The Application of Image Enhancement to Gastric Sonograms

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ABSTRACT

The gray levels of gastric sonogram images are usually concentrated at the zero end of the spectrum, making the image too dark for the naked eye. Though histogram equalization can enhance the contrast by redistributing the gray levels, it has the drawback that it reduces the information in the processed image. In this research, an adaptive neighborhood algorithm and a wavelet-based enhancement algorithm postprocessors are used to further enhance the image and compensate for the information loss during histogram equalization. Experimental results show that the adaptive neighborhoods algorithm and the wavelet-based enhancement algorithm can enhance the contrast and significantly increase the informational entropy of the image. The entropy value, medical doctor*s comments and CPU time used to compare the performances of the adaptive neighborhoods algorithm and the wavelet-based algorithm. Experimental results show that the wavelet-based algorithm performs better than the adaptive neighborhoods algorithm. Because the combination of the histogram equalization and wavelet-based algorithm approach can dramatically increase the contrast and maintain information rate in gastric sonograms, it has potential as a helpful tool in clinical diagnosis and research.

Keywords :

Table of Contents

REFERENCES