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# Liver and Liver Lesion Segmentation From Abdominal CT Scans

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**Abstract :** The interpretation of medical images benefits from anatomical and physiological priors to optimize computer- aided diagnosis applications. Segmentation of liver and liver lesion is regarded as a major primary step in computer aided diagnosis of liver diseases. Precise liver segmentation in abdominal CT images is one of the most important steps for the computer-aided diagnosis of liver pathology. In this papers, a semi- automated method for medical image data is presented for the liver and liver lesion segmentation data using mathematical morphology. Our algorithm is currency in two parts. In the first, we seek to determine the region of interest by applying the morphological filters to extract the liver. The second step consists to detect the liver lesion. In this task; we proposed a new method developed for the semi-automatic segmentation of the liver and hepatic lesions. Our proposed method is based on the anatomical information and mathematical morphology tools used in the image processing field. At first, we try to improve the quality of the original image and image gradient by applying the spatial filter followed by the morphological filters. The second step consists to calculate the internal and external markers of the liver and hepatic lesions. Thereafter we proceed to the liver and hepatic lesions segmentation by the watershed transform controlled by markers. The validation of the developed algorithm is done using several images. Obtained results show the good performances of our proposed algorithm

**Keywords :** anisotropic diffusion filter, CT images, hepatic lesion segmentation, Liver segmentation, morphological filter, the watershed algorithm
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