Fuzzy Inference System for Edge Detection in Flat Electroencephalography Image

ABSTRACT

Edge detection is an important step in medical image processing. It aims to mark the point whereby the light intensity changed significantly. The traditional edge detectors such as Prewitt, Robert and Sobel are sensitive towards noise and sometimes inaccurate. Therefore, fuzzy approach is introduced in edge detection in order to overcome the drawbacks. In this paper, fuzzy inference system (FIS) is applied to determine the boundary of the epileptic foci of Flat Electroencephalography (fEEG). The method interprets the values in the input image and according to user defined rules. The input of FIS is obtained from the fEEG input image with three types of filtering such as Sobel operator, high-pass filter and a low pass filter. Furthermore, the performance of the technique is compared with the traditional edge detectors and other fuzzy edge detectors.