A Large-Scale Study of ISIS Social Media Strategy

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ISIS Adept at Online Recruiting

Islamic State Most Adept Terrorist Group at Online Recruiting, Says FBI

By Alex Grubbs | July 7, 2016 | 9:21 AM EDT

(CNSNews.com) – A top Federal Bureau of Investigation (FBI) official told Congress on Wednesday that the Islamic State is the most adept terrorist group at using internet and social media propaganda to recruit new members.

“No group has been as successful at drawing people into its message as ISIL. ISIL’s extensive reach through the internet and social media is most concerning as the group continues to aggressively employ the latest technology as part of its nefarious strategy,” Michael Steinbach, executive assistant director for FBI’s National Security Branch, said.
Or is it?

Is ISIS’s Social-Media Power Exaggerated?

The group is famously active on Twitter and has attracted thousands of foreign fighters. But to what extent is one related to the other?
Today’s Talk

- How big is ISIS community on Twitter?
- How influential is ISIS on other users?
- How do regular users respond to ISIS?
Dataset
Twitter Dataset: (Seed)

- All Arabic tweets posted in 2015

<table>
<thead>
<tr>
<th>All Accounts</th>
<th>≈ 27 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Tweets</td>
<td>≈ 9 billion</td>
</tr>
</tbody>
</table>

- Classification by the Anonymous group. #OpISIS

- 24k accounts
- 17m tweets

Ferrara et. al., 2016
Twitter Dataset:  
(Expanded)

- Assumption: Retweet = Endorsement
- Suspended retweeters of seed ISIS accounts:
  - 173k accounts.
  - 340m tweets.
Twitter Dataset: (Validation)

- Seed accounts were on the Anonymous list.
- All accounts were suspended by Twitter.
- Manual validation of 1k seed accounts and 1k expanded accounts show accounts are 99% and 97% pro-ISIS respectively.
Twitter Dataset
(Seed)

Users
100%

Tweets
100%

- All Arabic accounts
- ISIS accounts
Twitter Dataset
(Seed + Expansion)

Users
- 99%
- 1% (173k)
- 1%

Tweets
- 96%
- 4% (340m)
- 4%

- All Arabic accounts
- ISIS accounts
Twitter Dataset (Interactions)

Arabic Twittersphere

ISIS

Retweets
Replies
Mentions
Size and Influence
ISIS accounts live longer

- **All suspended accounts**
- **ISIS accounts**
How big is ISIS?

- **Method:** Build Retweet Graph and run Personalized PageRank for 100 randomly selected ISIS accounts. Check if top reached users are already recognized as ISIS. Repeat for 10 times.

- **Findings:**
  - 75% accounts reached are already in the ISIS dataset
  - 80% were suspended
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  - Our dataset represents roughly 75% of all pro-ISIS accounts active in 2015.
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Our dataset represents roughly 75% of all pro-ISIS accounts active in 2015.

Pro-ISIS accounts in 2015 were between 200k and 225k.
How influential is ISIS?

- We build Retweet Graph of all users
- We run PageRank on the graph
- We calculate collective influence as the sum of individual PageRank values:

\[ CI(U) = \sum_{u \in U} PR(u) \]
ISIS lost influence over time

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ISIS lost influence over time
ISIS influence is less than average
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The graph shows the distribution of accounts across different PageRank buckets. The red bars represent ISIS accounts, while the blue bars represent normal accounts. The y-axis indicates the number of accounts, and the x-axis represents the PageRank bucket numbers. The range from Low Influence to High Influence is indicated by the horizontal arrow at the bottom.
ISIS influence is less than average
User Engagement
How do users respond to ISIS?

- Most repliers to ISIS were suspended (76%)
  - 97% of them found to be pro-ISIS
- The other 24% un-suspended repliers found to be 68% pro-ISIS
  - Only 2.4% were anti-ISIS!
An isolated community

Arabic Twittersphere

ISIS

Retweets
Replies
Mentions
An isolated community

Arabic Twittersphere

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ISIS

Retweets
Replies
Mentions
How does ISIS message evolve?

- We check the use of pro-ISIS hashtags at different stages in the members lifetime. [Magdy et. al., 2015]

- Accounts are relatively consistent.

<table>
<thead>
<tr>
<th></th>
<th># At birth</th>
<th># Mid-life</th>
<th># At death</th>
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<td>Islamic State</td>
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* Hashtags in red are pro-ISIS
Limitations

- Only Arabic content (but the majority of ISIS content is Arabic)
- Only one year (2015) in the middle of ISIS’s existence
- Only the Twitter platform
ISIS on Twitter (Summary)

- Although ISIS presence on Twitter was big, the group mostly interacted with itself with little interest from the Twitter community.

- Pro-ISIS accounts were mainly created for that matter.

- The influence of the ISIS accounts was less than average.

- Banning ISIS accounts is effective in limiting their influence.

- Dataset: Talk to us!