

A Review on Rician Noise Removal Techniques for Magnetic Resonance Images

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Abstract: *This research work is targeted for image denoising and its improvement for Magnetic Resonance Imaging (MRI) images. The MRI is a special type of medical imaging technique, which shows clear structure of inner body parts like tissues and organs. Once the image gets corrupted with noise, its visual quality degraded and analysis of that noisy image becomes difficult. To improve the quality of noisy image, identification and reduction of noise is necessary. A wide variety of solutions for removal of noise from MR images have been proposed like Median filtering, Non Local Means filter, Maximum likelihood estimation and LMMSE (Minar Minimum Mean Square Error) Filtering. Most of the existing methods suffer with some drawbacks or limitations. This research proposes two novel denoising techniques for MRI images. Among available techniques, NLM filtering based techniques is very functional and possesses significant scope of improvement. The simulation results confirm the superiority of various methods as compared to existing denoising methods in removal of Gaussian as well as Rician noises.*

Keywords: MRI, Rician Noise, Gaussian Noise, Non Local means, PSNR, SSIM

