Simultaneous segmentation and bias field estimation using local fitted images

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Highlights

- In this paper, a new region-based active contour model is proposed by defining a hybrid region image fitting (HRIF) energy functional based on two different local fitted images.

- Two different local fitted images are constructed to approximate the original image and its square version, respectively. The first fitted image is an extension version of local fitted image (LFI) defined in paper "*K.H. Zhang, H.H. Song, L. Zhang, Active contours driven by local image fitting energy, Pattern Recognition, 43 (4) (2010) 1199-1206*" and called extended fitted image (EFI); the second one is originally introduced and called square fitted image (SFI).

- Experimental results on synthetic images and a publicly available dataset demonstrate that the proposed model has the capability of handling intensity inhomogeneity and is competent for segmenting the regions of interest and estimating the bias field.