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Approach Based on Fuzzy C-Means for Band Selection in Hyperspectral Images

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Abstract : Hyperspectral images and remote sensing are important for many applications. A problem in the use of these images is the high volume of data to be processed, stored and transferred. Dimensionality reduction techniques can be used to reduce the volume of data. In this paper, an approach to band selection based on clustering algorithms is presented. This approach allows to reduce the volume of data. The proposed structure is based on Fuzzy C-Means (or K-Means) and NWHFC algorithms. New attributes in relation to other studies in the literature, such as kurtosis and low correlation, are also considered. A comparison of the results of the approach using the Fuzzy C-Means and K-Means with different attributes is performed. The use of both algorithms show similar good results but, particularly when used attributes variance and kurtosis in the clustering process, however applicable in hyperspectral images.

Keywords : band selection, fuzzy c-means, k-means, hyperspectral image
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