URN etd-0407109-183725-2050
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Statistics This thesis had been viewed 52 times. Download 17 times.
Department
Year 2004
Semester 1
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Algorithms and Applications for Mining Surprising Periodic Patterns
Date of Defense 0000-00-00
Page Count 68
Keyword
Periodic Patterns
Surprising Periodic Patterns

Abstract
In the previous study of periodic patterns, we always consider a pattern is important if it is frequent occur in database. However, in some application such as mining loading record of server, mining transition of weather, mining seismic data … et al., probably, we need to focus on extraordinary information that is rare occur in database. In this regard, previous studies that focus on mining frequent events are not appropriate any more.
Fortunately, surprising periodic patterns mining such as InfoMiner and PF_SP Miner solved this problem. Surprising periodic patterns mining adopt information value to estimate and filter out extraordinary events that we are interested. But both algorithms do not have satisfying performance. In order to improve the performance of mining surprising periodic patterns, we propose a new algorithm to deal with surprise periodic pattern mining efficiently, and denominate MD_SP (Mask Decomposition Surprising Patterns). MD_SP algorithm use mask and decomposition to get all sub-periodic patterns, and compress them by a particular technique. Finally, we can find out surprise periodic patterns from them by estimating their information values. Besides, we propose another algorithm PD_SP (Phase Decomposition Surprising Patterns) which divides mining process into several phases to speed up the mining process.
Advisory Committee Jen-Peng Huang - advisor

Files etd-0407109-183725-2050-001.pdf

indicate access worldwide
Date of Submission 0000-00-00