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## Abstract

This paper proposes segmentation and detection of tumor of MRI brain images using a novel method provided by Atanassov intuitionistic fuzzy set theory. Segmentation of such type can be important in detecting different type of tumor, stroke, paralysis etc which are developed inside brain. This type of segmentation is very important in detecting. Segmentation becomes very difficult in medical images which are not properly illuminated. A image segmentation approach intuitionistic fuzzy set theory and a new membership function called restricted equivalence function from automorphisms, for finding the membership values of the pixels of the image is proposed here. An intuitionistic fuzzy image is constructed using Sugeno type

intuitionistic fuzzy generator. A new distance measure Intuitionistic Fuzzy Divergence is used. From this Intuitionistic Fuzzy Divergence edge detection is carried out. The results showed a much better performance on poor illuminated medical images, where the brain tumor is detected properly.

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### Index Terms

Computer Science

Image Processing

### Keywords

Brain Mri Skull Stripping Intuitionistic Fuzzy Set Restricted Equivalence Function  
Membership Function

Hesitation Degree

Edge Detection

Thresholding

Tumour