Neural Network Approach for Automatic Landuse Classification of Satellite Images: One-Against-Rest and Multi-Class Classifiers

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Authors:

Anil Kumar Goswami, Heena Joshi, S. P. Mishra

Abstract

Artificial Neural Network (ANN) is an important Artificial Intelligence (AI) and Machine Learning (ML) method used in various remote sensing applications such as image classification, pattern recognition etc. One of important remote sensing applications is the landuse classification i.e. classification of satellite data into various landuse classes such as forest, waterbody, snowcover etc. Landuse classification from satellite data can take place in manual, semi-automatic or automatic mode. Automatic landuse classification is necessary to reduce manual efforts, which can be achieved by making use of machine learning techniques. This paper uses neural network approach for automatic landuse classification from satellite data by providing two classification approaches using multi-layer perceptron (MLP) namely one against rest classification (OARC) and multi-class classification (MCC), and then provides the comparison between these two approaches.

References


**Index Terms**

Computer Science  
Image Processing

**Keywords**

Artificial Neural Network (ANN), Multi Layer Perceptron (MLP), Error Back Propagation (EBP), Landuse Classification, One-Against-Rest Classification (ORAC), Multi-Class Classification (MCC), Landuse Classification, Remote Sensing