

Adaptive and Statistical Polygonal Curve for Multiple Weld Defects Detection in Radiographic Images

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Abstract. With the advances in computer science and artificial intelligence techniques, the opportunity to develop computer aided technique for radiographic inspection in Non Destructive Testing arose. This paper presents an adaptive probabilistic region-based deformable model using an explicit representation that aims to extract automatically defects from a radiographic film. To deal with the height computation cost of such model, an adaptive polygonal representation is used and the search space for the greedy-based model evolution is reduced. Furthermore, we adapt this explicit model to handle topological changes in presence of multiple defects.

Keywords: Radiographic inspection, Explicit deformable model, Adaptive contour representation, Maximum likelihood criterion, Multiple contours.