Twitris Social Media Analysis Tackles Occupy Wall Street, 2012 Elections

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Semantic social web application Twitris, a project of Kno.e.sis at Wright State University, recently added to its social media analysis event lineup coverage of *Occupy Wall Street*, and *Election 2012* is set to debut in the next couple of weeks.

These join earlier efforts such as the *India Against Corruption* Twitris site, and across all of them users can explore the popular topics about the event in the Twittersphere for that day; see related information by clicking on a tag; browse topics by location and see how they trend across different segments of society; search and explore questions related to a topic; view sentiments associated with a particular entity in the topic set; and more.

Leading the effort is Kno.e.sis Ohio Center of Excellence in Knowledge-enabled Computing director and LexisNexis Ohio Eminent Scholar Dr. Amit P. Sheth, who coined the term citizen-sensing and has written on the topic of continuous semantics to analyze real-time data.

Twitris was born in November 2008, on the heels of the Mumbai terrorist attacks where social networking proved a way for people to provide spatial, temporal and thematic situational awareness of events, which when analyzed and entities are identified, can be dynamically connected to related multimedia, to news, reference and Wikipedia articles, and to other tweets, as well as mined for new insights.

As one example, from the Search & Explore tab at Twitris OWS, the question, “Who are the dead people that are mentioned in the context of OWS movement?” results in these answers:

The connection with Rosa Parks, for example, comes in the context of social media comparisons that it’s the same kind of people condemning the OWS movement who would have told Rosa Parks to sit in the back of the bus.

Twitris, says Sheth, “shows the power of semantic technologies, particularly the use of Linked Data. You are analyzing the tweets but then you have to find out the names of the people mentioned, who is alive or dead,” with the help of sources such as DBpedia. “There’s potentially huge background knowledge in custom-created ontologies or in the context of large data sets or knowledge bases in the form of linked or structured data to apply to make better sense and analysis of information,” he adds.

The service so far has processed well over 4 million tweets, more than 9 million hashtags and found in excess of 3 million entities. Head over to its Sentiment Analysis tab on the OWS site and among the important entities mentioned in context of the movement you can gain some insight into how positive or negative are perceptions around the OWS itself, the Tea Party, Mayor Bloomberg, and more. Sentiment analysis soon will be joined by emotion analysis.

When it comes to sentiment analysis, that presents some challenges to the team of PhD students working the project. “In the context of sentiment sarcasm is interesting,” says Sheth. For instance, checking out what are deemed to be positive tweets for Bloomberg can pull up comments like one that uses the word “great” in relation to his job performance. But read the whole tweet and it’s clear that it’s being said sarcastically.

The service is trying to draw on a wide range of dictionaries, including slang and urban dictionaries, to further hone its ability to catch sarcasm, Sheth says. He also points to being able to view sentiment (and eventually emotions) over time to see how it changes, which it did for public sentiment around the public health care option early in the Obama administration and expects to do around candidates for the 2012 election. “We’ll have traffic all year for that,

and that will be a nice longitudinal study for us," Sheth says.

One of the features that Sheth says distinguishes the service is its network analysis, which graphically displays a user interaction network of emerging leaders (based on social network presence) in the area – who is the most influential, who is at the center of a group, how they are linked to each other. From this, you can also get a sense of things like how well-organized a movement is. Click on Occupy Chicago, and there are lots of little nodes and not much connections between them. Click on Occupy_LA, and the picture changes drastically to a much more tightly networked group of actors.

That's the kind of thing that Sheth sees as very important to the use of Twitris as part of the Social Computational Systems (SoCS) program funded by the National Science Foundation to Wright State and Ohio State Universities, for applying citizen- and machine-sensing data for coordination during emergencies. Those involved in coordinating such efforts – Red Cross personnel, for example – could get an understanding of who the other kinds of individuals are who are involved in leading the effort, how they're connected, what they can bring to the table.

While such a version isn't publicly available yet, Sheth says it would be possible to make it available to help such parties influence such co-ordinations, and is very interested in working with those involved in emergency response efforts, country development and health applications to do so.