Abstract

The purpose of this research is to propose a new Multispectral Adaptive Fuzzy Algorithm (MAFA) for edge detection in Magnetic Resonance Images (MRI). Edge detection is primary pre-segmentation process of MRI. Human structure is envisioned through 3-dimension images provided by MRI. MAFA, 40 Fuzzy Rules based algorithm, is proposed for edge detection because it is efficient in time consumption and processing calculations, effective in results and easier to use than other methods like Canny, Sobel, etcetera. Application of MAFA on 159 images produced sharper and clearer edges than other methods. Average time to process one image is 16 milliseconds which is 61% of time consumed by second best method.

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**Index Terms**

Computer Science  
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**Keywords**

Fuzzy Algorithm, Edge Detection, MRI, Head Scans