عنوان مقاله:

COGNISON: A Novel Dynamic Community Detection Algorithmin Social Network

نویسندگان:

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خلاصه مقاله:

The problem of community detection has a long tradition in data mining area and has many challenging facet, especially when it comes to community detection in time-varying context. While recent studies argue the usability of social science disciplines for modern social network analysis, we present a novel dynamic community detection algorithm called COGNISON inspired mainly by social theories. To be specific, we take inspiration from prototype theory and cognitive consistency theory to recognize the best community for each member by formulating community detection algorithm by human analogy disciplines. COGNISON is placed in representative based algorithm category and hints to further fortify the pure mathematical approach to community detection with stabilized social science disciplines. The proposed model is able to determine the proper number of communities by high accuracy in both weighted and binary networks. Comparison with the state of art algorithms proposed for dynamic community discovery in real datasets shows higher performance of this method in different measures of Accuracy, NMI, and Entropy for detecting communities over times. Finally our approach motivates the application of human inspired models in dynamic community detection context and suggest the fruitfulness of the connection of community detection field and social science theories to each other.

کلمات کلیدی:

Social Network; Clustering; Cognitive Modeling; Evolution

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