New Friends in a Social Ntwork: A Formal Analysis of the Influence of New Friends in a Social Network based on the PageRank Method

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Abstract

The online social networking phenomenon is growing rapidly all around the world. As a consequence, in recent years, several studies have been devoted to the analysis of Social Networks (SN). A specific issue that has been addressed is the identification of *leaders* in a SN based on well-known algorithms such as PageRank and some centrality measures.

In this paper we propose formal mathematical definitions in order to compute the number of friends that a node, i.e., a user of the SN, requires to become the leader of the SN. We also propose two new concepts: "my best potential friend in a SN" and "my best current friend in a SN". We provide formal mathematical definitions and algorithms for these issues.

To validate the feasibility and expediency of our proposal, we present some experimental results that were performed with real data, in particular a subnetwork from Facebook.

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