

Enhancing Snakes for Vessel Detection in Angiography Images

Ricardo Toledo, Ramon Baldrich, Ernest Valveny, Petia Radeva

Abstract:

This paper proposes enhancements to the deformable models. Focusing on the problem of vessel segmentation, two general methods for improving the performance of the snakes are explained. The snake framework has a critical step when using the energy minimising scheme applied to the segmentation problem in computer vision: the potential map is based on the output of a low level feature detection over the original image, and therefore, the whole method, being theoretically sound and correct, is highly dependent on the quality of the image feature detector used to build the potential field. To avoid these problems we propose a statistical vessel learning for an optimal feature detection. The knowledge can be either embedded into the minimizing scheme or used within the traditional framework.