Research on bogie traction seat crack identification based on OvO multi-feature fusion

Qi Chang
Hunan University of Technology

Yi Liu (✉ liuyi_hust@163.com)
Hunan University of Technology   https://orcid.org/0000-0002-2008-4796

Lin Li
Hunan University of Technology

Junfeng Man
Hunan University of Technology

Cheng Peng
Hunan University of Technology

Kai Liu
Hunan University of Technology

Han Wu
Hunan University of Technology

Yiping Shen
Hunan University of Technology

Abstract

Aimed at the problems of unsatisfactory feature extraction and low diagnostic accuracy in the identification process during train bogie traction seat operation status , an optimized method of the neural network model of back propagation based on OvO multi-feature fusion is proposed. Firstly, a simulated experimental platform is built to collect vibration signals, and the collected original vibration data are analyzed in time domain, frequency domain and time-frequency. Secondly, the principal component analysis is carried out on the proposed high-dimensional feature sets. Finally, the reduced dimensional features are fused into the optimal feature set based on OvO algorithm. The back propagation neural network model is constructed, and the time domain, frequency domain, time-frequency and optimal feature sets are taken as inputs respectively, and the results of output recognition are compared. The experimental results show that the recognition accuracy of back propagation neural network model based on OvO multi-feature fusion is higher, and the running state of bogie traction seat can be recognized accurately.

Full Text

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