

عنوان مقاله:

.Detection of Fabrication induced Defects in Casting Components by means of Radiography Image Processing

محل انتشار:

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خلاصه مقاله:

One of the main obstacles of high accuracy Computer Aided Design (CAD) and Computer Aided Engineering (CAE) of casting components is detection and quantification of defects. Hardest defects to find are defects that have formed in the component s volume and it is nearly impossible to locate and quantify them by Visual Testing (VT). One way of finding such Defects is to use Radiography Test (RT), Results of this inspection can be improved by means of Image processing and local feature detection algorithms. The improved Inspection is expected to evaluate the defect map of Components which have sensitive functions in Aerospace, Mechanical or Civil Engineering applications. In this paper, we focus on implementing derivative-based feature recognition algorithms such as Harris detector and another similar interest point (Corner, Edge) detector algorithms. In order to inspect components with complex geometries for the existence of porosity or other defects, we need to take many radiographs of the same location, the resulted images will be in different angles, scales, and illuminations. In this paper, local feature detectors such as Harris, Harris-Laplace, and MSER are implemented, in order to detect flaws regardless of image imperfections. To illustrate the methods and compare the capabilities of aforementioned algorithms, a typical cast iron Brake disk was used as a test specimen for (RT) inspection, after exerting image processing procedure and local feature detector algorithms, different size and types of defects were found as an indicator of algorithm robustness

کلمات کلیدی:

Radiographic Testing (RT), Image Processing, Local feature detection (LFD), feature Correspondence matching, Edge Detection

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