Abstract

Major technical constraints like minimum data storage at satellite platform in space, less bandwidth for communication with earth station, etc. limits the satellite sensors from capturing images with high spatial and high spectral resolutions simultaneously. To overcome this limitation, image fusion has proved to be a potential tool in remote sensing applications which integrates the information from combinations of panchromatic, multispectral or hyperspectral images; intended to result in a composite image having both higher spatial and higher spectral resolutions. The research in this area cites date back to last few decades, but the diverse approaches proposed so far by different researchers have been rarely discussed at one place. This paper is an honest attempt to collectively discuss all possible algorithms along with quality metrics following two assessment procedures i. e. at full and reduced scale resolutions to evaluate performance of these algorithms.

References

- Qizhi Xu, Yun Zhang, Bo Li and Lin Ding, "Pansharpening Using Regression of Classified MS and Pan Images to Reduce Color Distortion," IEEE Geoscience And Remote Sensing Letters, Vol. 12, No. 1, January 2015, pp. 28 – 32
- Syed Muhammad Umer Abdullah, Naveed ur Rehman, Muhammad Murtaza Khan and
- Yong Xu, Bo Huang, Yuyue Xu, Kai Cao, Chunlan Guo and Deyu Meng, “Spatial
Image Fusion in Remote Sensing Applications: A Review

- Changtao He, Quanxi Liu, Hongliang Li and Haixu Wang, Multimodal medical image fusion based on IHS and PCA, Symposium on Security Detection and Information Processing, Procedia Engineering 7, Elsevier Ltd., 2010, pp. 280 – 285
- Wenkao Yang, Jie Wang and Jing Guo, A Novel Algorithm for Satellite Images Fusion Based on Compressed Sensing and PCA, Hindawi Publishing Corporation, Mathematical Problems in Engineering, Volume 2013, pp. 1 – 10


Index Terms

Computer Science

Image Processing

Keywords

Image fusion Relative spectral contribution methods Component substitution
Multiresolution analysis

Quality metrics for performance evaluation.