



RESEARCH ON THE CLASSIFICATION FOR FAULTS OF ROLLING BEARING BASED ON MULTI-WEIGHTS NEURAL NETWORK

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Abstract- A methodology based on multi-weights neural network (MWNN) is presented to identify faults of rolling bearing. With considerations of difficulties in analyzing rolling bearing vibration data, we analyzed how to extract time domain feature parameters of faults. Further, the time domain feature parameters extracted from fault signals are utilized to train multi-weights neural network for achieving an optimal coverage of fault feature space. Thus, faults of rolling bearing can be identified. Finally, simulations results based on real sampling data indicate the effectiveness of the methodology proposed in this paper. In addition, simulation results also indicate that MWNN utilized in this paper is more excellent than probabilistic neural network (PNN) and suitable for the classification of small samples.

Index term: time domain parameter, multi-weights neural network, probabilistic neural network (PNN) algorithm, bearing fault classification.