

Knowledge discovery and management on online social networks and media

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Nowadays, online social networks, such as Facebook,¹ Twitter² and Weibo,³ have been adopted by billions of people as the main platforms for daily interaction and socialisation. People disseminate information, express personal opinions, network with others who share the same interest, make businesses and even political campaigns on online social networks. With the recent development on mobile technology, online social networks can be accessed anytime, anywhere. Using online social networks has appeared to be not only a way of communication but also a lifestyle. Consequently, Web social media has attracted much interest from the research community, aiming at gaining a better understanding of not only individual users' but also their collective behaviours, resulting in many theoretical and methodological advancements such as online social network analysis (e.g., [2]), public opinions (e.g., [3]), and community's health and wellbeing on social networks (e.g., [1]). The opportunity has become more apparent and significant, along with the large volume of online social media data becoming

available day-by-day. Knowledge discovery and management on online social networks and media has been one of the most popular, promising technologies in online networks and online media study.

This Special Issue is focused on concepts and algorithms suitable for investigating massive data of online social networks and media. The special issue discusses theories and methodologies from different disciplines such as data mining, information retrieval, machine learning, user behaviour modelling, and economic, social and cultural computing. The discussions encompass the theoretical basis and related tools to formally represent, measure, model, and mine meaningful patterns from large-scale data sets of online social networks and media. Eventually, from many submissions the Special Issue selected six articles for publication based on peer review. These articles are briefly introduced as follows.

Semantic understanding of textual data is essential for knowledge management on online social media. A literature survey article, "A Survey on Text Classification and Its Application", made an extensive and insightful overview of state-of-the-art techniques and applications of text classification. The work not only provided assistance to the related research community to build more reliable text classification methods and

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¹ <https://www.facebook.com/>

² <https://twitter.com>

³ <https://www.weibo.com>

applications upon, but also pointed out the potential challenges that demand efforts and may lead to more successes in knowledge discovery and management on textual data.

Aiming at improving our accessibility to the semantics in text documents, “*Document Classification using Convolutional Neural Networks with Small Window Size and Latent Semantic Analysis*” proposed a parsimonious convolutional neural network (CNN) for text document classification. The parsimonious CNN architecture replicated the ease of use and high classification performance of linear methods, and successfully leveraged the performance of semantic analysis by training latent semantic analysis (LSA) word vectors locally.

Another article, “*Image Inspired Chinese Couplet Generation*”, has a focus combining texts and images on social media. The authors designed a model based on Neural Image Caption (NIC) to generate Chinese couplets with semantic understanding of the artistic conception of an image. The work advanced knowledge and methodology in not only Natural Language Processing but also culture understanding in anthropology.

With access to a massive data set collected from Weibo, one of the most widely-used social media platforms in the world, “*Exploring Propagation Factors of Social Media Moods for Stock Prices Prediction*” proposed an integrated framework of social media mood mining. With creativity, the framework analyses the factors existing in information transmission and propagation and creatively, uses the findings to predict stock changes with precision.

In “*From Traceability to Provenance of Agricultural Products through Blockchain*”, a knowledge management problem in agricultural product safety has been studied. The research shows that knowledge discov-

ery and management have been applied to problems in wider domains and areas, especially with the availability of big, heterogeneous data. The last article, “*ITIL Process Management to Mitigate Operations Risk in Cloud Architecture Infrastructure for Banking and Financial Services Industry*”, studied a management problem on cloud infrastructure architecture and delivered methodological contributions to information and knowledge management.

With these inspiring works, the Special Issue has made itself an theoretical and empirical exploration of important and interesting research topics in knowledge discovery and management using Big Data and specifically, social media. The Special Issue can be a valuable reference to academia, researchers, and industrial practitioners who are interested in the recent advancement in these important and emerging areas in Web Intelligence research.

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