

工程与应用

一种基于T-Snake模型的医学图像分割方法

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摘要 改进的T-Snake算法首先在分水岭法中, 对相邻区域以其像素数、灰度均值和灰度方差定义距离, 并根据其在图像上建立新的连通图, 以对图像过度分割而产生的一些过小区域合并; 其次, 在模型跨边缘时, 利用已分割断层图像中模型内部区域的统计特征, 用区域生长法获取内点并重新参数化模型, 使模型不再跨边缘, 以保证模型形变到正确的边缘。算法在MATLAB上验证通过。

关键词 [医学图像分割](#) [形变模型](#) [活动轮廓](#) [分水岭算法](#)

分类号

New method of medical-image segmentation based on T-Snake model

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Abstract

In this paper, we propose an algorithm for the medical image segmentation based on the live wire algorithm. We modified the traditional live wire algorithm by redefining the distance of the neighborhood, using its pixel, gray-scale mean and gray-scale variance. Then a new connected graph was constructed by the computer, which combines the over-small-regions that was caused by over-segmenting to medical image. We also presented a new method for solving the problem of model's crossing edge based on T-snake model. While the model was in crossing edge, we used statistical features of model's interior region in the segmented tomography image, got the interior points by using region growing segmentation and reconstructed the parametric model in order to ensure the model to be deformed to the right edge. This combined method can avoid characteristic segmentation errors when edge detection or region growing technique is adopted separately.

Key words [medical-image segmentation](#) [deformable model](#) [snake](#) [live wire](#)

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