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Call for Papers

Deadline for submissions: 31st July 2024

Special Issue on:

Graph Representation Learning for Feature Extraction and Signal Processing

Graphs are ubiquitous data structures that have been used extensively in computer science and related fields. All of these fields and more, including 3D-vision, social networks, biological protein-protein networks, signal processing can be easily modeled as graphs that capture interactions between individual units. The recent success of graph-based neural networks, such as the graph neural network (GNN) and active learning/reinforcement learning with graphs, has boosted graph pattern recognition, graph data mining, image classification, object detection, semantic segmentation, and position detection research.

The success of graph representation learning in some domains is partially attributed to the rapidly developing computational resources and the effectiveness of GNNs to extract latent representations. However, GNNs still have limitations in some specific graph data scenarios. More scalable theories and models are yet worth studying for graph representation learning. The complexity of graph data poses significant challenges to existing graph representation learning in feature extraction and signal processing. For instance, there are millions of nodes and billions of edges in specific tasks, such as transportation networks, node clouds, and recommendation systems. What's more, in the era of the Internet of Things, sensor networks are the key physical basis of sensor node communication.

Topics of interest include, but are not limited to:

- Deep graph neural networks
- Graph learning and embedding
- Knowledge and semantic graph management
- Dynamic and spatial-temporal graph management
- Distributed and parallel graph data mining
- Graph Neural network explainable theory
- Graph neural network-based designs for dynamic complex systems
- Graph future fusion and presentation
- Graph Neural network for computer vision
- Unsupervised graph clustering
- Graph Representation Learning for transportation
- Graph Representation Learning for recommendation system
- Active learning/ Reinforce learning for graph data
- Graph diffusion network for high quality node representation learning

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