Online Social Networks: Beyond Popularity

Ricardo Baeza-Yates*
Yahoo! Labs
Barcelona, Spain
rbaeza@acm.org

Diego Saez-Trumper
Universitat Pompeu Fabra
Barcelona, Spain
diego.saez@upf.edu

ABSTRACT

One of the main differences between traditional Web analysis and Online Social Networks (OSNs) studies, is that in the first case the information is organized around content, while in the second case it is organized around people. While search engines have done a good job finding relevant content across billions of pages, nowadays we do not have an equivalent tool to find relevant people in OSNs. Even though an impressive amount of research has been done in this direction, there are still a lot of gaps to cover. Although the first intuition could be (and was!) search for popular people, previous research have shown that users' in-degree (e.g. number of friends or followers) is important but not enough to represent the importance and reputation of a person. Another approach is to study the content of the messages exchanged between users, trying to identify topical experts. However the computational cost of such approach - including language diversity - is a big limitation. In our work we take a content-agnostic approach, focusing in frequency, type, and time properties of user actions rather than content, mixing their static characteristics (social graph) and their activities (dynamic graphs). Our goal is to understand the role of popular users in OSNs, and also find "hidden important users": do popular users create new trends and cascades? Do they add value to the network? And, if they don't, who does it? Our research provides preliminary answers for these questions.

Categories and Subject Descriptors

H.3.3 [**Information Search and Retrieval**]: information filtering, retrieval models

General Terms

Algorithms, Design, Experimentation

Keywords

Information Networks, Influence, Social Networks, Web Advertising.

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*Invited speaker

1. SUMMARY

1.1 Do Popular Users Create New Trends?

To answer this question we develop a Trendsetters Ranking to find people that adopt and spread new ideas influencing other people before these ideas become popular. We show that popular users tend to arrive late for new trends, while users in the top of our ranking tend to be early adopters that also influence their social contacts to adopt the new trend. Adopting economics terminology we can say that popular nodes are social hubs, but not innovation hubs. This research was done with colleagues at Univ. Federal of Minas Gerais in Brazil [1].

1.2 How Valuable are Different Users?

To answer this question we will present results from unpublished research that shows that non popular users are also valuable to an OSN.

2. REFERENCES

[1] D. Saez-Trumper, G. Comarela, V. Almeida, R. Baeza-Yates, and F. Benevenuto. Finding trendsetters in information networks. In *Proc. of KDD*, 2012.