Abstract

A new fuzzy filter is presented for the noise reduction of images corrupted with additive noise. The filter consists of two stages. The first stage computes a fuzzy derivative for eight different directions. The second stage uses these fuzzy derivatives to perform fuzzy smoothing by weighting the contributions of neighboring pixel values. Both stages are based on fuzzy rules which make use of membership functions. The filter can be applied iteratively to effectively...
reduce heavy noise. In particular, the shape of the membership functions is adapted according to the remaining noise level after each iteration, making use of the distribution of the homogeneity in the image. A statistical model for the noise distribution can be incorporated to relate the homogeneity to the adaptation scheme of the membership functions. Experimental results are obtained to show the feasibility of the proposed approach. These results are also compared to other filters by numerical measures and visual inspection.

References

- Yoshinori itai, seji ishikawa,”Automatic segmentation of lung areas based on snakes and extraction of abnormal areas”, 2005.
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Index Terms

Computer Science

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Keywords