Abstract

The development of new imaging methods in various fields arise the need of meaningful combination of all available image datasets. Image fusion is the process of integrating complementary information from multiple image sensor data to create a fused image output. The new image generated should contain a more accurate description of the scene than any of the individual source images and is more suitable for human visual and machine perception or further image processing and analysis tasks. This technique is used in satellite remote sensor images to fuse high resolution panchromatic (PAN) image with the low resolution multispectral (MS) image to form a single high resolution multispectral image. Among the existing fusion techniques, wavelet based methods have proved to produce improved results. This paper proposes a novel method to fuse PAN image and MS image by integrating Contrast based Discrete Wavelet Packet Transform (DWPT) and Intensity Hue Saturation (IHS) technique. Firstly, the advantages of using DWPT over DWT are given in brief. Then the proposed algorithm is explained. Finally, its performance is evaluated using various quality assessment metrics which shows that the proposed method is superior to the other existing methods.
Satellite Image Fusion Technique using Integration of IHS Transform and Contrast based Wavelet Packets

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Index Terms

Computer Science  Image Processing

Keywords

Image fusion  Remote sensing  Wavelet Packet Transform  IHS Transform.