Social Media for Decision Informatics with Applications to Emerging Events

With increase in technology and use of smart phones there has been a rapid increase in real-time social media in the past 5 years. Interest in leveraging social data-streams to readily detect the emergence of social event in real-time has garnered significant attention, especially as it relates to business intelligence. To this end, researchers at the University of Louisiana at Lafayette have developed a novel temporal-evolution model that employs divergence scores, a series of thresholds, and unsupervised graph clustering methodologies to detect an event onset. Using historical social media data as a test-bed, the current model detects the onset of events 3 minutes (on-average) after the first pertinent social media posting. Regarding Twitter feeds, the current model out-performs the Temporal and Social Terms Evaluation (TSTE) standard in both sensitivity and noise-reduction and is comparable in speed of detection. Thus, the current model offers a preferred platform for decision informatics as it related to emerging event detection in social media.

Picture of the High-Level Process
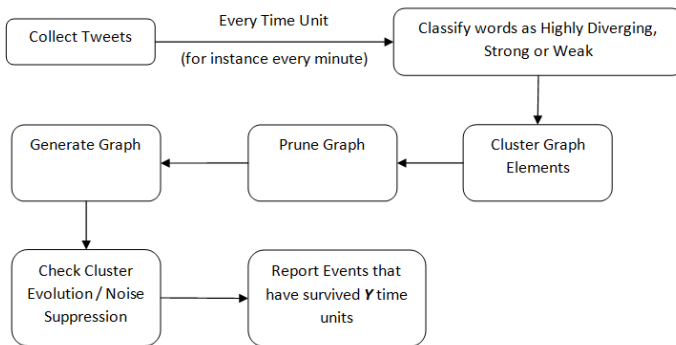
Event Clusters from EDO	Event
evacuated, dearborn, district, courthouse	Dearborn Court evacuated due to bomb threat
price, puts, hiding, cop, fugitive, cuba,fbi	FBI puts 2 million price on fugitive in cuba, who was charged with killing a cop
evacuated, nypd, raymond, bronx, threat, bomb	School in Raymond, bronyx evacuated due to bomb threat
airport, reported, person, fired, shots, iahhouston	Shots fiared at Houston International airport
dropped, stuff, fall, recently, switzerland, scientists, antimatter, nuclear	Switzerland scientists drops antimatter
flash, illinois, watch, issued, cdt, nws, central, warning, thunderstorm	NWS waring to flash floods in Illinois
terrorists, fbi, preventing, terrorism, easy, hindsight, connect, boston, bruce, schneier, adds, cnn	Bruce Schineiner special on Boston bombing on cnn
near, blazes, curtin, australia, fascinatingpics, springs	Picture of a fire tornado near Curtin Springs, Australia
wildfire, california, homes, forces, evacuation, campus, channel	California State University-Channel Islands evacuated due to wild fires
center, memphis, thunderstorm, watch, pueblo, issued, cdt, nws, severe, tornado, warning	Tornado warning in Memphis
photos, fbi, site, washington, benghazi, thursday, releases, reuters, attack, men, release	FBI releases photos of Benghazi attack

KEY ASPECTS OF THE TECHNOLOGY:

- 12x better sensitive to event detection than TSTE standard;
- Computationally less complex than other comparable technologies; scalable on user devices;
- Recent expansion of emergence detection to incorporate additional social media sources such as Tumblr;
- Research funded by the Center for Visual and Decision Informatics, www.nsfcvdi.org

UL Lafayette recognizes that the current technology may have broad public benefit and commercially valuable to various industries. Accordingly, we seek a commercial partner interested in licensing and/or collaborative research opportunities. To learn more about this research and/or partnership opportunities around the current technology, including licensing and sponsored/collaborative research opportunities, please contact Seth Boudreaux, Associate Director of Innovation Management, via the info provided below.

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