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研究、探讨

一种稀疏最小二乘支持向量机

赵 会，黄景涛

河南科技大学 电子信息工程学院，河南 洛阳 471003

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摘要 针对最小二乘支持向量机缺乏稀疏性的问题，提出了一种基于边界样本的最小二乘支持向量机算法。该算法利用中心距离比来选取支持度较大的边界样本作为训练样本，从而减少了支持向量的数目，提高了算法的速度。最后将该算法在4个UCI数据集上进行实验，结果表明：在几乎不损失精度的情况下，可以得到稀疏解，且算法的识别速度有了一定的提高。

关键词 稀疏性 最小二乘支持向量机 中心距离比 边界样本

分类号 TP181

Sparse least squares support vector machine

ZHAO Hui，HUANG Jing-tao

College of Electronic and Information Engineering，Henan University of Science and Technology，Luoyang，Henan 471003，China

Abstract

To solve the problem of sparseness lacking in the Least Squares Support Vector Machine（LS-SVM），a new least squares support vector machine based on the boundary samples is proposed，which uses center distance ratio to select bigger support value boundary samples and making them as training samples.Thus，the number of support vector is reduced and the speed of computing is improved.Finally，the new algorithm is tested on the four benchmarking UCI datasets.The result shows that the proposed algorithm can adaptively obtain the sparse solutions almost not losing generalization performance，and the speed of classifiers is also improved.

Key words sparseness least squares support vector machine center distance ratio boundary sample

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通讯作者 赵 会 zhaohuihaha@126.com