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Abstract

Image restoration is widely applied in many areas. When operating on images with different scales for the representation of pixel intensity levels or low SNR, the traditional restoration algorithm lacks validity and induces noise amplification, ringing artifacts and poor convergent ability. In this paper, an improved NAS-RIF algorithm is proposed to overcome the shortcomings of the traditional algorithm. The improved algorithm proposes a solution for blurred with noise image by constrained maximization of some of the detail wavelet packet energies. This algorithm gives enhancement with the sharpness of the deconvolved images. In determining the support region, a pre-segmentation is used to form it close to the object in the image, Moreover, as compared with the traditional algorithm. Simulations show that the improved algorithm behaves a better convergence, noise resistance and provides a better estimate of the original image.

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Index Terms

Computer Science

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Keywords

Blurred image, NAS-RIF algorithm, Image Restoration, Point Spread Function (PSF), Conjugate Gradient (CG), Peak Signal to Noise Ratio (PSNR) and wavelet packet function.