

# Bayesian Networks-Based Defects Classes Discrimination in Weld Radiographic Images

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**Abstract :** Bayesian (also called Belief) Networks (BN) is a powerful knowledge representation and reasoning mechanism. Based on probability theory involving a graphical structure and random variables, BN is widely used for classification tasks and in this paper, BN is used as a class discrimination tool for a set of weld defects radiographic images using suitable attributes based on invariant geometric descriptors. Tests are performed on a database of few hundred elements where the results are outstanding and very promising, since they outperform those given by powerful SVM classifiers.

**Keywords :** Bayesian networks, weld defects, Geometric descriptors, radiography