A novel active contour model based on modified symmetric cross entropy for remote sensing river image segmentation

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Highlights

- The external energy constraint terms of our model are defined by the perfect symmetric cross entropy instead of the cross entropy, which describes the differences of pixel grayscale values inside the object and background region much more accurately.

- The medians of pixel grayscale values inside the object and background region are selected as the region fitting centers instead of means, which can represent the their pixel grayscale values better.

- The constant region energy weight is replaced by the Chebyshev distance between the pixel grayscale values inside the region and its region fitting center, which can be adaptively adjusted.

- The state-of-the-art active contour models can not segment the remote sensing river images accurately. While our model can segment them more accurately and rapidly, which has the obvious advantages in both the segmentation performance and segmentation efficiency.