Abstract

Automatic segmentation of the liver and hepatic lesions is an important step towards deriving quantitative biomarkers for accurate clinical diagnosis and computer-aided decision support systems. This paper presents a system for the automatic segmentation of the liver from Magnetic Resonance Images (MRI). The system works without the need for setting manual seed points or setting a region of interest. Instead, the proposed system automatically detects and segments the liver through relying on its anatomical features for detection and using active contour for segmentation. The proposed segmentation system begins with localizing the liver or a part of it from a given MRI image using biggest components analysis. The extracted liver part is later used as a mask for full liver segmentation using active contour. The proposed system is fully automatic, works on different cases of MRI images (different sizes, healthy and abnormal liver). The detection and segmentation of the liver succeeded in 95% of the test cases acquired from different MRI imaging modalities.
References

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Index Terms

Computer Science

Image Processing

Keywords

Medical Image Analysis, Automatic Liver Segmentation, Active Contour Model