

## Liver Lesion Extraction with Fuzzy Thresholding in Contrast Enhanced Ultrasound Images

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**Abstract :** In this paper, we present a new segmentation approach for focal liver lesions in contrast enhanced ultrasound imaging. This approach, based on a two-cluster Fuzzy C-Means methodology, considers type-II fuzzy sets to handle uncertainty due to the image modality (presence of speckle noise, low contrast, etc.), and to calculate the optimum inter-cluster threshold. Fine boundaries are detected by a local recursive merging of ambiguous pixels. The method has been tested on a representative database. Compared to both Otsu and type-I Fuzzy C-Means techniques, the proposed method significantly reduces the segmentation errors.

**Keywords :** defuzzification, fuzzy clustering, image segmentation, type-II fuzzy sets

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