A Fast Iterative Blind Image Restoration Algorithm

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Abstract

Successful blind image deconvolution algorithms require the exact estimation of the Point Spread Function size, PSF. In the absence of any priori information about the imagery system and the true image, this estimation is normally done by trial and error experimentation, until an acceptable restored image quality is obtained. This paper, presents an exact estimation of the PSF size that yields the optimum restored image quality. The paper also describes a least squares PSF estimation, instead of the slow iterative update, that is commonly used in Iterative Blind Deconvolution software, IBD. Moreover, a technique is also proposed to improve the sharpness of the deconvolved images, by constrained maximization of the detail wavelet-coefficient entropies. Several simulations are given to verify these results.

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