Classification of Multispectral Satellite Images using Clustering With SVM Classifier

Abstract

Multi-spectral satellite imagery is an economical, precise and appropriate method of obtaining information on land use and land cover since they provide data at regular intervals and is economical when compared to the other traditional methods of ground survey and aerial photography. Classification of multispectral remotely sensed data is investigated with a special...
focus on uncertainty analysis in the produced land-cover maps. Here, we have proposed an efficient technique for classifying the multispectral satellite images using SVM into land cover and land use sectors. In the proposed classification technique initially pre-processing is done where the input image is subjected to a set of pre-processing steps which includes Gaussian filtering and RGB to Lab colorspace image conversion. Subsequently, segmentation using fuzzy incorporated hierarchical clustering technique is carried out. Then training of the SVM is carried out in the training data selection procedure and finally the classification step, where the cluster centroids are subjected to the trained SVM to obtain the land use and land cover sectors. The experimentation is carried out using the multi-spectral satellite images and the analysis ensures that the performance of the proposed technique is improved compared with traditional clustering algorithm.

References

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Index Terms

Computer Science  Image Processing

Keywords

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Classification

Support vector machine