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Research on Recognition Algorithm of Offshore Oil Pipeline Defect Inspection Based on Magnetic Flux Leakage Method

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Pipeline safety evaluation is an important issue in the industry. Based on magnetic flux leakage (MFL) method, this paper presents an automated inspection device to inspect pipeline defects, analyzes the MFL inspection theory and some defect feature parameters, and gives a recognizing algorithm based on the dynamic wavelet basis function (WBF) neural network. The dynamic network utilizes multiscale and multiresolution orthogonal wavelet, through signals backwards propagation (BP), has more significant advantages than BP or other neural networks used in MFL inspection. It can also control the accuracy of the predicted defect profiles, possessing high-speed convergence and good approaching features. The performance applying the algorithm based on the network to predict defect profile from experimental MFL signals is also presented.

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