

“I like ISIS, but I want to watch Chris Nolan’s new movie”: Exploring ISIS Supporters on Twitter

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ABSTRACT

The recent rise of the “Islamic State of Iraq and Syria” (ISIS) has sparked significant interest in the group. We explore the tweets of a large number of Twitter users who frequently comment on this subject by either showing support or opposition. ISIS supporters dedicate on average 20% of their tweets to ISIS related content, compared to 4.5% for those who oppose ISIS. Thus, the vast majority of tweets for both groups are on general topics, covering many aspects in life, including politics, religion, and even jokes and funny photos. Our demo allows users to search and explore 123 million tweets of 57 thousand Twitter users who have declared explicit positions towards ISIS. Given a query, our system displays a comparative report that shows the difference in views between supporters and opponents of ISIS on the search topic. The report includes a timeline of per day mentions of query terms in the tweets of each group, the top retweeted tweets, images, videos, and tagcloud of top terms in results for each group. Time navigation allows the exploration of content shared by both groups on specific dates, which can go back in time to the period before ISIS appeared.

Categories and Subject Descriptors

J.4 [Computer Applications]: Social and Behavioral Sciences

Keywords

ISIS; Twitter data analysis; Violent groups supporters

INTRODUCTION

There is a popular belief that supporters of violent organizations are poor, uneducated, isolated, and/or unstable. Many social psychology studies have shown the exact opposite: Such individuals are typically more educated, financially better off, generally more accomplished than average, more exposed to Western culture, and psychologically more resilient than most people [2, 3, 5]. A recent study on supporters of the “Islamic State in Iraq and Syria” (ISIS) suggests a common theme among supporters, namely support for the Arab spring and opposition to regional regimes, and they moved to supporting ISIS after the missteps of the Arab Spring [4].

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Our demonstration is built over the data collection used for studying the antecedent of ISIS supporters. It includes 123 million tweets from the timelines of 57K Twitter users who showed interest in ISIS group [4]. We have studied the leaning of these users, and automatically classified them into supporters (pro-ISIS) and opposers (anti-ISIS) with 98% accuracy. We noticed that ISIS supporters dedicate on average 20% of their tweets to ISIS and the remaining on different topics. This percentage is only 4.5% for ISIS opponents. We found that the other topics discussed by both groups are not always political and include topics such as jokes, movies, religious content, and nature photos. For example, a tweet by one of the ISIS supporters was: “I like ISIS, but I want to watch Chris Nolan’s new movie”.

In this demonstration, we present a search and analysis system over the tweets collection of pro- and anti-ISIS Twitter users. The collection contains the tweet timelines of 11.3k and 45.6k accounts supporting and opposing ISIS respectively. Once a query is submitted to our system, the top shared content is displayed for each group individually showing the different views of each group on a given topic. Search results could be configured to include text tweets, tweets containing images or videos, or both. The trend of the query terms over time is plotted for both groups, and two tagclouds of popular terms in the search results are presented showing the difference in views between both groups on the search topic. Navigation through search results over time is enabled to allow users to see the top shared content on a given topic on specific dates for each group. Since our collection was collected for users mostly coming from the Arab World, we enable Google translate to allow search and display of results in English for non-Arabic speakers.

DATA COLLECTION

We collected our data through several steps. Initially, we collected Arabic tweets mentioning ISIS by any of its name forms between mid October and end December 2014 using Twitter’s streaming API. The name variations were of two types, namely: those who used the full name of the group such as “الدولة الإسلامية” (“Islamic State”), and those who used the abbreviated version of the name such as “داعش” (Arabic acronym similar to ISIS in English). In all, we collected 3.1 million Arabic tweets authored by more than 180k users. For all users, we collected the last 3,200 tweets in their timeline.

To classify users into Pro- or Anti-ISIS, we got a hint from recent reports [6] that state that ISIS supporters usually use the full name of ISIS (or its variants), while the abbreviated form (or its variants) is preferred by those who oppose ISIS. To validate this claim, we manually labeled 1,000 random tweets containing the full name and another 1,000 containing the abbreviated form as either Pro-ISIS, Anti-ISIS, or neutral (news or spam). We found that for

tweets that use the full name of group, 93% were pro-ISIS, while only 1.2% were anti-ISIS, and the rest were neutral. On the other hand, for tweets that use the abbreviated name, 77% were anti-ISIS, and 7.5% were pro-ISIS. From the set of 180k collected accounts, we retained those who had at least 10 ISIS-related tweets to ensure that they are engaged with the topic of ISIS. Based on our findings, we labeled users who used the full name of ISIS more than 70% of the time as pro-ISIS, and those who use the abbreviated name more than 70% of the time as anti-ISIS. We picked 70%, because 90% of users use the full or abbreviated name forms in 70% of their tweets. Automatic labeling of Twitter accounts yielded 11,332 pro-ISIS accounts and 45,628 anti-ISIS, and the remaining accounts were discarded from our collection. A manual validation of 200 sample users showed that the automatic labeling is 98% accurate. Our final collection contained 123 million tweets authored by 56,960 users, who had an explicit leaning towards or against ISIS. More details about the data and its nature with full analysis can be found in [4].

SYSTEM ARCHITECTURE

The collection of tweets was indexed using Solr¹ with all the tweets' metadata. Metadata included: tweet ID, user name, user ID², links in tweets, if the tweet has a link to YouTube, if the tweet has an embedded image, and the number of retweets. In addition, we added our user classification indicating for each tweet whether it is authored by a pro- or anti-ISIS user. We also indicate whether the tweet was authored *before* or *after* explicitly declared positions towards ISIS. Since the majority of tweets are in Arabic, we have applied one of the available tools for Arabic social text normalization [1], which performs character normalization, word elongation resolution, and emotion detection. It was reported in [1] that these steps significantly improve retrieval effectiveness when searching Arabic social text.

Once a query is submitted to the system, the following steps are applied:

1. Text normalization of tweets text similar to the indexed text.
2. Top 1,000 resulting tweets of searching the index are retrieved for each user group and displayed in parallel. Results are sorted by the number of retweets.
3. An option is available to display only tweets with text, images, or videos.
4. Timeline plot of query terms popularity for both sides over time is displayed, see Figure 1(b). Specific date could be selected to display results for it only.
5. Tag cloud of top terms in results of each group is presented to summarize the view of each group toward the searched topic.

DEMONSTRATION

Figure 1(a) presents a snapshot of the preliminary design of our search system interface. A search box is provided for users to write their queries. A selection of results type is indicated by the users (tweets with images are selected in the shown example). Results are displayed for users sorted by the number of retweets on a split screen, where the left and right sides of the screen show the top shared content by the pro-ISIS and anti-ISIS users on the search topic, respectively. Google translate is enabled on our website to translate Arabic content into English.

Our demonstration enables users to issue a query about an entity or an event, for example "Free Syrian Army" and "Muslim

¹<http://lucene.apache.org/solr/>

²In actual demo, we hide users' identifiable information

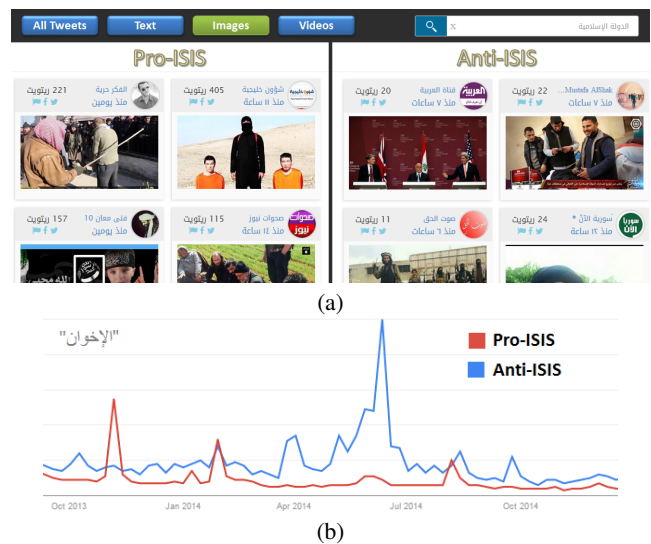


Figure 1: Example of displayed results and plotted timeline for a given search query

Brotherhood". Seeing tweets from both pro- and anti-ISIS camps before and after declarations of explicit stances may serve to shed light on how attitudes of people shift, contingent on their view on ISIS. For example, one user authored the following tweet in March 9, 2013 "An important message from your brother in Syria #jihad #Alnusra_Front #Free_Syrian_Army (link)". The same user wrote nearly a year later (on Feb. 19, 2014) the following tweets: "Islamic State retakes Babila (Syrian town) after #Free_Syrian_Army betrayal". The tweets signal a shift from supporting the Free Syrian Army to opposing it. The displayed tweet timeline (Figure 1(b)) allows user to see the development of the search topic for both sides over time, and can navigate to see search results on specific dates.

Users are allowed to search the collection for various topics, including immaterial ones such as jokes or pictures of kittens and flowers, which we noticed to exist in the accounts of ISIS supporters as well as opponents. Searching through a collection of 123 million tweets can bring a lot of insight about how ISIS supporters think about different topics, even before the appearance of ISIS itself.

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