An image enhancement method based on a s-sharp function and pixel neighborhood information

ABSTRACT

Image enhancement is a significant field in image processing. This paper proposes an enhancement method based on an S-sharp function of grayscale transformation and neighborhood information. Firstly, a function is established based on the sine function. Then, the image threshold is added into the function. Finally, the result grayscales are modified by parameter, where parameter is determined by the image pixel neighborhood information. In general, in the result image, each pixel grayscale is determined by both the sine function with threshold and the parameter . In the experiment results, the NIEM method (we proposed) achieves better performance than the comparison algorithms. It gets the smallest MSE and the highest PSNR, SSIM. In image Lena test, MSE value:330.8151, PSNR value:22.9350, and SSIM value: 0.9451. In image Pout test, MSE value:132.0988, PSNR value:26.9218, and SSIM value: 0.9604.