DSS special issue on the Theory and Applications of Social Networks

Social networks have existed from historic times as limited structures of individuals tied together through various types of interdependent relationships, such as friendship or knowledge associations. These social networks were generally limited by physical proximity. However, with the advent of Web 2.0 artifacts today's internet based social networks have become phenomena that span the entire globe and bring together people from various cultures and age groups. Social networks have become the medium of choice for family members and friends to keep in touch, interest groups to communicate with like minded people and even government agencies to communicate with its citizens. Social networks are even credited for bringing down repressive regimes. As the use of social networks proliferates, their potential is also clearly seen by industry. It is, therefore, natural for firms to ask the question of how they can utilize the medium to effectively communicate with their customers as well as how they can profit from the phenomena.

With the above as a backdrop, the Center for Research in Electronic Commerce (CREC) at the University of Texas at Austin organized a conference on June 3, 2011, that brought together academic viewpoints as well as those of industry, in addressing a wide range of topics focusing on the Theory and Applications of Social Networks. Two leading industry speakers as well as 18 talks from academics covered critical issues in the area of social networks. Preston McAfee, a Vice President of Yahoo Research spoke on methods for real time assignment of display ads to web sites. Zita Cassizzi, a Vice President of the Dell Computer Company described how interaction between the customer and the company has stimulated product improvements and new product development. Topics addressed include: the nature of these networks; the value generated by them; the theoretical underpinnings for their existence; how they affect sales; how they affect communication; how knowledge sharing takes place in these networks; how organizations use these networks to derive profits; how gender affects knowledge sharing; what are the security issues; can the information available on the network be used for prediction, and are there any inherent strategies to share or receive information? The following selected six articles form a special issue of Decision Support Systems on the Theory and Applications of Social Networks. Each of the articles went through three rounds of blind review and was finally accepted after extensive revisions.

The first article, "Digital Health Communities: The Effect of Their Motivation Mechanisms" by Ba and Wang, focuses on health-related online social networks. This research analyzes data collected from a digital health community to examine what mechanisms can help motivate people. The results suggest that there is a high level of correlation between users' exercise activities and their participation in these digital health communities. This research benefits digital health communities by providing insights into the design of motivation mechanisms. The second paper is titled "Privacy Preserving Actions of Older Adults on Social Media: Exploring the Behavior of Opting out of Information Sharing" by Chakraborty et al. In this paper the authors explore privacy-preserving actions regarding information sharing for older adults on one social media platform — Facebook. More specifically, they study the information sharing behavior of the elderly by observing the extent to which the older adults opt out of sharing information publicly about themselves on their profile pages. In addition, they also observe how much overlap exists between these older Facebook users and their respective friends in terms of their public information sharing habits and explore the differences across gender. Finally for comparative purposes they also collect data on a sample of younger Facebook users and conduct an analysis. The third article by Silva et al. is titled "A Social Network-Empowered Research Analytics Framework for Project Selection". This paper proposes a social network-empowered research analytics framework for research project selections. Scholarmate.com, a professional research social network with easy access to research relevant information, serves as a platform to build researcher profiles from three dimensions, i.e., relevance, productivity and connectivity. Building upon profiles of both proposals and researchers, they develop a unique matching algorithm to assist decision makers (e.g. panel chairs or division managers) in optimizing the assignment of reviewers to research project proposals. The proposed framework is implemented and tested by the largest government funding agency in China to aid the grant proposal evaluation process. The next article, "Distance Matters: Exploring Proximity and Homophily in Virtual World Networks" by Huang et al., studies the role of distance in ICT-enabled virtual worlds, in terms of three dimensions of proximity – space, time, and homophily – and analyzes the impact of distance, time zones, gender, age, and game age on building collaborative relations in online games. The results show that spatial proximity, temporal proximity, and homophily in age and game age have a strong impact on players' behavior in creating online relations in virtual worlds, however, there is no evidence of gender homophily. This study suggests that offline proximity plays an important role in bringing people together in virtual worlds. The fifth paper titled, "Social Network-Embedded Prediction Markets: The Effects of Information Acquisition and Communication on Predictions" by Qiu et al., studies a social network-embedded prediction market that integrates carefully designed market mechanisms to elicit and gather dispersed information that can improve predictions. Simulation results show that their network-embedded prediction market can produce better predictions as a result of the information exchange in social networks and can outperform other non-networked prediction markets. The sixth, final paper, "Information and Trust in Hierarchies", by Salas-Fumas and Sanchez-Asin examines how information costs and congruence in the objectives of collaborators in production jointly affect the equilibrium number of managers and employees in an economy where individuals with

different endowments of skills make occupational choices. They use the ratio of employees per manager, i.e. the average span of control in the equilibrium, as a summary of how production is organized in the economy. The theory predicts that generalized trust, favoring congruence in objectives, will imply higher average span of control in the equilibrium, while the intensity of use of information and communication technologies that lowers information costs has an undetermined effect on the equilibrium span of control. The authors conduct an empirical test of the hypotheses, with data from the Spanish regions, and confirm that social capital-trust has a positive effect on the average span of control, while the sign of the effect of information-communication capital varies with the kind of information assets: communications, software or hardware.

Being at the frontiers of social network research and practice, we hope that the above articles will be highly cited and will spawn future research in the area. We thank all the referees who gave their time in reading through and suggesting detailed and extensive changes. We also thank the editor in chief for giving us the opportunity to develop a special issue of DSS on this frontier topic.

Sulin Ba
Guest Editor
University of Connecticut, USA

H. Raghav Rao
Guest Editor
University at Buffalo, USA
Sogang University, Republic of Korea
Corresponding author at: University at Buffalo, USA. Tel.: +1 716 645 3425.
E-mail address: mgmtrao@buffalo.edu.

1 June 2011