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Active semisupervised community detection based on asymmetric similarity measure.


Summary: Semisupervised community detection algorithms use prior knowledge to improve the performance of discovering the community structure of a complex network. However, getting those prior knowledge is quite expensive and time consuming in many real-world applications. This paper proposes an active semisupervised community detection algorithm based on the similarities between nodes. First, it transforms a given complex network into a weighted directed network based on the proposed asymmetric similarity method, some informative nodes are selected to be the labeled nodes by using an active mechanism. Second, the proposed algorithm discovers the community structure of a complex network by propagating the community labels of labeled nodes to their neighbors based on the similarity between a node and a community. Finally, the performance of the proposed algorithm is evaluated with three real networks and one synthetic network and the experimental results show that the proposed method has a better performance compared with some other community detection algorithms.

Keywords: complex network; community detection; active learning; label propagation
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