Abstract

This paper describes the methods to improve the quality of blurred and noisy Magnetic Resonance Images (MRI) due to motion artifact. The main objective of this work is to restore original image from a motion-blurred image due to defocused optical system and motion artifact which is a challenging problem in digital imaging. The blind deconvolution method has been applied to restore the clear image from the blurred and noisy MRI images in this paper. There exist several techniques to restore the original image corrupted by various noise and blurred due to motion artifact, but these methods lack to fetch the originality of image. Blind deconvolution is a method to recover the sharp version of a blurred image when the source of
blurring is not known. The aim of this paper is to analyze and evaluate recent blind deconvolution algorithms both theoretically and experimentally for deblurring and noise removal of MRI images. The MRI data used was corrupted by Gaussian noise and blurred due to various cause (gaussian blurring, out-of-focus blur and motion blur etc). The comparisons of the techniques were done on the basis of Peak signal to noise ratio (PSNR) and Mean structural similarity index (MSSIM). The proposed technique proved to be better over methods used for deblurring and denoising of MRI images.

References

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Index Terms

Computer Science

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Keywords

MRI  Deblurring  Denoising  Blind Deconvolution.