

Author's Accepted Manuscript

Identifying Social Influence in Complex Networks:
A Novel Conductance Eigenvector Centrality
Model

Xujun Li, Yezheng Liu, Yuanchun Jiang, Xiao Liu



PII: S0925-2312(16)30586-0
DOI: <http://dx.doi.org/10.1016/j.neucom.2015.11.123>
Reference: NEUCOM17198

To appear in: *Neurocomputing*

Received date: 8 April 2015
Revised date: 22 November 2015
Accepted date: 23 November 2015

Cite this article as: Xujun Li, Yezheng Liu, Yuanchun Jiang and Xiao Liu, Identifying Social Influence in Complex Networks: A Novel Conductance Eigenvector Centrality Model, *Neurocomputing* <http://dx.doi.org/10.1016/j.neucom.2015.11.123>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Identifying Social Influence in Complex Networks: A Novel Conductance Eigenvector Centrality Model

Xujun Li^{1,2}, Yezheng Liu^{1,3}, Yuanchun Jiang^{1,3*}, Xiao Liu⁴

¹School of Management, Hefei University of Technology, Hefei 230009, China;

²Administrative School of Anhui, Hefei 230031, China

³Key Laboratory of Process Optimization and Intelligent Decision-making, Ministry of Education, Hefei, Anhui 230009, China

⁴ School of Information Technology, Faculty of Science, Engineering and Built Environment, Deakin University, Burwood, Melbourne, VIC 3125, Australia

*Corresponding author, Email: ycjiang@hfut.edu.cn, Tel: 86-551-2904991

Identifying Social Influence in Complex Networks: A Novel Conductance Eigenvector Centrality Model

Abstract: Identifying influential peers is an important issue for business to promote commercial strategies in social networks. This paper proposes a conductance eigenvector centrality (CEC) model to measure peer influence in the complex social network. The CEC model considers the social network as a conductance network and constructs methods to calculate the conductance matrix of the network. By a novel random walk mechanism, the CEC model obtains stable CEC values which measure the peer influence in the network. The experiments show that the CEC model can achieve robust performance in identifying peer influence. It outperforms the benchmark algorithms and obtains excellent outcomes when the network has high clustering coefficient.

Keywords: Influence identification; conductance network; conductance eigenvector centrality; random walk

1 Introduction

With the explosive growth in the variety and size of social networks, social networks have evolved into one of the well-liked channel for business on the Internet. According to the social media statistics, 16 million small businesses are active on Facebook in 2013. About 86 percent of

Download English Version:

<https://daneshyari.com/en/article/4948538>

Download Persian Version:

<https://daneshyari.com/article/4948538>

[Daneshyari.com](https://daneshyari.com)