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Wavelet-Based SVM System for Evaluation of Wear States and Remaining Life Time

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An approach for developing a fault diagnosis and prognosis system to support condition-based maintenance of wear parts is presented. The system is used as a prewarning module to detect the necessity for replacing wear parts of production machines and to evaluate the remaining life time of the supervised part. The system is based on a support vector machine as a signal-based classification technique and as a feature fusion tool. Relevant features are extracted using wavelet transform techniques with the aid of wavelet energy and entropy measures. A new approach for feature-based resampling is presented based on a multi-level wavelet decomposition. Measurements were processed to select the most reliable combination of characteristics to depend on. A related change index is proposed based on the decision value of the SVM to evaluate the remaining life time.

Ключевые слова:

Содержание.

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