

Data mining of Twitter posts can help identify when people become sympathetic to groups like ISIS

June 3 2016

Researchers have shown that data mining techniques can be used to understand when Twitter users start displaying supportive behaviour to radical terror groups such as ISIS.

Analysis of 154,000 Europe-based Twitter accounts and more than 104 million tweets (in English and Arabic) relating to Syria show that users of the social media platform are more likely to adopt pro-ISIS [language](#) – and therefore display potential signs of radicalisation – when connected to other Twitter users who are linked to many of the same accounts and share and retweet similar information.

The research, which has been done in close collaboration between Lancaster University and the Open University, is explained in the paper 'Mining pro-ISIS radicalisation signals from social media users'.

The research provides evidence that shows when users begin either sharing tweets from known pro-ISIS accounts, or using extremist language – such as anti-western or pro-ISIS statements – they quickly display a large change in the language they use, tweeting new words and terms, and indicating a clear shift in online behaviour.

Often before a user shows signals of having become radicalised they discuss topics such as politics, using words such as Syria, Israel and Egypt in a negative context and highly frequently. However, once they

display signals of radicalisation their language changes to use religious words more frequently, such as Allah, Muslims and Quran, it was found.

Dr Matthew Rowe, Lecturer at Lancaster University's School of Computing and Communications, said: "We found that social dynamics play a strong role where Twitter users are more likely to adopt pro-ISIS language from other users with whom they have a lot of shared connections.

"Prior to sharing or using radical content or language users go through a period where they display a significant increase in communicating with new users or adopting new terms. This clear change suggests that users are rejecting their prior behaviour and escalating their new behaviour until displaying radicalised signals."

Researchers defined if a Twitter user was using pro-ISIS language by identifying a lexicon of pro-ISIS terms and seeing if they used these words more than five times. They also identified known pro-ISIS Twitter accounts, or accounts suspended for supporting ISIS, and used these to reference where a user shared incitement content from.

Analysis also shed light on the sentiment of each term within the context of Tweets. The word ISIS itself was discovered to be used in a negative and likely derogatory context by Twitter users. Researchers believe pro-ISIS users are more likely to use the term 'Islamic State'.

However, the researchers recognise more work is needed to check the robustness of their data mining methods as only a relative small sample of 727 Twitter users of the 154,000 accounts analysed showed signs of pro-ISIS behaviour. Most of these displayed radical behaviour during the Summer of 2014 when there was significant media and [social media](#) attention given to the execution of ISIS hostages.

"There does appear to be an association between information, such as of executions, appearing in the public domain and the sharing of ISIS content or adopting pro-ISIS language," said Dr Rowe.

More information: Mining Pro-ISIS Radicalisation Signals from Social Media Users: [www.lancaster.ac.uk/staff/rowe ... /mrowe-icwsm2016.pdf](http://www.lancaster.ac.uk/staff/rowe.../mrowe-icwsm2016.pdf)

Provided by Lancaster University

Citation: Data mining of Twitter posts can help identify when people become sympathetic to groups like ISIS (2016, June 3) retrieved 2 May 2024 from <https://phys.org/news/2016-06-twitter-people-sympathetic-groups-isis.html>

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