Abstract

Hyperspectral images have high dimensions, making it difficult to determine accurate and efficient image segmentation algorithms. Dimension reduction data is done to overcome these problems. In this paper we use Discriminant independent component analysis (DICA). The accuracy and efficiency of the segmentation algorithm used will affect final results of image classification. In this paper a new method of multilevel thresholding is introduced for segmentation of hyperspectral images. A method of swarm optimization approach, namely Darwinian Particle Swarm Optimization (DPSO) is used to find n-1 optimal m-level threshold on a given image. A new classification image approach based on Darwinian particle swarm optimization (DPSO) and support vector machine (SVM) is used in this paper. The method introduced in this paper is compared to existing approach. The results showed that the proposed method was better than the standard SVM in terms of classification accuracy namely average accuracy (AA), overall accuracy (OA and Kappa index (K)).

References

Index Terms
Keywords

Darwinian Particle Swarm Optimization, Hyperspectral Image, Support Vector Machine