Abstract

This paper presents a novel edge detection algorithm based on fuzzy inference system. Fuzzy inference system has been designed for three inputs using Gaussian membership functions, one output using Triangle membership function that expresses whether the pixel under consideration is "Low", "Medium" or "High" pixel. Rules base comprises of twenty-seven rules, it applied a Mamdani FIS by taking a mask over the image of 3x3 size. The results obtained are compared with Canny edge method and performance parameters used are PSNR of true to false edges. Experimental results shows that the proposed method gives higher PSNR values when compared with Canny edge detection algorithm under all states.

References

- J. F. Canny, "A computational approach to edge detection", IEEE Trans. on
Hybrid Algorithm for Edge Detection using Fuzzy Inference System

Pattern Analysis and Machine Intelligence, 1986, 8(6), pp. 679-698.

Index Terms

Computer Science
Algorithms
Keywords
Edge detection  Fuzzy logic  Fuzzy inference system  image processing