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Segmentation of Radiographic Images of Weld Applying Traditional and GVF Snakes.

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Abstract : In this paper, we employ the active contour models (Snakes) for edge detection and segmentation of welds radiographic defects. These models are widely used in many applications, including edge, shape modeling, segmentation, and motion tracking. The first model defined and implemented is the classical snake formulated by Kass & al. Snake is a method of deformation a closed contour to the boundary of an object in an image. The snake model is a controlled continuity closed contour that deforms under the influence of internal forces, image forces and external constraint forces. The snake model algorithms suffer from the inability to converge a contour to severe object concavities. Another problem is the generation of false contours due to the creation of unwanted contour loops. In order to remedy to these drawbacks, we apply a the method, called Gradient Vector Flow (GVF). This method proposes gradient vector flow as the external force. GVF snake gives good results on radiographic images of weld.

Keywords : Active contour models, Edge detection, gradient vector flow, weld radiographic defects