Abstract

Filtering is always the root process in many medical image processing applications. It is aimed at reducing noise in images. Any post-processing tasks, e.g., visualization, segmentation may benefit from the reduction of noise. Bilateral filtering smoothes images while preserving edges, by means of a nonlinear combination of nearby image values. This method is noniterative and simple. It combines gray levels based on both their two properties i.e. geometric closeness and their photometric similarity, and prefers the near values to distant values in both domain and range. In this paper we have made comparison between Bilateral, Bilateral Median and Gaussian filter. Bilateral filter combines both the domain and range filtering and combination is much more interesting. The bilateral filter shows good results in comparison to Gaussian however the Bilateral Median shows the best results in comparison to all. The comparison is based on the basis of MSE, PSNR, and CNR.

Reference


Index Terms

Computer Science

Computer Vision

Key words

Image Enhancement

Spatial Filtering

Bilateral Filter

Bilateral Median Filter

Gaussian Filter

Medical Images