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AUTOMATED SEGMENTATION OF BRAIN TUMORS IN MAGNETIC RESONANCE IMAGES USING ENHANCED ICA APPROACH

T. CHANDRA SEKHAR RAO[1] & G. SREENIVASULU[2]

[1]*Professor, Department of ECE, Loyola Institute of Technology and Management, Sattenapalli, Guntur, Andhra Pradesh, India*

[2]*Professor, Department of ECE, SVU College of Engineering, Tirupati, India*

ABSTRACT

The anatomical complexity of human brain makes the process of imaging and analyzing very difficult. In spite of huge advancements in medical imaging procedures, accurate segmentation and classification of brain abnormalities remains a challenging and daunting task. This challenge is more visible in the case of brain tumors because of different possible shapes of tumors, locations and image intensities of different types of tumors. In this paper we have presented a method for automated segmentation of brain tumors in images obtained from Magnetic Resonance Imaging (MRI). The method is based on Enhanced Independent component analysis (EICA) Mixture Mode Model. As a part of the research a Graphical user interface (GUI) is also presented. This GUI is capable of analyzing, segmenting and quantifying brain tumors. The results of the proposed method are validated by comparing it with different segmentation approaches like K-means, Fuzzy C-Means (FCM) and Watershed.

KEYWORDS: MRI, EICA, GUI, K-means, FCM and Watershed

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