

Steel Quality Monitoring using Wavelet Packet Transform

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Wavelet texture analysis(WTA) based on Discrete Wavelet Transform(DWT) has been recognized as one of the most successful feature extraction methods for classifying steel quality(Bharati, Liu and MacGregor,2004). The key issues in clustering steel quality are how far is in between class and how close is in within class. This study proposes Wavelet texture analysis(WTA) approach based on Wavelet Packet Transform (WPT) selected for classification of steel surfaces by using Fisher Discriminant Analysis(FDA). At least two advantages can be observed with the proposed method: (1) more discriminative features are exploited in Wavelet Packet Transform. (2)improves the final performance of the classification compared with the Discrete Wavelet Transform based one. Our experiments on steel surface quality datasets have impressively shown the effectiveness of the proposed method.