

UNSUPERVISED 3D SEGMENTATION OF HIPPOCAMPUS IN BRAIN MR IMAGES

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Abstract

The most widely followed procedure for diagnosis and prognosis of dementia is structural neuroimaging of hippocampus by means of MR. Hippocampus segmentation is of wide interest as it enables quantitative assessment of the structure. In this paper, we propose an algorithm for hippocampus segmentation that is unsupervised and image driven. It is based on a hybrid approach which combines a coarse segmentation and surface evolution. A coarse solution is derived using region growing which is further refined using a modified version of the physics based water flow model (Liu and Nixon, 2007). The proposed method has been tested on a publicly available dataset. The performance of this method is assessed using Dice coefficient against the ground truth provided for 25 volume images. It is consistent across volumes and the average Dice values are comparable to a multi-atlas based method reported on a subset of the same dataset.