

An Efficient Spatio-Temporal Mining Approach to Really Know Who Travels with Whom!

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Abstract

Recent improvements in positioning technology has led to a much wider availability of massive moving object data. A crucial task is to find the moving objects that travel together. Usually, they are called spatio-temporal patterns. Due to the emergence of many different kinds of spatio-temporal patterns in recent years, different approaches have been proposed to extract them. However, each approach only focuses on mining a specific kind of pattern. In addition to the fact that it is a painstaking task due to the large number of algorithms used to mine and manage patterns, it is also time consuming. Additionally, we have to execute these algorithms again whenever new data are added to the existing database. To address these issues, in this talk we first redefine spatio-temporal patterns in the itemset context. Secondly, we propose a unifying approach, named GeT Move, using a frequent closed itemset-based spatio-temporal pattern-mining algorithm to mine and manage different spatio-temporal patterns. GeT Move is proposed in two versions which are GeT Move and Incremental GeT Move. Experiments performed on real and synthetic datasets and the experimental results will be also presented to show that our approaches are very effective and outperform existing algorithms in terms of efficiency. Finally we will present some future work.