Abstract

Noise removal is one of the biggest challenges in the field of image processing. Impulse noise removal is one of the most necessary and important preprocessing step in digital image processing. Several median based techniques are reported in literature for different noise models. Each of them has their advantages and limitations. Most of the filters are good at noise suppression but their performance decreases in terms of edge preservation. In the review paper, various algorithms for removal of fixed valued impulse noise and their performance under different noise conditions and for various fixed valued noise models is discussed. All the techniques have their advantages and limitations. The comparative study helps in identification of most efficient algorithms in terms of edge conservation and noise suppression to restore the original image to the best possible extent given the degraded version. Most of the techniques are suitable for some particular noise models and thus does not perform satisfactorily on other types of noise models.
2. Pei-Eng Ng and Kai-Kuang Ma, Senior Member, IEEE; “A Switching Median Filter With Boundary Discriminative Noise Detection for Extremely Corrupted Images”, IEEE transactions on image processing , Vol.15, N0.6, June 2006.
14. Xiaoyin Xu, Member, IEEE, Eric L. Miller, Senior Member, IEEE, Dongbin Chen, and Mansoor Sarhadi, "Adaptive Two-Pass Rank Order Filter to Remove Impulse Noise in Highly Corrupted Images", IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 13, NO. 2, FEBRUARY 2004
Index Terms

Computer Science

Circuits and Systems

Keywords

Switching median filter; Image denoising; Impulse noise detection; nonlinear filter