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Abstract

Ultrasonography is said to be the safest technique in medical imaging and is hence used extensively. But the images are noisy with speckle, acoustic noise and other artifacts. The classical segmentation methods fail completely or require post processing step to remove invalid object boundaries in the segmentation results. Problems associated with traditional mode, initialization and poor convergence to concave boundaries of the snakes, however, have limited their utility. A new external force for active contours largely solves both problems. This external force, call gradient vector flow (GVF), is computed as a diffusion of the gradient vectors

of a gray-level or binary edge map derived from the image. The resultant field has a large capture range and forces active contours into concave regions. The intensity images are input to the method and a GVF snake is initialized. The snake deforms and finally reveals the contour of the kidney. The proposed method has successfully segmented the kidney part from the ultrasound images.

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Index Terms

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Key words

medical image

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