broadcasting media, including local radio stations and TV channels. Although both were assisted by Steve Bannon (Phillips, 2018), connections and specificities need to be analyzed in in-depth, comparative future research.

Social bot activities are making up new types of grassroots simulation thriving online, namely online astroturfing (Bradshaw & Howard, 2019), to spread divisive narratives. Astroturfing techniques take into account not only social norms to influence others, but also consider group-based identity pressures and contagion effects in the shaping of collective action and citizen decision making.

Automated accounts can also be used to manipulate social media algorithms for content recommendation (DiResta, 2019; Tufekci, 2019) and manufacture artificial trending topics (Santini et al., 2020; Wang, 2010). They can function as a subterfuge technique against federal control on political advertising disclosure and accountability (Benkler et al., 2018). By masking ads, these opaque bots act as a "black box" for campaign financiers and their operators.

Howard (2005), Kreiss (2012), Tufekci (2014), Baldwin-Philippi (2016), and Karpf (2016) highlight that the main innovative feature of computational politics is not the target content strategy or its reachable scale online, but the "testing and trialing culture." As such, social bots enable dynamic real-time and long-term experimentations of different discourses and narratives using impersonated identities that can be monitored by social listening and data-analytic tools. This experimental approach enables digital strategy operators to study, adapt, and improve tactics based on real effects. To give an example of campaign pretesting based on our collected data, we found a social bot (@xavier_br) tweeting in 2016 the official presidential candidacy slogan of Bolsonaro campaign—"Brazil above all, God above everyone"—which was only officially rolled out in 2018 (Mendonça, 2018).

Bots as a tool for inexpensive and large-scale experimentation of the effectiveness of communication persuasion is a significant innovation for political campaigns. It allows cheap "A/B" testing (Siroker & Koomen, 2015), creating multiple versions of a message that can be delivered separately and randomly to selected control groups to identify which narrative works best in a campaign. Using lessons learned in previous experiments on how to introduce disruptive narratives to hack the public attention (boyd, 2017), exacerbating outrage and anger that increases online engagement (Brady & Crockett, 2019; Spring, Cameron, & Cikara, 2018), the extreme-right president could appropriate the strengths of the networked movements and overcome their weaknesses. As Tufekci (2017) argues, the fragility of online mobilizations is the lack of organizational depth and experience, of tools or culture, for real-time decision making and for strategic long-term action. Hence, the use of a real-life election in 2016 for infiltrating social media and validating pretesting narratives added a level of previously uncommon dynamism and speed to molding Bolsonaro's 2018 presidential campaign, which probably improved its effectiveness.

Constructing the identities of Bolsonaro's voters was also a central strategy for the campaign. Following Bourdieu's (2000) argument, it is not enough to produce the supply of narratives, tastes, or opinions, but it is also necessary to "produce its consumers." As such, it is interesting to note that the social

and moral features of the bots found in our sample (White, male, religious, apparently working age) represent Brazilian hegemonic social groups. Between 2014 and 2018, these political and economic elites displayed growing partisanship in Brazil (Samuels & Zucco, 2018), as in the United States (Benkler et al., 2018, p. 303), increasingly supporting ideological conservatism and creating a divisive political system in the country. However, unlike the elites, the majority of the Brazilian population was less politicized and polarized (Borges & Vidigal, 2018), in an environment in which the PT had been cultivating a large share of partisans and votes, but no other party had, immersed in "Brazil's sea of meaningless partisan acronyms" (Samuels & Zucco, 2018, p. 161). So how could Bolsonaro turn the elite vote into a massive vote?

On one hand, Bolsonaro took the opportunity to personify the elite's agenda using extremist-conservative rhetoric with strong emotional appeals, forcing the media coverage of his polemic discourse, and consequently affecting the polarization of the public. On the other hand, Bolsonaro knew how to "manage" the audience to force the political sorting of the electorate. The manufacture of different supporter profiles to match potential voters' identities, together with the spread of narratives constantly inciting outrage from the opposition, reshuffled the population into more coherent groups in which collective identities and opinions were becoming more homogenous and polarized.

The massive support of the evangelical community after 2016 was also one of Bolsonaro's most important coalitions (Abbud, 2018). The commitment to the evangelical moral agenda against abortion and LGBTI rights was crucial in defining Bolsonaro's political identity and evangelical broadcasting media alliance. As such, the use of social bots with evangelical identities in the 2016 campaign was an important method to introduce the frame of issues and discourse that were experimentally validated and probably defined the effectiveness of Bolsonaro's "gender ideology"-driven campaign in 2018.

Following Chantal Mouffe's (2005) argument, "the political" in Brazil shifted to being played out in the moral register, and in such a situation, collective identities have, more than ever, played a central part in politics and elections. The population disaffection with political parties is evoking the emergence of collective identities around nationalist, religious, and ethnic forms of identification. With the moralization of politics, a "gender ideology" is being constructed as a common agenda, creating the link between different Brazilian conservative groups. The part played by "passions" and emotional behavior in politics reveals that what really mobilizes partisan conflicts and citizen decision making are people's desires and fantasies (Mouffe, 2005), not rational interests, policy preferences, or common interpretations of political events.

By recognizing the methodological limitations of our research based on digital trace, observational data, and qualitative analysis, we suggest that our hypothesis on the use of social bots for modeling the 2018 presidential campaign needs to be tested further, using different data sets and methods. However, our results should not be considered in isolation, but as one piece of evidence among many other investigative reports (i.e., Campos Mello, 2018; Hunter & Power, 2019; Isaac & Roose, 2018; Phillips, 2018) on Bolsonaro's controversial online efforts to win the Brazilian presidential election. Nonetheless, our article contributes to the body of knowledge of the emerging field of computational communication by exploring qualitative methods for data analysis. Interpretative analyses seem promising for theoretical explorations, especially regarding automated actors emulating humans, because they can provide a more sophisticated understanding of "small data" and substantiate big data analysis.

Finally, it is important to recognize that social media platforms and computational tools are not responsible for an authoritarian government's election in Brazil. There are many variables on the table that range from economic, ideological, moral, religious, and institutional dynamics that reflect and are reflected in the media ecosystem, driving the country to a worrying democratic setback. At the same time, it is undeniable that technology can increase the advantage of any campaign reducing costs, risks and unpredictability, which can leverage cutting-edge behavioral science to manipulate users' beliefs and attitudes. Big data techniques, computational modeling, algorithm manipulations, and microtargeting communication are powerful innovations, regardless of who uses it and for what purposes.

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