Abstract

In this paper, a prototype wavelet and probabilistic based neural network classifier for recognizing rotor bar defects is implemented and tested under various transient signals. The wavelet transform (WT) technique is integrated with the neural network model to extract rotor fault features. Firstly, the multiresolution analysis technique of WT and the particle swarm optimization (PSO) theorem are employed to extract the features of the distorted signal. Then, the probabilistic neural network (PNN) classifies these extracted features to identify the rotor defects type. The proposed approach can reduce a great quantity of the distorted signal features without losing its original property. Moreover, less memory space and computing time are required. Various experimental cases tested results show that the hybrid classifier can detect and classify broken rotor bar faults efficiently.

References

- Nandi, S and Toliyat, H, Fault diagnosis of electrical machine-a review, IEEE
Fault Detection and Diagnosis of Induction Machines based on Wavelet and Probabilistic Neural Network

Index Terms

Computer Science
Applied Sciences

Keywords

Induction machine  WT  PSO  PNN  Broken rotor bar