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Using Multivariate Statistics & Multi-Scale Entropy to Monitor Gears Degradation and Signal Denoising Strategy using Wavelet Decomposition

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Abstract : This paper focuses on fault diagnosis in gears transmissions driven by induction machines. A new tool of anomaly detection based on multi-scale entropy (MSE) algorithm in conjunction with multivariate statistical approach of the motor current signature analysis (MCSA) is proposed. Simulation results show that the proposed methods are able to detect tooth surface decay in the permanent regime of MCSA.

Keywords : gear Fault diagnosis, Multi-scale entropy, Induction machine, Wavelet decomposition and principal component analysis.