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A HYBRID NEURO-FUZZY APPROACH FOR SEGMENTATION OF SUBCORTICAL BRAIN STRUCTURES

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Abstract

Segmentation of the brain internal structures is an important and a challenging task due to their complex shapes, partial volume effects, low contrast and anatomical variability between subjects. This paper presents a Hybrid Intelligence approach that automatically segments the deep brain internal structures from brain MRI images. This technique combines spatial information from anatomy and tissue characteristics of the structures. The spatial locations of the structures are learned by improved version of classical fuzzy – MLP network. The identification of the subcortical structure is based on fusion of spatial and Intensity Information by a Fuzzy fusion operator. The segmentation of brain sub cortical structures is performed on real MRI images and the obtained results are very encouraging.

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Keywords: Sub cortical brain tissue segmentation Hybrid Intelligence approach, MRI images, Fuzzy logic.