

Spatiotemporal Community Detection and Analysis of Associations among Overlapping Communities

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Abstract : Understanding the relationships among communities of users is the key to blueprint the evolution of human society. Majority of people are equipped with GPS devices, such as smart phones and smart cars, which can trace their whereabouts. In this paper, we discover communities of device users based on real locations in a given time frame. We, then, study the associations of discovered communities, referred to as temporal communities, and generate temporal and probabilistic association rules. The rules describe how strong communities are associated. By studying the generated rules, we can automatically extract underlying hierarchies of communities and permanent communities such as work places.

Keywords : association rules, community detection, evolution of communities, spatiotemporal

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