Abstract

This paper presents combination of wavelet and curvelet based approach for the fusion of magnetic resonance (MR) and computed tomography (CT) images. The objective of the fusion of an MR image and a CT image of the same organ is to obtain a single image containing as much information as possible about that organ for diagnosis. In this paper some attempts have been proposed for the fusion of MR and CT images using the wavelet transform. Since medical images have several objects and curved shapes, it is expected that the curvelet transform would be better in their fusion. The simulation results show better result than the fusion using wavelet algorithm. Proposed method is combination of wavelet and curvelet transform is used for fusion the medical images. In vision, the fusion algorithm proposed in this project acquires the best fusion result compare to other two methods. In objective evaluation criteria, its fusion characteristic is superior to traditional wavelet transform and curvelet transform. The simulation results show superiority of the combination of wavelet and curvelet transform to the only wavelet transform and only curvelet transform in the fusion of MR and CT images from the visual quality, the peak signal to noise ratio (PSNR) and Root Mean Square Error (RMSE) points of view. It includes multiresolution analysis ability, edge direction of
images and analyzes feature of images better.

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Index Terms

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Keywords

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Wavelet Transform

Curvelet Transform