tweetStimuli: Discovering Social Influence Structures based on User Behaviour

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Diffusion of information has been subject of study in large scale networks to identify the influence of users. Influence has been targeted as a key feature to reach large populations or influencing public opinion. The influence of individuals has been studied on information diffusion networks to discover what individuals induce others in some way (Gomez-Rodriguez et al., 2010). The word-of-mouth is a diffusion mechanism where one message could reach large populations by individual to individual and it can influence the people's opinion. Microblogs, such as twitter[1], have become interesting platforms to study how diffusion takes place. Twitter has allowed to identify and to rank global influencers based on message propagation (retweets).

Twitter is aimed to disseminate information. Users can subscribe to others in order to receive their broadcasts or tweets. Tweets are pieces of information, which on twitter are restricted to 140 characters. Nowadays, twitter users produce around 250 million tweets per day. Thus, users share and consume a lot of information. The most studied influence mechanism on twitter is message propagation, also called retweeting. It has been focused on tweets identified as ReTweets. They might contain identifiers such as "RT" or "via". Some researchers have proved that influence on twitter is not only limited to simple metrics such as popularity (number of followers) or commitment (number of produced tweets per day), but to mixed factors, which make users called influencers (Cha et al. 2010), like the importance of local influence based on how many subscribers also disseminate the received messages from a certain user (Bakshy et al. 2011). While some web applications provide useful global influence scores, no applications focus on what is called *local influence*: who influences me and who has been influenced by me. The global influence is not important most of times, even though celebrities or journalists could get high ranking as influencers. Users take into account people who they are close related to their followings and followers, and discover others through them. That behaviour can be tracked by their retweets or favourites.

In our research work we have deployed a new application, named *tweetStimuli*, aimed to help analysts to visualize, identify, rank and find the local influence on twitter: who influences you and who has been influenced by you on your social community. The purpose of this tool is to help identifying social clusters of influence based on users' retweets and favourites. The tool could also show how social clusters are formed and how they evolve over time.

tweetStimuli is designed to provide valuable visualization and ranking about the local influence on twitter by presenting: social structures of influence (clusters), how the influence changes over time, different perspectives of influence based on type of tweets and which are the referenced tweets on this process. In the experimentation done after setting-up the tool, its utility has been analysed taking into account different twitter users and how valuable insights from social clusters can be found. The tool is available at http://tweetstimuli.com.

References

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[1] http://twitter.com