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# A fast algorithm for overlapping community detection

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Author(s)

Mostafa Elyasi ; Mohammadreza Meybodi ; Alireza Rezvanian ; Maryam Amir Haeri

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**Abstract:**

Nowadays, the emergence of online social networks have empowered people to easily share information of social networks with similar users and their friends from community structures of networks. Uncovering networks plays an important role in network analysis with many applications such as finding a set of experienced common activities, finding a set of similar people for marketing goals, to mention a few. Although, several detection have been presented in the literature, online users simultaneously interact with their friends having to join more than one group at the same time which leads to the formation of overlapping communities. I realize a realistic analysis of networks. In this paper, we propose a fast algorithm for overlapping community detection. In the first phase, the Louvain method is applied to the given network and in the second phase a belonging matrix determines how much a node belongs to a community. Finally, some of the found communities are merged based on modularity measure. The performance of the proposed algorithm is studied through the simulation on the proposed algorithm outperforms several well-known overlapping community detection algorithms.

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**Authors**

Mostafa Elyasi

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