

特征加权和优化划分的模糊 c 均值聚类算法

肖林云, 陈秀宏, 林喜兰

(江南大学 数字媒体学院, 江苏 无锡 214122)

摘要: 在传统 FCM 算法基础上提出一种称为特征加权和优化划分的模糊 c 均值算法 (WGIFP-FCM). 该算法结合了优化划分法和特征权重思想, 得到特征权重向量迭代公式并在聚类处理过程中自适应地更新. 仿真实验结果表明, 该算法能科学地计算出样本特征权重向量, 获得优于 GIFP-FCM、WFCM 和 FCM 的聚类效果, 具有一定实际应用价值.

关键词: 聚类; 模糊聚类算法; 特征权重; 聚类精度

Feature Weighted and Improved Partition Fuzzy

C-Means Cluster Algorithm

XIAO Lin-yun, CHEN Xiu-hong, LIN Xi-lan

(School of Digital Media, Jiangnan University, Wuxi 214122, China)

Abstract: This paper proposes a new algorithm based on the FCM, which is called feature weighting and optimal fuzzy partition of fuzzy c-means algorithm (WGIFP - FCM). This algorithm combines the optimization partition method and the feature weight idea, obtains feature weight vector formula and updates it in the entire clustering process. Simulation experiments have proved that the proposed algorithm has gotten better clustering results than GIFP - FCM, WFCM and FCM while calculating the weighting vector scientifically, and so it will be available in practice.

Key words: clustering Algorithm; Fuzzy C-Means; feature weight; clustering accuracy

作者简介:

肖林云 男, (1988-), 硕士研究生. 研究方向为模式识别、图像处理. E-mail: 18206181357@163.com.

陈秀宏 男, (1964-), 博士后, 教授. 研究方向为模式识别、图像处理、人工智能.

林喜兰 女, (1989-), 硕士研究生. 研究方向为数字图像处理.