

Abstract

This paper deals with a new scheme for the diagnosis of localized defects in ball bearings based on the multi-scale principal component analysis (MSPCA), Power quality distribution and a pattern Probabilistic Neural-Network Classifier (PNNC). Vibration signals for normal and defect bearings were acquired from an experimental system. The DWT coefficients and Power quality distribution were used to provide an efficient method for generating feature vectors. A pattern Probabilistic Neural-Network Classifier was trained and used as a diagnostic classifier. The simulation results demonstrate that the developed diagnostic method can reliably detect and separate different level faults [1], [2]