

UNIVERSITY OF SOUTH FLORIDA

Defense of a Master's Thesis

Flexible and Feasible Support Measures for Mining Frequent Patterns in Large Labeled Graphs

by

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For the MSCS degree in Computer Science & Engineering

We propose a novel framework for constructing support measures that brings together existing minimum-image-based and overlap-graph-based support measures. Our framework is built on the concept of occurrence / instance hypergraphs. Based on that, we present two new support measures: minimum instance (MI) measure and minimum vertex cover (MVC) measure, that combine the advantages of existing measures. In particular, we show that the existing minimum-image-based support measure is an upper bound of the MI measure, which is also linear-time computable and results in counts that are close to number of instances of a pattern. We also provide polynomial-time relaxations for both measures and bounding theorems for all presented support measures in the hypergraph setting. We further show that the hypergraph-based framework can unify all support measures studied in this paper. This framework is also flexible in that more variants of support measures can be defined and profiled in it.

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THE PUBLIC IS INVITED

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