Editorial

Social Big Data: Mining, Applications, and Beyond

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The social nature of Web 2.0 leads to the unprecedented growth of discussion forums, product review sites, microblogging, and other social media platforms. Existing social media data mining research can be broadly divided into two groups. The content-based approach focuses on extracting insights from user generated contents on various social media platforms. The network-based approach focuses on extracting knowledge by analyzing the networks from the interactions among online users.

The rich user- and device-generated data and user interactions generate complex social big data that is different from classical structured attribute-value data. The data objects take various forms including unstructured text, geo-tagged data objects, and data object streams. The social networks formed from interactions among data objects also carry rich information for analyzing user behavior.

In this special issue, we have invited state-of-the-art research contributions addressing prominent research issues for social big data to advance our knowledge in social big data mining and analytics and extend the knowledge to related disciplines. We received 20 submissions from across the world. After a rigorous reviewing process, we finally accepted 10 papers. The accepted papers address challenging issues for the social big data technology, ranging from novel data mining applications from complex data and general methodological machine learning models to network analysis and evaluation.

(i) Three papers proposed advanced data mining techniques for novel applications using user- and device-generated data, including "Supervised Learning for Suicidal Ideation Detection in Online User Content", "Weibo Attention and Stock Market Performance: Some Empirical Evidence", and "A Trip Purpose-Based Data-Driven Alighting Station Choice Model Using Transit Smart Card Data".

(ii) Two machine learning methodological papers for cluster analysis and data representation learning are included, namely, "Self-Adaptive k-Means Based on a Covering Algorithm" and "Robust Semisupervised Nonnegative Local Coordinate Factorization for Data Representation".

(iii) Three papers reported research results on social network analysis for information credibility and social influence, ranging from "Research of Deceptive Review Detection Based on Target Product Identification and Metapath Feature Weight Calculation" and "Behavior-Interior-Aware User Preference Analysis Based on Social Networks" to "AIRank: Author Impact Ranking through Positions in Collaboration Networks".

(iv) Two papers, "A Multi-Granularity Backbone Network Extraction Method Based on the Topology Potential" and "A Methodology for Evaluating Algorithms That Calculate Social Influence in Complex Social Networks", address the under investigated issues of network summarization and social influence evaluation. The research results can benefit network analysis in general and social network analysis specifically.

In the modern digital society, the mobile network and the Internet of Things are transforming what is meant to be social online. Humans, everyday objects, and smart devices interact and form an intelligent social network that is a highly adaptive complex system. The papers in this special issue are mainly contributed by the data science, machine learning, and network science communities. Research results in these papers highlight the wide range of complex research issues for the social big data research. Looking ahead, we call for research from other disciplines such as human-computer interaction, pervasive computing and computational social science to work together with the data science community to advance social big data research.

Last but not least, we would like to express our deep gratitude to reviewers for their valuable contributions that improve the quality of papers in this special issue.

Conflicts of Interest

The authors declare that they do not have any conflicts of interest.

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