

论文

## 可变相似性度量的近邻传播聚类

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摘要

近邻传播(AP)聚类算法面临的一个问题是不适用于多重尺度及任意空间形状的数据聚类处理。该文从数据分布特性的表征出发,提出了一种改进的近邻传播聚类算法AP-VSM(Affinity Propagation based on Variable-Similarity Measure)。首先,综合数据的全局与局部分布特性,设计了一种数据可变相似性度量计算方法,该度量可以有效地反映数据实际聚类的分布特性;然后在传统AP算法框架基础上,构造出基于可变相似性度量的近邻传播聚类算法,从而拓展了传统AP算法的数据处理能力。仿真实验验证了新方法性能优于传统AP算法。

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## Affinity Propagation Clustering Based on Variable-Similarity Measure

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Abstract

Affinity Propagation (AP) clustering is not fit to deal with multi-scale data cluster as well as the arbitrary shape cluster issue. Therefore, an improved affinity propagation clustering algorithm AP-VSM (Affinity Propagation based on Variable-Similarity Measure) is proposed embarking from the token of data distribution characters. First, a kind of variable-similarity measure method is devised according of characters of global and local data distribution, which has the ability of describing the characters of data clustering effectively. Then AP-VSM clustering algorithm is proposed base on the frame of traditional AP algorithm, and this method has extended data processing capacity compared with traditional AP. The simulation results show that the new method is outperforming traditional AP algorithm.

Key words [Data processing](#) [Cluster analysis](#) [Affinity Propagation \(AP\) clustering](#) [Variable-similarity measure](#) [Manifold analysis](#)

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