

论文

## 改进的多维遥感数据的自适应遗传超平面分类器算法

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摘要

在遥感图像数据监督分类方法中, 普遍存在着通过大训练数据量提高分类精度的问题。该文在笔者已经实现的遗传超平面方法基础上, 做了进一步的改进, 这就使得这种遗传超平面分类器可以使用了少量的训练数据进行训练, 而得到的分类精度与大训练数据量相比具有可以接受的差别; 改进了分类方法中使用主成分分析后再用两个主成分进行分类的做法, 使用的原始数据为多个(3个以上)波段直接进行分类, 不但增加了分类输入的信息量, 而且简化了技术流程。同时, 在不增加分类时间的情况下扩展了算法分类的类别数。文中使用C/C++从底层实现了整个训练、分类、测试过程, 通过对北京的ETM+数据进行的分类实验及其分析表明该算法分类效果很好, 完全可以达到实用的要求。

关键词 [遥感图像数据](#) [遗传算法](#) [超平面分类](#) [分类精度](#)

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## Self-adapted Genetic Hyperplane Classifier Algorithm for Multi-dimensional Remote Sensing Image

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Abstract

There exists a problem that is using big quantity of training data to improve classification accuracy in remote sensing supervised classification methods. In this paper, advanced improvements are proposed for the implemented genetic hyperplane algorithm to get the advantage of using smaller quantity of training data and almost the same training effect. Generally, the principle component analysis is used to acquire the 2 principle components and the result is used to classify the data. Now that the improvement is that several bands (above 3) of remote sensing data are used simultaneously for the classification. Henceforth, the information quantity that input the classifier is incremental and the technological flow is simplified. At the same time, the number of classes from the algorithm is extended, while the time consuming is not incremental. The C/C++ is used to implement the whole process, which involve training, classification and test. The ETM+ data of Beijing is given for the classification and the good performance is acquired. The result shows that it can be fully used in practical.

Key words [Remote sensing imagery data](#) [Genetic algorithm](#) [Hyperplane classification](#) [Classification accuracy](#)

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