Abstract

Image enhancement is the key and important step in digital image processing. If the image is not clear, it cannot be able to perform precisely edge detection, segmentation and other image processing steps. For enhancement of images that are multiresolution, image fusion provides the best output results. Image fusion is the technique of combining relevant information from source images, to get the fused image having most of the information from the source images. This technique can be used in various application areas like aerial images, forensic, flash photography, real life photographs and etc. In this paper, authors discusses the implementation of three categories of image fusion algorithms – basic fusion algorithms, pyramid based algorithms and the basic DWT algorithms and these algorithm are assessed using various objective assessment metrics for image enhancement. These fusion algorithms are compared against the general image enhancement methods for different images with the help of error analysis techniques i.e. Average Difference (AD), Normalized Mean Square Error (NMSE) and the Peak Signal to Noise Ratio (PSNR) and etc. The image fusion methods provide better results than the general image enhancement methods.
Implementation and Comparison of Image Enhancement Techniques

- X. Fang, J. Liu, W. Gu, Y. Tang, &quot;A Method to Improve the Image Enhancement Result based on Image Fusion&quot; 978-1-61284-774-0/11 ©2011 IEEE.
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Index Terms

Computer Science  Image Processing
Keywords

Image Pyramid  Decomposition  Quality Metrics  Principal Component Analysis
Discrete Wavelet Transform

Image Fusion