



Lying about Lying on Social Media: A Case Study of the 2019 Canadian Elections

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May 2020



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A new social media phenomenon is emerging on lying about lying

- Users are lying about not being “bots” on Twitter
 - A higher proportion of those users are bots than the general population
 - These users amplify misinformation campaigns
- Users are saying certain mainstream news sources, reporters, or individuals are #FakeNews more often than on actual fake news
- This new defensive strategy shows how campaigns continue to evolve



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Why should we care?

- There's widespread concern since 2016 that foreign actors are trying to increase division and spread misinformation in democratic nations






New York University published a report Tuesday entitled Disinformation and the 2020 Election: How the Social Media Should Prepare. (Image: screenshot of report)

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2019 Canadian Federal Election

	The election was held in October 2019 to elect members of Parliament	This was a referendum on Prime Minister Trudeau and his Liberal Party
	The #TrudeauMustGo twitter movement was amplified by bots and often paired with #NotABot	Journalists suspected that #NotABot was used disingenuously
	The "fake news" phrase has been used to discredit true news stories and political opponents	This term is used by both malicious actors and regular people

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The hashtag cloud for #NotABot clearly shows that the hashtag is being used almost exclusively in reference to #TrudeauMustGo and associated hashtags, including #ButtsMustGo and #LiberalsMustGo.



A hashtag cloud for #NotABot shows that the hashtag is highly correlated with #TrudeauMustGo, indicating that the first hashtag is being used almost exclusively in reference to the second. (Photo: Screenshot).

Golberg also noted that he often observes inauthentic activity and other forms of social media manipulation surrounding hashtags like #NotABot.

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Twitter data related to the election was collected

- Collected streaming tweets matching a set of search terms
 - July 2019 through November 2019
 - Yielded 16+ million tweets written by 1.3+ million users using over 137,000 hashtags

2019 Canadian Election Twitter Search Terms
#TrudeauMustGo, TeamTrudeau, trudeau, #Election2019, #elxn43, #chooseforward, #onpoli, #ItsOurVote, #lpc, #ndp, #cpc, #gpc, #NotAbot, #cdnpoli, #ButtsMustGo, #LavScam, #LiberalsMustGo, BlocQuebecois, #blocqc, cccr2019, #NoTMX, #TMX, #TransMountain, scheer, dougford, fordcutshurt, fordisfailing

Table 1: The list of search terms used to gather the Twitter data set on the 2019 Canadian election.

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Two groups of hashtags were identified for further study

Fake-News Hashtags		Not-A-Bot Hashtags	
Hashtag	Number of Tweets	Hashtag	Number of Tweets
#fakenews	9,741	#notabot	45,605
#fakenewsmedia	3,287	#iamnotabot	921
#fakenewscbc	70	#imnotabot	142
#fakenewsandy	62	#teamnotabot	62
#cbcisfakenews	59	#stillnotabot	53

Table 2: The most used hashtags included in the fake-news and not-a-bot groups.

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The data was augmented with bot identification

- Tier 1 BotHunter algorithm developed by Beskow and Carley determines the probability that an account was run by a bot
- The algorithm considers:
 - Screen name length
 - Number of tweets
 - Number of friends and followers
 - Content of a tweet
 - General timing of tweets
- Likely organizational accounts were removed
- We use a probability threshold ranging from 0.6 to 0.8 throughout

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The likely targets of the #FakeNews were determined

- For each tweet, the set of targets was the union of:
 - The users mentioned in the tweet
 - The author of the original tweet if the tweet is a reply
 - The websites linked to in the tweet (if they belong to a potential target)
 - The specific targets of fake-news hashtags (ex: #fakenewscbc is likely targeting the Canadian Broadcasting Corporation)
- Potential targets included political organizations, news, politicians, and reporters

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The most targeted are mainstream news agencies and politicians

Target	All #FakeNews Tweets	Bot Score > 0.6	Bot Score > 0.7	Bot Score > 0.8
CBC	750	100	50	10
Any MacPherson	550	150	100	10
Andrew Scheer	650	100	50	10
CTV News	550	100	50	10
Donald Trump	400	50	10	10
Justin Trudeau	250	50	10	10
Catherine McKenna	250	50	10	10
Toronto Star	250	50	10	10
Chrystia Freeland	250	50	10	10
Global News	200	50	10	10
Other (Average)	10	10	10	10

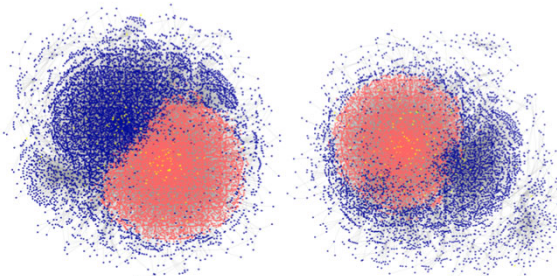
Fig. 2: A plot showing how many times an entity was targeted using a fake-news hashtag by normal users and bots detected with various BotHunter thresholds.

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Users of both hashtags separate into two partisan groups



(a) Users of fake-news hashtags. (b) Users of not-a-bot hashtags.

Fig. 1: The reciprocal communication networks for the users of fake-news hashtags and the users of not-a-bot hashtags. Each has been divided into two groups colored in red and blue using CONCOR. Accounts with a bot score higher than 0.7 that were not filtered out by Huang's algorithm have been colored yellow.

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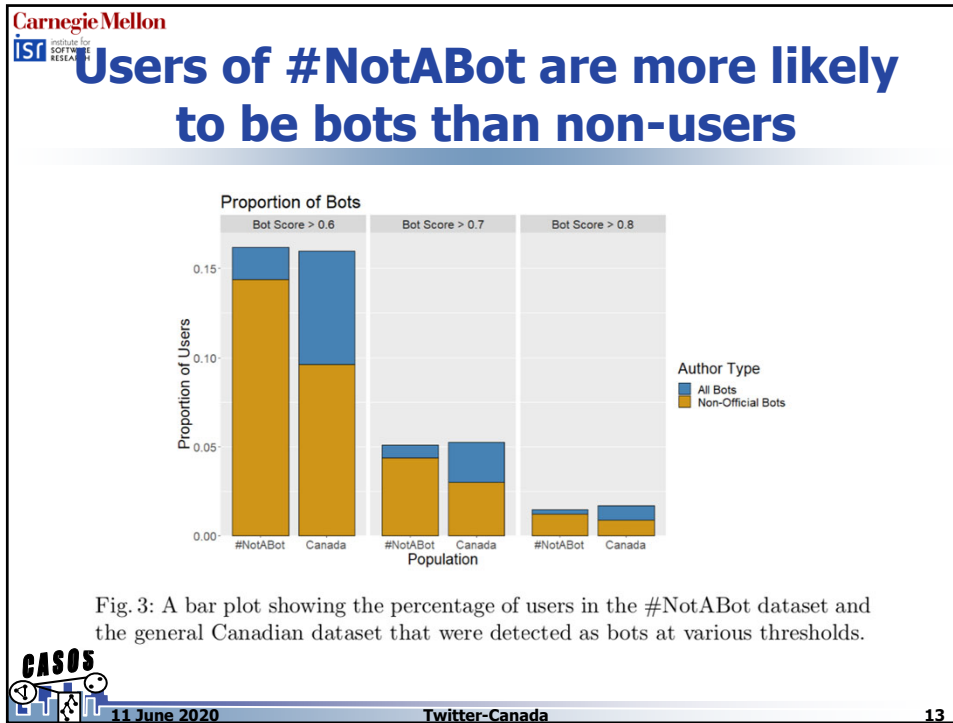
Users of both hashtags separate into two partisan groups

		Usage by #FakeNews Users		Usage by #NotABot Users	
		Red (%)	Blue (%)	Red (%)	Blue (%)
Conservative	#trudeaumustgo	20.93	0.81	21.67	1.52
	#scheer4pm	1.86	0.03	1.93	0.05
	#trudeauworstpm	1.34	0.05	1.34	0.08
	#liberalsmustgo	1.19	0.02	1.25	0.03
	#trudeaumustresign	1.17	0.03	1.19	0.07
Liberal	#istandwithtrudeau	0.08	0.64	0.11	0.65
	#teamtrudeau	0.27	0.61	0.29	0.66
	#scheerlies	0.02	0.45	0.02	0.48
	#scheerdisaster	0.02	0.42	0.02	0.45
	#neverscheer	0.02	0.40	0.03	0.35

Table 3: The frequency of use for popular liberal-leaning and conservative-leaning hashtags in the CONCOR groups for the reciprocal communication networks of fake-news hashtag users and not-a-bot hashtag users. Usage frequency was calculated as the number of tweets using a hashtag divided by the total number of hashtag uses in that CONCOR group.

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Users of #NotABot are more likely to be bots than non-users

Bot Threshold	All Bots			All Non-Official Bots		
	#NotABot	Canada	P-Value	#NotABot	Canada	P-Value
≥ 0.60	16.21%	15.97%	0.545	14.38%	9.59%	2.2e-16
≥ 0.70	5.10%	5.25%	0.540	4.38%	3.00%	1.925e-14
≥ 0.80	1.47%	1.70%	0.104	1.22%	0.87%	0.00043

Table 4: The percentage of users in the #NotABot group and the rest of the Canadian users that are over the three different bot score thresholds. The p-value is associated with the 2-sample proportion test for equality.

- We ran a Mann-Whitney U Test to test if the distribution of two populations is the same, which was also highly significant

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Users of #NotABot are more likely to be bots than non-users

	Minimum	First Quartile	Median	Mean	Third Quartile	Maximum
#NotABot Users	2.66%	29.20%	42.74%	42.56%	55.01%	99.80%
Canadian Users	1.01%	27.00%	40.99%	41.20%	54.49%	100.00%

Table 5: The summary statistics for the bot scores in the #NotABot group and the rest of the Canadian users.

- The difference in the mean and median bot scores for the two groups is ~2%, with the #NotABot users more likely to have higher bot scores

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Discussion

- Large and established news agencies are the most targeted with accusations of spreading #FakeNews
- Accusations calling something “fake” are coming from both liberal and conservative leaning users
- Using not-a-bot hashtag is not a reliable signal for indicating that one is not a bot
- Both networks of hashtag users show a strong partisan divide

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Limitations

- The Twitter sample may not be representative of the entire Twitter conversation surrounding the election
- The method for determining fake news target is a reasonable heuristic but may not catch all targets
- The Not-A-Bot analysis is based on probabilities rather than certainties that an account is a bot
- These results may hold for other elections in similar countries, but circumstances or misinformation strategies may quickly evolve

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Future Work

- Build on this set of hashtags to investigate how lying about lying continues to evolve over time or in different countries
- Examine these hashtags in non-political contexts
- Investigate how much of an impact these hashtags are having on human behavior → do other users believe them?

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Conclusion

- Our work describes new tactics being used to influence elections
- Mainstream news organizations are being labeled as “fake news” at higher rates than fake or satirical sites
- A Twitter user claiming to not be a bot was more likely to actually be a bot

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Questions?

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