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Abstract

The purpose of this paper is to classify the LISS-III satellite images into different classes as agriculture, urban and water body. Here pixel based classification is used to classify each pixel of the satellite image as belonging to one of those three classes. To perform this classification, a neural network back propagation technique is used. The neural network consists of three layers: Input layer, hidden layer and output layer. During training of a network, the sample inputs are given to the input layer which then propagate the hidden layer and then later to the output layer. Each neuron in hidden layer will receive the inputs from all the neurons

of the corresponding synoptic weights and summed up. Each neuron of output layer will also get the input from all the neurons of hidden layer which are also multiplied with their corresponding weights. The outputs of the output layer are compared with desired result. The error between desired output and actual output is calculated to obtain error matrix. For each input, both local and global classification is obtained. In local classification, the neural network is trained using a particular image and that same image is given as input. In global classification, a new input is given for the network rather than the images with which it has been trained. Accuracy is then calculated for both the local and global classification.

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Index Terms

Computer Science

Pattern Recognition

Key words

Neural Networks
Image classification
back propagation algorithm
LISS-III Multispectral images