Title: A fast heuristic detection algorithm for visualizing structure of large community

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A fast heuristic detection algorithm for visualizing structure of large community

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Highlights

- We propose a community detection algorithm.
- Our method is designed for the medium and large scale weighted networks.
- It is specifically designed for reducing visual complexity of the layout.
- It is a heuristic method, and its most important property is its less computational time.
- Our algorithm computational time is less than other comparative methods.

Abstract

With the increase in number of users, social networks data is growing more big and complex to examine mutual information between different objects. Different graph visualization algorithms are used to explore such a big and complex network data. Network graphs are naturally complex and can have overlapping contents. In this paper, a novel clustering based visualization algorithm is proposed to draw network graph with reduced visual complexity. The proposed algorithm neither comprises of any random element nor it requires any pre-determined number of communities. Because of its less computational time i.e. $O(n\log n)$, it can be applied effectively on large scale networks. We tested our algorithm on thirteen different types and scales of real-world complex networks ranging from $N=10^1$ to $N=10^6$ vertices. The performance of the proposed algorithms is compared with six existing widely