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# Integrating support vector machine and graph cuts for medical image segmentation

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**Abstract:** Medical image segmentation remains a challenged problem because of intensity inhomogeneity and surrounding complex background. In this paper, we propose a novel method for medical image segmentation by integrating support vector machine and graph cuts. Particularly, a novel localized training scheme is proposed to train a classifier for each pixel based on the target image information, and then a novel graph cuts-based segmentation method that combines the constraint information of machine learning result, the edge information, the local information, and the remote-local information is proposed for post-processing. Instead of delineating an initialized curve around the object boundary, we directly draw a narrowband mask for the initialization in the paper. Experiments on synthetic and medical images demonstrate that the proposed method can achieve better performance than the state-of-the-art.

**Key words:** support vector machine, graph cuts, medical image segmentation

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