



HYPERSPECTRAL DATA FEATURE EXTRACTION USING DEEP BELIEF NETWORK

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Abstract- Hyperspectral data has rich spectrum information, strong correlation between bands and high data redundancy. Feature band extraction of hyperspectral data is a prerequisite and an important basis for the subsequent study of classification and target recognition. Deep belief network is a kind of deep learning model, the paper proposed a deep belief network to realize the characteristics band extraction of hyperspectral data, and use the advantages of unsupervised and supervised learning of deep belief network, and to extract feature bands of spectral data from low level to high-level gradually. The extracted feature band has a stronger discriminant performance, so that it can better to classify hyperspectral data. Finally, the AVIRIS data is used to extract the feature band, and the SVM classifier is used to classify the data, which verifies the effectiveness of the method.

Index terms: Hyperspectral, Feature extraction, Deep learning, Deep belief network, Restricted boltzman machines