Abstract

Due to large size and huge availability of unwanted or missing information in hyperspectral image, development of data effective compression and denoising methods is of prior importance. Compression removes unmeaningful information and thereby reducing data which ultimately leads to noise free image. This study deals with execution of two lossless decomposition methods Low Multi-linear Rank Approximation, four types of Block Term Decomposition to the input image cube to make it noise free using non-linear least square method as an optimization method and their performance were assessed. BTD (Lr, Lr, 1) was selected as the best tensor algorithm based on residual error and frobenius norm value with a limitation that the image cube to be processed by the method should have good spatial resolution.

References


Index Terms

Computer Science

Image Processing

Keywords

Hyperspectral imaging, Data Compression, Tensor decomposition models, Low Multi-linear Rank Approximation, Block Term Decomposition, Frobenius Norm.