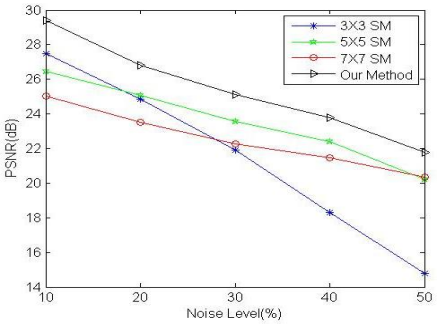

Fig. 2 PSNR values for different methods

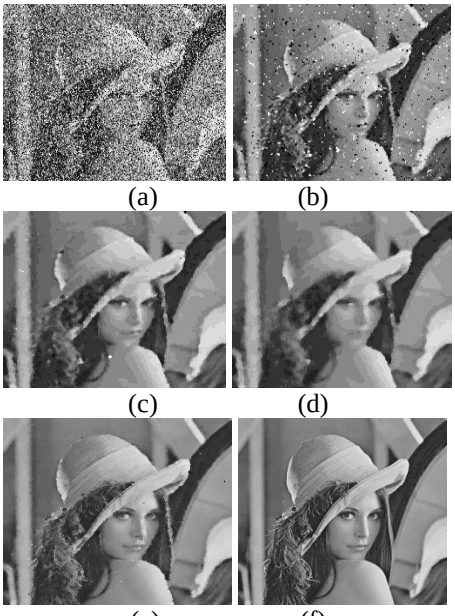

Fig. 3: Results of different methods in restoring 40% corrupted image "lena": (a) the noise image (9.44 dB), (b) the 3 × 3 SM filter (18.30 dB), (c) the 5 × 5 SM filter (22.39 dB), (d) the 7 × 7 SM filter (21.45 dB), (e) our method (23.78 dB), (f) the original image.

Summary

Basically, our method can be regarded as an improved algorithm for the SM algorithm. Because the improved method just filtering the noise points, the normal signal value is unchanged, the results are sharper and clearer than the SM algorithm.

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References

[1] Yujin Zhang, Image Engineering: Image Processing (Second Edition) [M], Tsinghua University Press, Beijing, China, 2006.

[2] Pratt W K. Median filtering. Image Processing Technique report, Univ. of Southern California, Los Angeles, 1975, Sept.

[3] Hwang H , Haddad R A. Adaptive median filters: new algorithms and results [J]. IEEE Trans. Image Processing, 1995, 4: 499-502.

[4] Chunyu Ning, Chunhua Zhao, Removing impulse noise in medical images using adaptive median filtering algorithm[J], Computer Engineering and Applications(in Chinese), 2012, 48(24):153-156.

[5] Wei Wang, Jinghuai Gao, Random seismic noise suppression via structure-adaptive median filter[J], Chinese Journal of Geophysics(in Chinese), 2012,55(5):1732-1741.

[6] Yu Zhang, Xiqin Wang,Adaptive center weighted modified trimmed mean filter[J]. Journal Of Tsinghua University (Science & Technology), 1999, Vol. 39(9):

[7] Gonzalez R C and Woods R E. Digital image processing [M]. Addison-Wesley, Boston, 2002.