

54th CIRP Conference on Manufacturing Systems

Identification of weld geometry from ultrasound scan data using deep learning

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Abstract

The identification of welding defects in Non-Destructive Testing (NDT) data is a complex task, achieved by experienced analysts. Recent deep learning implementations enable the automatic classification and assessment of welding defects in NDT data. However, current implementations do not indicate the context of the defects, i.e. they do not situate the defect inside a geometric representation of the weld. This study develops a deep learning framework to automatically identify and localize the geometrical elements of welds such as the heat-affected zone to create a three-dimensional representation of the weld structure directly from the ultrasound scan data.

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Peer-review under responsibility of the scientific committee of the 54th CIRP Conference on Manufacturing System

Keywords: Deep learning; Non-destructive testing; Ultrasound; Welding, Segmentation, Artificial Intelligence
