Abstract

Medical image fusion is a method which enhances the image content by combining the images obtained using different imaging modalities like Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET) and Single Photon Emission Computed Tomography (SPECT). The main objective of medical image fusion is to extract and merge the useful information from multi-modality medical images thus highlighting the significant features for improved prediction of the scenario for treatment planning. In this paper, the different image fusion techniques in spatial and transform domain are implemented for MRI/CT and PET/CT images. The resultant fused images are analyzed with non-reference image quality metrics: Entropy (EN), Standard Deviation (SD), Peak Signal to Noise Ratio (PSNR), Spatial Frequency (SF), Average Gradient (AG), Edge Strength (ES), Fusion Factor (FF) and Fusion Symmetry (FS). It is found that the image fusion using Discrete Wavelet Transform (DWT) outperforms all the other spatial and pyramid based fusion methods.
8. Sabalan Daneshvar and Hassan Ghassemian, (2010), MRI and PET image fusion by combining IHS and retina-inspired models, Information Fusion, Volume (11), 114-123.

**Index Terms**

Computer Science  Image Processing

**Keywords**

medical image fusion, spatial fusion, transforms fusion, non-reference quality metrics.