

Four telltale signs of propaganda on Twitter

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As Election Day 2012 draws nearer, the "Twitterverse" promises to light up again and again with explosions of political opinion. But which tweets are the genuinely expressed feelings of individual users and which are systematic disseminations of information meant to support or discredit an idea—the textbook definition of propaganda?

A new study out of the Georgia Tech School of Computer Science calls such patterns of communication "hyperadvocacy." The study identifies four characteristic behaviors of Twitter hyperadvocates, whose actions clearly separate them from the tweeting behavior of typical users. Associate Professor Nick Feamster directed the study, working with former postdoctoral researcher Cristian Lumezanu and Associate Professor Hans Klein of Georgia Tech's School of Public Policy.

The study examined tweets from two recent politically charged U.S. events: the 2010 U.S. Senate race in Nevada and the 2011 debate over raising the U.S. debt ceiling. Collecting tweets that used the hashtags #nvsen and #debtceiling, the researchers were able to gather approximately 80 percent of all tweets on those issues during the time frame under study. From a dataset of nearly 100,000 tweets for the two issues combined, Feamster and his colleagues identified the following behaviors that characterize propagandistic activities on Twitter by users on both sides of the partisan aisle:

1. Sending high volumes of tweets over short periods of time;
2. Retweeting while publishing little original content;

3. Quickly retweeting others' content; and
4. Coordinating with other, seemingly unrelated users to send duplicate or near-duplicate messages on the same topic simultaneously.

"As social media become more and more ingrained in our culture, and as people use social media more as a source of information about the world, it's important to know the provenance of that information—where it's coming from and whether it can be trusted," Feamster said. "As a user, you might think the information you see is coming from lots of different sources, but in fact it can be part of an orchestrated campaign."

Indeed, the very aspect of Twitter that makes it appear less amenable to traditional propaganda also makes it difficult to address with traditional content analysis techniques. Historically researchers could sift through the content of major media vehicles (The New York Times or Wall Street Journal, for instance) looking for "extreme" language, but such methods are often rendered meaningless in the world of social media where the huge number of users makes it nearly impossible to identify a baseline "standard" language.

"Twitter is a sort of 'extreme democracy'—everyone's a publisher, and people can say whatever they want with no rejection or limit. It's complete freedom of expression," said Lumezanu, now a researcher at NEC Laboratories America in Princeton, N.J. "We had to come up with a way to identify hyperadvocate behavior that didn't try to politically valuate content, because in Twitter the content often can be misleading."

Rather than identify propaganda-like communication by focusing on content, Lumezanu proposed examining behavior instead. The term "hyperadvocacy" is politically neutral and refers simply to those users and content that are consistently biased toward a specific point of view,

without necessarily having a malicious or subversive intent. Starting with the tweets from users whose political stance was clearly known (such as public figures), the researchers used existing algorithms that rely on examining retweeting patterns to determine clusters of users with similar political ideologies. Then they identified as hyperadvocates those users who retweeted predominantly messages of users in the same cluster. These users consistently demonstrated the four characteristic behaviors described above.

In short, the study provides solid preliminary evidence in social media for the kind of message influencing that has long been known to exist within traditional media. Some messages were repeatedly retweeted, creating an echo chamber effect that increased the perceived legitimacy of the positions advocated in those tweets. Researchers also found some differences in tweeting behavior between the two issues under study. For example, the Nevada Senate race had a smaller number of individual tweeters but a relatively larger number of high-volume tweeters, whereas hyperadvocacy in the debt-ceiling debate was effected through more widespread retweeting of low-volume [users](#).

"We rely on media to serve as our window on the world, but media can also distort what we see. It can act as a lens or as a filter, enlarging some topics and minimizing others," said Klein, who directs the Internet and Public Policy Project at Georgia Tech. "Such media effects have long been studied in the mass media. This research looks for similar propaganda-like effects in new media like Twitter."

The study is described in the paper "[bias: Measuring the Tweeting Behavior of Propagandists](#)," which Lumezanu will present at the 6th International AAI Conference on Weblogs and [Social Media](#) (ICWSM '12), to be held June 4-6 at Trinity College in Dublin, Ireland.

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