



Mathematics-Based Methods in Graph Machine Learning

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Message from the Guest Editors

Graphs are ubiquitous in the real world. The analysis of graphs has a long history, and fruitful theoretical results are obtained in many fields of mathematics. With the development of information technology and the Internet, graph data are now widely collected for research. In the age of big data, graph analysis is an emerging field in machine learning. In classic machine learning, spectral clustering based on graph cuts and graph-based semi-supervised learning have had a significant impact on many fields. In the period of representation learning, graph embedding has received widespread attention, and many mathematics-based methods dominate this field. Recently, graph neural networks, which originate from spectral graph theory, generalize neural networks and deep learning to the graph. A broad class of models, which leverage results from mathematics are proposed. These models achieve new state-of-the-art performances in practical scenarios. The aim of this Special Issue is to highlight the recent advances in the development of mathematics-based graph machine learning, including theories, models, algorithms, and applications in the real world.





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Message from the Editor-in-Chief

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