

AN ENTROPY-WEIGHTED LOCAL INTENSITY CLUSTERING MODEL FOR IMAGE SEGMENTATION UNDER INTENSITY INHOMOGENEITY

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In this talk, we present an entropy-weighted local intensity clustering model for image segmentation under intensity inhomogeneity induced by bias fields. The model is formulated in a variational framework by minimizing an energy functional that combines boundary regularization with a data-fitting term for image partitioning. The boundary length is approximated using heat kernel convolution on the characteristic functions of the segmented regions. The data-fitting term is derived from the multiplicative bias field resulting in a local intensity clustering property and further weighted by the local entropy. Furthermore, the model is implemented through an iterative convolution-thresholding scheme with provably guaranteed energy decay. Finally, We present numerical simulations to demonstrate the effectiveness and superior performance of the proposed approach.

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