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论文

最新目录 | 下期目录 | 过刊浏览 | 高级检索

◀ 前一篇 | 后一篇 ▶

基于近似决策熵的属性约简

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Attribute reduction based on approximation decision entropy

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摘要

图/表

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摘要

粗糙集理论已被证明是一种有效的属性约简方法。目前有许多启发式属性约简算法已被提出, 其中基于信息熵的属性约简算法受到了广泛的关注。为此, 针对现有的基于信息熵的属性约简算法问题, 定义一种新的信息熵模型——近似决策熵, 并提出一种基于近似决策熵的属性约简(ADEAR)算法。通过在多个UCI数据集上的实验表明, 与现有算法相比, ADEAR算法能够获得较小的约简和较高的分类精度, 具有相对较低的计算开销。

关键词 : 粗糙集, 属性约简, 信息熵, 近似决策熵

Abstract :

The rough set theory is proved to be an effective method for attribute reduction. By now, many heuristic attribute reduction algorithms have been proposed, where the information entropy-based attribute reduction algorithms have received much attention. To solve the problems of the current information entropy-based attribute reduction algorithms, a new model of information entropy, approximate decision entropy, is defined, and an approximate decision entropy-based attribute reduction algorithm, called ADEAR, is also proposed. Some experiments are carried out on several UCI data sets. The experimental results show that ADEAR algorithm can obtain smaller reducts and higher classification accuracies than the current algorithms, and the computational cost of ADEAR algorithm is relatively low.

Key words : rough sets attribute reduction information entropy approximation decision entropy

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