

学术研究

属性赋权的K-Modes算法优化

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摘要 传统K-Modes算法的一个主要问题是属性选择问题。K-Modes算法在聚类过程中对每一个属性都同等看待, 而在实际应用中, 很多数据集仅有几个重要属性对聚类起作用。为了考虑不同属性对聚类的不同影响, 将K-Modes聚类算法与属性权重的最优化结合起来, 提出一种属性自动赋权的FW-K-Modes算法。该算法不仅可以提高传统K-Modes聚类算法的聚类精度, 还能分析各维属性对聚类的贡献程度, 实现关键属性的选择。对多个UCI数据集进行了实验, 验证了该算法的优良特性。

关键词 [K-Modes聚类](#) [属性选择](#) [自动属性赋权](#)

分类号

Optimization of K-Modes Algorithm with Feature Weights

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Abstract

One major problem of the traditional K-Modes algorithm is the selection of features. The K-Modes clustering algorithm treats all features equally in the clustering process. But in practice, there are only a few important features in many data sets. To consider the particular contribution of different attributes, this paper proposes an improved algorithm called FW-K-Modes algorithm, which incorporates the K-Modes clustering algorithm with feature weight optimization. The proposed algorithm can not only improve the clustering precision in comparison with the traditional K-Modes clustering algorithm, but also analyze the important level of each feature in the clustering process and implement the selection of key features. The experimental results on several UCI machine learning data sets validate the effectiveness of the proposed algorithm.

Key words [K-Modes clustering](#) [feature selection](#) [automated feature weighting](#)

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