Abstract

The Adaptive bilateral filter is able to smooth the noise, while enhancing edges and textures in the image. Morphology operations such as dilation, erosion, opening and closing are offering a quality Sharpening enhancement. The performance of the filter is to be improved by including the mathematical morphology operations along with adaptive bilateral filter process. The parameters of the Adaptive bilateral filter are optimized with a training procedure. Adaptive bilateral filter is removing noise from the images gives significantly sharper than those restored by the bilateral filter. The present proposed method is the modified algorithm of an adaptive bilateral filter with mathematical morphology operations for medical images. The proposed algorithm applied to various types of medical images and deserved results are obtained. The performance analysis of the filter with respective design parameters and metrics are compared with existed algorithm and relative graphs are depicted.
An Unsupervisory Qualitative Image Enhancement using Adaptive Morphological Bilateral Filter for Medical Images


Yoshinori ITO, Takanori SATO, Noritaka YAMASHITA, Jianming LU, Hiroo SEKIYA and Takashi YAHAGI IEEE 4261 ISCAS 2006

Xiaoping Lin, Research and Application of Mathematical Morphology Algorithms, on OSSC IEEE- OSSC 2009 173

Joseph M. Reinhardt and William E. Higgins, Efficient Morphological Shape Representation, IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 5, NO. 1, JANUARY 1996 89


Joseph M. Reinhardt, Efficient Morphological Shape Representation IEEE transactions on image processing, VOL. 5, NO. 1, JANUARY 1996 89.

Index Terms

Computer Science  Image Processing

Keywords

Medical images  adaptive bilateral filtering  mathematical morphology  PSNR  MSE  stopping time