

## **Informetrics on social network mining: research, policy and practice challenges**

### *Introduction*

Data science is the technique of using data to learn knowledge with the goal of generating analytical value by extracting meaningful parts from the data. It combines theory and techniques from many fields, including applied mathematics, statistics, pattern recognition, machine learning, data visualization, data warehousing and high-performance computing. Data science techniques can help with the proper processing of data and assist in research studies in fields such as library science. Social network analysis (SNA) is an analytical method that is used to explore social structure based on network theory and graph theory. Centrality is a concept commonly used in SNA to describe the importance of a node (person) in the network. These days many social networks [e.g. academic social networks (ASNs)] have emerged for professional interactions between academic scholars. Specifically, informetrics on social network mining is focused on using data mining techniques for dealing with informetrics tasks in ASNs.

### **Fewer research questions, diverse fields**

The first field describes the “Informetrics.” In this special issue, [Wang \*et al.\* \(2019\)](#) designed a four-dimensional (4-D) representation method to evaluate the service quality in university libraries. The sampling and statistical results through the undergraduate students and teachers showed the accuracy and credibility of the proposed method. [Xu \*et al.\* \(2019\)](#) adopted the unified theory of acceptance and use of technology (UTAUT) to investigate the user-purchasing behavior under the social network. The empirical examination showed the social network friend recommendations have a positive impact on consumers’ willingness to purchase. [Liu \(2019\)](#) investigated the users’ willingness for acceptance of background music service in university libraries on intelligent campus. The empirical results can act as a reference for the improvement of the intellectualization of university libraries and its atmosphere. [Liu \*et al.\* \(2020\)](#) presented the novel  $p_u$ -index which is a relatively superior mathematical evaluation model for the scholars’ performance of citation indicators and usage indicators. This index can not only provide the fair evaluation approach for scientists but also figure out the critical influence of the time lag of cited indicators. [Zheng and Liu \(2020\)](#) also designed the topic–author–citation evaluation model based on the  $z$  index and proposed the ZAS index to evaluate scholars’ academic performance. [Wang \(2020\)](#) integrated expectancy disconfirmation theory (EDT) and intelligent computer-assisted language learning (ICALL) theory to investigate the computer-assisted review tools users’ learning behavior. Finally, the statistical analysis showed the users’ initial expectations of computer-assisted learning tools and the final learning outcomes have the positive correlation.

The second field focuses on “Techniques.” In this special issue, [Kanwar \*et al.\* \(2019\)](#) proposed one new node ranking technique by taking the core(s) as the origin and second-order neighborhood of a node as its immediate sphere of influence. As the results, the proposed method which modified the K-shell decomposition can be used to rank authors, research articles and fields of research. [Arshad \*et al.\* \(2019\)](#) proposed a novel method for mining scientific trends using topics from Call for Papers (CFP). In addition, the authors also extended the vocabulary of terms from the WordNet dictionary and Growbag dataset. As the results, the analysis can be useful for the scientific community and research scholars to understand the future research trends. [Li and Hu \(2019\)](#) used the rough set theory to process



the SNA. The proposed algorithm can guarantee the anonymity requirement and privacy protection of cybersecurity in social network environment. [Chen et al. \(2020\)](#) applied the SNA to investigate the country connectedness of the acquirer-target banks in cross-border merger and acquisition (M&A). The results pointed out the global issue about cross-border M&A in banking sector, particularly investigating the role of difference in the independent shareholder and board size between acquirer and target banks on synergy gains.

## Conclusion

This issue includes both technological and non-technological aspects related to these rapidly growing and evolving areas of library science and data science. We would like to thank all the contributors of this special issue for their excellent participation and valuable scientific contributions. We also deeply appreciate the Editors in Chief, Professor Dickson K.W. Chiu and Professor Kevin K.W. Ho, for their kind support for this special issue. We are confident that readers of *Library Hi Tech* and scholars researching in the social network mining and informetrics area find this special issue of great interests and benefits.

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