

Some graph optimization problems in data mining

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Abstract

Graph-theoretic ideas have become very useful in understanding modern large-scale data-mining techniques. We show in this talk that ideas from optimization are also quite useful to better understand the numerical behavior of the corresponding algorithms. We illustrate this claim by looking at two specific graph theoretic problems and their application in data-mining. The first problem is that of reputation systems where the reputation of objects and voters on the web are estimated; the second problem is that of estimating the similarity of nodes of large graphs. These two problems are also illustrated using concrete applications in data-mining.