Document details - Hyperspectral Image-based Land Cover Prediction using Improved Elman Network Model

13th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2022

Volume 8, 1 January 2022, Pages 881-889

13th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2022; Virtual, Online; ; 27 June 2022 through 28 June 2022; Code 184560

Hyperspectral Image-based Land Cover Prediction using Improved Elman Network Model(Conference Paper)

Vasanthi, R., Durairaj, D.C.

Research Centre in Computer Science, V.H.N.S.N. College, Virudhunagar District, Virudhunagar, India

Abstract

This work anticipates a novel approach for classifying hyperspectral images using the machine learning classification approach. The machine learning (ML) approach is used for classification without the intervention of humans. The classification accuracy through ML is improved by examining the input images. Here, an improved Elman classifier (IEC) model is used to classify the input hyperspectral images accurately. This IEC model is designed for classifying the land cover regions exactly and intends to give higher classification accuracy. The increased classifier performance is compared with various prevailing approaches Random Forest (RF), Decision Tree (DT), Logistic Regression (LR), k-Nearest Network (k-NN), and Support Vector Machine (SVM). The anticipated model is utilized to enhance the classification accuracy drastically. Here, the hyperspectral images are used to classify the urban regions. The simulation is done with MATLAB 2016b simulation environment, and the experimental outcome provides superior performance and establishes a trade-off between the prevailing approaches. The prediction accuracy of IEC is 98.99%, precision is 64.66%, recall is 99.88%, and F1-measure is 74.46% which is comparatively higher than other approaches.

Author keywords

Elman classifier | Hyper-spectral images | land cover region | machine learning | prediction accuracy

Indexed keywords

Engineering controlled terms: Economic and social effects | Forecasting | Image classification | Image enhancement | MATLAB | Nearest neighbor search | Spectroscopy | Support vector machines

Engineering uncontrolled terms: Classification accuracy | Classifier models | Elman classifier | Hyper-spectral images | HyperSpectral | Image-based | Land cover | Land cover region | Machine-learning | Prediction accuracy

Engineering main heading: Decision trees

ISBN: 978-171385793-8
Source Type: Conference Proceeding
Original language: English

Document Type: Conference Paper
Volume Editors: Stephen J.,Sharma P.,Chaba Y.,Abraham K.U.,P.K. A.,Mohammad N.,Thomas G.,Srikiran S.
Publisher: Grenze Scientific Society