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IMPLEMENTATION OF IMAGE DENOISING ALGORITHM FOR ADDITIVE NOISES USING MATLAB

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Abstract

In this paper, we present a method for removing noise from digital images corrupted with additive noise. An image patch from an ideal image is modelled as a linear combination of image patches from the noisy image. We propose to fit this model to the real-world image data in the total least square (TLS) sense, because the TLS formulation allows us to take into account the uncertainties in the measured data. We present a method to reduce the contribution from the irrelevant image patches, which will sharpen the edges and reduce edge artifacts at the same time. Although the presented algorithm is computationally demanding, the image quality of the output image demonstrates the effectiveness of the TLS algorithms. We have tested TLS algorithm in Matlab7a environment and take completely noiseless images.

Key words - Image denoising, image restoration, total least squares, signal-dependent noise.