Improving Digital Image Edge Detection utilizing Fuzzy Systems

Moslem Begol, Keyvan Maghouli
MSc Medical Engineering, Islamic Azad University Science and Research Branch (SRBIAU)
Assistant Prof., Medical Engineering, Islamic Azad University Science and Research Branch (SRBIAU)

Summary

Image Edge Detection is one of the most important parts of image processing. In this paper, utilizing fuzzy technique, a new method is used to improve digital image edge detection. In this method, a 3x3 mask is employed to process each pixel by means of vicinity. Each pixel is considered a fuzzy input and by examining fuzzy rules in its vicinity, the edge pixel is specified and utilizing calculation algorithms in image processing, edges are displayed more clearly. This method shows significant improvement compared to different edge detection methods (e.g. Sobel, Canny).

Keywords: Fuzzy Systems, Edge Detection, Fuzzy edge detector, Sobel