1. Record Nr. UNINA9910972622703321

Titolo	Fault detection : theory, methods and systems / / Lea M. Simon, editor
Pubbl/distr/stampa	New York, : Nova Science Publishers, c2011
ISBN	1-61728-441-6
Edizione	[1st ed.]
Descrizione fisica	1 online resource (316 p.)
Collana	Engineering tools, techniques and tables
Altri autori (Persone)	SimonLea M
Disciplina	620/.0044
Soggetti	Fault location (Engineering)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	""FAULT DETECTION: THEORY, METHODS AND SYSTEMS ""; ""FAULT DETECTION: THEORY, METHODS AND SYSTEMS""; ""CONTENTS ""; ""PREFACE ""; ""ADVANCED SYSTEM FOR AUTOMATICALLY DETECTING FAULTS OCCURRING IN BEARINGS ""; ""Abstract ""; ""Section 1. Introduction ""; ""1.1. The Background of Machinery Fault Detection ""; ""1.2. The Motivation to Develop an Automatic System for Detecting Bearing Faults ""; ""1.3. The Review of the Maintenance Approaches ""; ""1.3.1. The Run-to-Breakdown Approach ""; ""1.3.2. The Time-Based Preventive Maintenance Approach "" ""1.3.3. The Condition-Based Maintenance Approach """"""1.3.4. The Advantages for Adopting the Conditional-based Maintenance Approach ""; ""Section 2. The Review of the Machinery Fault Detection Methodology ""; ""2.1. Transducer Used for Measuring Vibration Signal ""; ""2.2. Vibration Measurement ""; ""2.3. Vibration Trend ""; ""2.4. The Introduction of Fast Fourier Transform (FFT) ""; ""2.4.1. The Principal of Fast Fourier Transform ""; ""2.4.2. The Limitations of the Existing FFT ""; ""2.5. The Introduction of Wavelet Transform ""; ""2.5.1. The Principal of Wavelet Transform "" ""2.5.2. The Limitations of Existing Wavelet Transform """"""2.6. The Introduction of the Reassignment Wavelet Transform ""; ""2.6.1. The Principal of Reassignment ""; ""2.6.2. The Definition of Reassignment Wavelet Transform ""; ""2.7. The Use of the Higher Order Statistics in Machinery Fault Detection ""; ""2.7.1. Kurtosis ""; ""2.7.2. Spectral Kurtosis ""; ""2.7.3. Root Mean Square ""; ""2.7.4. The Rationale of Proposing a Novel Spectral RMS x Kurtosis for Effective Bearing Fault

Detection ""; ""2.7.5. Spectral RMS x Kurtosis ""
""2.8. The Evolution of Reassignment Wavelet Based Spectrum RMS X Kurtosis """"""Section 3. The Design of the Virtual Based Automatic Fault Detection System ""; ""3.1. Development of a Single Tasked Data Acquisition Program ""; ""3.2. Implementation of the Reassignment Wavelet Analysis ""; ""3.3. Screen Flow Design and Functionality ""; ""3.4. Time Domain Analysis ""; ""3.5. Data Storage and Extraction ""; ""3.6. The Layout of the Hardware Configuration ""; ""Section 4. Experiment on Laboratory Machinery Fault Simulator ""; ""4.1. The Bearing Fault Demonstrator ""
""4.2. The Rolling Element Bearings """""4.3. Artificially Induced Bearing Defects ""; ""4.4. A Comparison Study of Conventional Wavelet and Reassignment Wavelet ""; ""4.5. Bearing Fault Detection by Using RMS and Kurtosis ""; ""4.6. Detection of a Normal Condition Signal and Motor Signature ""; ""4.7. The Analysis of the Bearing Signal Collected from a Bearing with a Ball Defect ""; ""4.8. The Analysis of Bearing Signals Collected from Bearings with Outer Race and Inner Race Defects ""; ""4.9. Experimental Analysis with Computer Generated Noise Simulation ""
""Section 5. Experiments on Industrial Machines ""

Sommario/riassunto

Reviews research in the field of fault detection including the introduction of an automatic, effective but simpler-to-use system for fault diagnosis in bearings; the monitoring and diagnosis of discrete event systems using time petri nets; and, fault detection and diagnosis using statistical and soft computing methods.