Unification/Combination of Image Fusion Methods

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Ming Zhang, Ling Zhang, H. D. Cheng use a novel approach, i.e. neutrosophic logic which is a generalization of fuzzy logic and especially of intuitionistic fuzzy logic, to image segmentation - following one of the authors (H. D. Cheng) together with his co-author Y. Guo previous published paper on neutrosophic approach to image thresholding.

The authors improved the watershed algorithms using a neutrosophic approach (i.e. they consider the objects as the T set, the background as the F set, and the edges as the I set); their method is less sensitive to noise and performs better on non-uniform images since it uses the indeterminacy (I) from neutrosophic logic and set, while this indeterminacy is not featured in fuzzy logic.

Since using neutrosophic logic/set/probability/statistics is a new trend in image processing and the authors prove that the neutrosophic approach is better than other methods (such as: histogram-based, edge-based, region-based, model-based, watershed/topographic in MatLab or using Toboggan-Based) I recommend the publication of this paper.

Next step for these authors would be to use the neutrosophic approach to image registration and similarly compare the result with those obtained from other methods.

Interesting also is to use the neutrosophic approach to the control theory.

References:

[1] H. D. Cheng and Y. Guo, “A New Neutrosophic Approach to Image Thresholding”, New Mathematics and Natural Computation, Vol. 4, pp. 291-308, 2008.

[2] Ming Zhang, Ling Zhang, H. D. Cheng, “A Neutrosophic Approach to Image Segmentation Based on Watershed Approach”, mss., June 2009.