An Enhanced Adaptive Vector Median Filtering Technique to Remove High Density Salt-and-Pepper Noise from Microarray Image

Abstract

In this paper, an efficient technique has been proposed to reduce high density salt-and-pepper noise from microarray images. This technique introduces an enhanced vector median filtering technique, that differentiates between corrupted and uncorrupted pixels and every corrupted pixel is replaced with the value estimated from the neighborhood noise-free pixels in the window size. Moreover, based on the local noise density, the proposed filter shows adaptive behavior by adjusting the current filtering window size. In case of extreme high density noise, last processed pixel is used to replace the corrupted pixel. Different experimental results show that, the proposed algorithm can perform significantly better than other existing non-linear techniques in terms of noise suppression, while preserving fine details of the microarray images.

References

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Index Terms

Computer Science  Signal Processing

Keywords

Salt-and-pepper Noise  Noise Removal  Vector Median Filter  Adaptive Vector Median Filter  Microarray