

SVM Classification Based on Supervised Subset Density Clustering

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Abstract—A way of combining SVM(Support Vector Machine) with Supervised Subset Density Clustering is proposed in this paper. How to minimize the training set of SVM by means of clustering is researched. Original center positions are of great importance to clustering accuracy. However the traditional clustering center choosing algorithm doesn't work properly when the same kind of samples aren't closely-spaced or the shape of the sample distribution isn't regular, an self-adaptive multiple centers choosing method is proposed to solve the problem. Another problem addressed in the paper is that there are areas that are covered by multi-class samples which is of great difficulty for traditional clustering to deal with, so a supervised method for the improved density clustering is designed to make out such areas and referring the samples to SVM. The experimental results show that the algorithm reduces the iteration time of the whole training process without compromising the accuracy and generalization capacity of the algorithm obviously.

Keywords—Self-adaptive, Center Choosing, Supervised Subset Density Clustering, SSDC-SVM, Classification



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