Motorbike engine faults diagnosing system using neural network

Abstract

Monitoring systems for motorbike industry requires high and efficient degree of performance. In recent years, automatic identification and diagnosis of motorbike engine faults has become a very complex and critical task The noise produced by a motorbike engine is an important information source of fault diagnosis. Artificial Neural Network finds applications in many industries including condition monitoring and fault diagnosis. In this paper a simple feature extraction algorithm that extracts the features from the engine noise signal using discrete wavelet transform is presented. The engine noise signals are decomposed into 8 levels using Daubechies "db4" wavelet family. The eight level coefficients energy of approximated version and detailed version are computed and used as features. Three simple neural network models are developed and trained by conventional backpropagation algorithm for identifying the motorbike engine faults and the average classification rates are around 85%.