

## عنوان مقاله:

An Adaptive Hierarchical Method Based on Wavelet and Adaptive Filtering for Magnetic Resonance Imaging Denoization

## محل انتشار:

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## خلاصه مقاله:

Magnetic resonance imaging (MRI) is one of the most powerful techniques to study the internal structure of the body. MRI image quality is affected by various noises. Noises in MRI are usually thermal and mainly due to the motion of charged particles in the coil. Noise in MRI images also cause a limitation in the study of visual images as well as computer analysis of the images. In this paper, first, it is proved that probability density function (PDF) of MRI images is rician because of the process of image capturing and MRI hardware. Based on the review of later works in this area, it is determined that rician denoising in wavelet domain is better. Then, it is concluded that the remaining noise in the final output of the conventional methods in wavelet domain, is Gaussian and can be greatly reduced with a Gaussian adaptive filter. Based on this estimation, a Gaussian filter designed and the output image was filtered again. The results showed that the final image quality will improve considerably. As a conclusion, in similar situations, our proposed algorithm is always better than the others.

## کلمات کلیدی:

(Adaptive Filtering Denoising Gaussian pdf Magnetic Resonance Imaging Rician pdf Structural Similarity Index (SSIM

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