Special Issue on
Collective Behavior Analysis and Graph Mining in Social Networks 2024

CALL FOR PAPERS

Social networks provide a convenient place for people to interact and have taken a significant part in people's lives. An increasing number of social networks emerge and evolve every day, such as online social networks, scientific cooperation networks, airport passage networks, etc. Members in social networks communicate with each other, and they may create new connections or break existing connections, driving the evolution of complex network structures. In addition, dynamics in social networks, such as opinion formation, spreading dynamics, and collaborative behaviors, are induced by interpersonal contacts and interactions, and may result in complex collective phenomena, demonstrating the basic role of social networks as a complex system. Analyzing complex human behaviors and mining graph topology can help to understand the essential mechanism of macroscopic phenomena, to discover the potential public interest, and to provide early warning of collective emergencies. Therefore, social network mining has become a promising research area and attracts lots of attention.

Studies on social networks in general can be divided into two categories, i.e., theoretical modeling and data-driven methods. Theoretical methods use statistical physics, Monte-Carlo simulations, and stochastic process to model human interactions and reveal the microscopic dynamical essence of collective phenomena. However, theoretical methods often lack the ability of practical prediction. Data-driven methods use machine learning, data mining and natural language processing to exploit hidden patterns from the data in social networks, and then estimate the future evolution of social behaviors, but these methods do not have good interpretability of collective phenomena and may have a biased estimation due to uniformly sampling from the whole network. In recent years, big data in social networks also bring challenges to process social data and investigate human behaviors. With the appearance of large language models, we can apperceive user patterns more accurately from multimodal data. Therefore, advanced interdisciplinary data analysis and data mining methods should be proposed and developed to study social networks.

The goal of this Special Issue is to welcome contributions of original research and review articles in the quickly growing research field of social networks. We encourage articles on multidisciplinary methods for social data mining. The related disciplines include machine learning, information theory, applied mathematics, computational and statistical physics.

Potential topics include but are not limited to the following:

- ▸ Social network applications with a large language model
- ▸ Network representation learning
- ▸ Streaming social data processing
- ▸ Heterogeneous social network mining
- ▸ Deep learning in social computing
- ▸ Behavior analysis on social networks
- ▸ Pattern recognition of behaviors
- ▸ Human sentiment mining and analysis
- ▸ Individual interest modeling
- ▸ Personalized recommender systems
- ▸ Knowledge graph and its applications
- ▸ Essential mechanism of information diffusion and control
- ▸ Modeling the formation and phase transition of collective phenomena
- ▸ Trend prediction of information propagation

Authors can submit their manuscripts through the Manuscript Tracking System at https://review.wiley.com/submit?specialIssue=870039.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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