

Surface Flaw Classification Based on Dual Cross Pattern

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Abstract : The evaluation of flat steel surface quality is mainly concerned with detecting and identifying product surface defects. Although the variety of the implemented techniques, this type of control still presents a challenge. In this paper, we assess the Dual Cross Pattern technique, as a feature descriptor, that should be quite discriminative, to ease the steel surface defect classification. The histograms extracted from the captured DCP features are concatenated to represent the global image feature vector. The procedure parameters, as the DCP circle radius, the number of the training images and their choice, are considered to show their impact on the results. The experiment conducted on the NEU published defect database shows that, compared to the other used techniques, the proposed approach reveals not only interesting recognition rates but presents advantages in time coast too.

Keywords : Image description, pattern recognition, Product quality, steel surface defects, hot rolling process