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Local Segmentation via an Implicit Region-Based Deformable Model Applied To Weld Defects Extraction

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Abstract: This paper is devoted to present and discuss a model that allows a local segmentation by using statistical information of a given image. It is based on Chan-Vese model, curve evolution, partial differential equations and binary level sets method. The proposed model uses the piecewise constant approximation of Chan-Vese model to compute Signed Pressure Force (SPF) function, this one attracts the curve to the true object(s)'s boundaries. The implemented model is used to extract weld defects from weld radiographic images in the aim to calculate the perimeter and surfaces of those weld defects. Encouraged resultants are obtained on synthetic and real radiographic images.

Keywords : Active contour, Chan-Vese Model, binary Level set, local segmentation, weld radiographic images