

عنوان مقاله:

Hyperspectral Data Unmixing Using Constrained Semi-NMF and PCA Transform

محل انتشار:

بیستمین کنفرانس مهندسی برق ایران (سال: 1391)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Habib Alizadeh - Faculty of Electrical and Computer Engineering, Tarbiat Modares University

Hassan Ghassemian

خلاصه مقاله:

One of problems that have been not considered in unmixing process of hyperspectral is the correlation between bands. This correlation makes difficult the unmixing of spectral signatures of different materials. Furthermore, the large number of spectral bands extends the execution time of the unmixing process. In this paper, a new approach for the unmixing of hyperspectral data using the semi-Nonnegative Matrix Factor (semi-NMF) and Principal Component Analysis (PCA) is proposed that solves the problem of correlation between bands and decrease execution time of algorithm. The proposed approach uses from PCA of data in the unmixing process instead of original data. Using this linear transformation, the images are mapped to the uncorrelated space. Uncorrelated images make more efficient the unmixing process. In order to overcome the problem of non-uniqueness solution that is caused by the nonconvex cost function, the smoothness and sparseness constraints are introduced to the semi-NMF. In addition to its high accuracy, the proposed method increases the speed of the unmixing process. The experimental results show excellence of the proposed approach in comparison of other methods

کلمات کلیدی:

Hyperspectral images, Hyperspectral data unmixing, semi-Nonnegative Matrix Factorization (semi-NMF), Principal Component Analysis (PCA)

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/154804>

