

Estimating Influence in Social Networks: Use in the Health Domain

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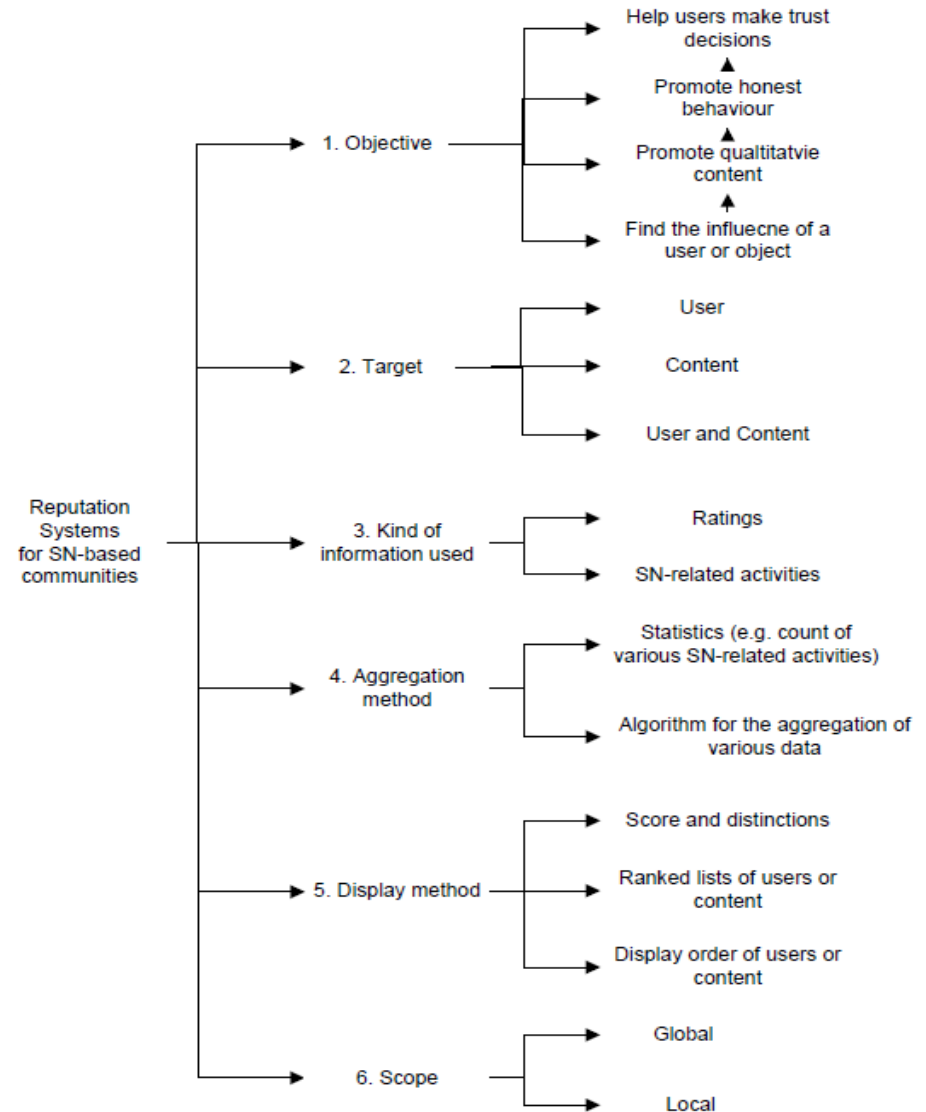
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A. Influence Estimation in Social Networks - State-of-the-Art

□ Analysis of influence works according to various dimensions

- Target
- Scope
- Information Used
- Influence estimation technique
- Display Method



A. Influence Estimation in Social Networks - State-of-the-Art

	Reputation System Description	Target	Scope	Information Used	Reasoning	Display Method
Discovering Influential Nodes from Trust Network [Ahmed et al. 2013]	Influence probabilities are estimated based on trust relationships and action logs	User	Global	Trust relationships and action logs	Influence probabilities based on action log and trust relationships. Suggested algorithm discovers the influential nodes	Ranked list of nodes
Reputation Mechanisms in on-line Social Networks - Influence reputation system in Twitter [Koutrouli et al. 2016]	Influence score for tweets, users and specific topics (hashtags), using social activity information from S/N Twitter	User and Content	Global	Number of inlinks (retweets), outlinks, likes and the length (number of characters) of the tweet.	Calculates: (a) Influence Scores for tweets based on a social activity characteristics regarding this tweet, (b) Influence scores for each user and topic (according of their tweets scores). Then, according to specific thresholds, it chooses the most influential users or hashtags.	Web interface that includes Rank table and charts with statistics.
Inferring User Interests in the Twitter Social Network [Who Likes What]	Finds topics that interest users	Content	Global	Twitter lists	The algorithm infers topic experts using Twitter lists (a user must be registered in twitter lists that refer to a topic at least 10 times) and deduces that a user is interested in a topic if he/she follows at least 3 experts on it.	Ranked list of content
Twitterrank: Finding topic-sensitive influential Twitterers [Twitterrank]	Influence scores for users based on the link structure and topic similarity between twitterers.	User	Global	Number of tweets and set of words contained in a tweet	The algorithm calculates influence scores for user u based on the number of u's tweets and the topic similarity between u's tweets and u's followers' tweets.	Ranked list of users based in content
Measuring Influence on Instagram: a Network-oblivious Approach	Influence scores for Instagrammers and ranking.	User	Global	Number of likes, comments and followers	Influence was based on geometric mean of likes and followers, number of followers per post, number of comments per likes and the difference and ratio between most and least popular post	Score and distinctions
Short and Tweet: Experiments on Recommending Content from Information Streams	Calculation of content interestingness based on URLs posted in tweets.	Content	Global	URLs posted in Tweets, words contained in user and followers' tweets.	12 algorithms based on voting, candidate set (FoF or popular) and ranking topic (Self-topic, followee-topic or none).	Displayed order of content
Cognos: Crowdsourcing Search for Topic Experts in Microblogs [Cognos]	Finds topic experts	User	Global	Twitter lists	Calculates topical expertise for users based on the meta-data of the Twitter lists they belong in.	Ranked list of users based on content
Measuring influence on Twitter	Influence scores for users based on followers, retweets and mentions	User	Global	Number of followers, tweets, retweets and mentions	Influence calculation based on SNP (Social Networking Potential) which is the mean of Retweet and Mention Ratio and Interactor Ratio.	Ranked list of users

B. Implementation of an Influence Estimation System for Twitter

- Influence Estimation regarding the Health Domain for:
 - Hashtags, Tweets, Users
- Use of the following parameters:
 - Numbers of Retweets, Likes, Followers, Followees
- Technology:
 - Python 3.7, Tweepy
- Health topics (hashtags) used:
 - #BreastCancer, #diabetes, #leukaemia, etc.
- Evaluation:
 - Plans for more experiments: various health topics & comparison with other influence / popularity metrics

Thank You!

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