

1. Record Nr.	UNINA9910497096503321
Autore	Chaari Fakher
Titolo	Smart Monitoring of Rotating Machinery for Industry 4. 0
Pubbl/distr/stampa	Cham : , : Springer International Publishing AG, , 2021 ©2022
ISBN	3-030-79519-5
Descrizione fisica	1 online resource (177 pages)
Collana	Applied Condition Monitoring Ser. ; ; v.19
Altri autori (Persone)	ChimentinXavier ZimrozRadoslaw BolaersFabrice HaddarMohamed
Soggetti	Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Contents -- Vulnerabilities and Fruits of Smart Monitoring -- 1 Introduction -- 1.1 The Ultimate System -- 1.2 What Is Smart Monitoring? -- 1.3 Smart Systems Versus Smart Staff -- 2 Evolution of Condition Monitoring Systems -- 2.1 Early Days -- 2.2 Expansion of Stationary Distributed Systems -- 2.3 Industrial Internet-of-Things -- 3 CMS Interaction with Human -- 3.1 Selection -- 3.2 Configuration -- 3.3 Operation -- 3.4 Maintenance Planning -- 4 Recommendations for Selection of Suitable System -- 5 Summary -- References -- A Tutorial on Canonical Variate Analysis for Diagnosis and Prognosis -- 1 Introduction -- 2 Canonical Variate Analysis for Diagnosis -- 2.1 The Basic Framework of CVA -- 2.2 Determination of the Number of Retained States -- 2.3 Determination of Fault Threshold -- 2.4 Extensions of CVA-Canonical Variate Dissimilarity Analysis -- 2.5 Industrial Case Study-Canonical Variate Analysis -- 3 Canonical Variate Analysis for Prognosis -- 3.1 CVA-Based State Space Models -- 3.2 Determining the Number of Retained States -- 3.3 Example of Using CVA State Space Model for Prognosis -- 3.4 CVA-Based Data Driven Models -- 4 Conclusion -- References -- A Structured Approach to Machine Learning Condition Monitoring -- 1 Introduction -- 2 Machine Learning -- 2.1 Deep Learning -- 2.2 Advantages and Drawbacks of

the Machine Learning Supervised and Unsupervised Techniques in CBM -- 3 Development of Classifiers with Machine Learning Algorithms -- 4 Model Development Workflow -- 5 Conclusions -- References -- A

Structured Approach to Machine Learning for Condition Monitoring: A Case Study -- 1 Introduction -- 2 Random Forest -- 3 Deep Learning/Autoencoder -- 4 Problem Description -- 4.1 Preliminary Test on Rotary Test Rig -- 4.2 XTS Test Rig -- 4.3 Autoencoder for Anomaly Detection -- 5 Conclusions -- References.

Dynamic Reliability Assessment of Structures and Machines Using the Probability Density Evolution Method -- 1 Introduction -- 2 The Probability Density Evolution Method -- 2.1 The PDEM Equation -- 2.2 Physical Interpretation of the PDEM -- 2.3 Dynamic Reliability Assessment Using PDEM -- 3 Dynamic Reliability Assessment of Structures -- 3.1 Offline PDEM-Based Reliability Assessment Method -- 3.2 Online PDEM-Based Reliability Assessment Method -- 3.3 Case Study: Cantilevered Beam -- 4 Dynamic Reliability Assessment of Machines -- 4.1 Extra Considerations for Dynamic Reliability Assessment of Machines -- 4.2 Case Study: Bearing -- 5 Discussion and Future Research Directions -- 5.1 Future Research Directions -- References -- Rotating Machinery Condition Monitoring Methods for Applications with Different Kinds of Available Prior Knowledge -- 1 Introduction -- 2 Prior Knowledge in Condition Monitoring -- 2.1 Engineering Knowledge -- 2.2 Knowledge Extracted from Machine Learning Algorithms -- 3 Case Study -- 3.1 Data Availability: Level 0 -- 3.2 Data Availability: Level 1 -- 3.3 Data Availability: Level 2 -- 4 Conclusions and Recommendations -- References -- Model Based Fault Diagnosis in Bevel Gearbox -- 1 Introduction -- 2 Dynamic Modelling of One Stage Straight Bevel Gearbox -- 3 Modelling of Mesh Stiffness Function -- 3.1 Mesh Stiffness Model of a Healthy Bevel Gear -- 3.2 Mesh Stiffness Model of Bevel Gear with a Missing Tooth Fault -- 4 Simulation and Results -- 4.1 Dynamic Response of a Healthy Bevel Gear System -- 4.2 Dynamic Response of a Bevel Gear System with Missing Tooth Fault -- 5 Experimental Validation -- 6 Conclusion -- References -- Investigating the Electro-mechanical Interaction Between Helicoidal Gears and an Asynchronous Geared Motor -- 1 Introduction -- 2 Experimental Set Up -- 3 Results -- 4 Conclusion -- References.

Algebraic Estimator of Damping Failure for Automotive Shock Absorber -- 1 Introduction -- 2 Vehicle Model -- 3 Proposed Algebraic Estimator -- 4 Results of Simulation -- 5 Conclusion -- References -- On the Use of Jerk for Condition Monitoring of Gearboxes in Non-stationary Operations -- 1 Introduction -- 2 Dynamic Model -- 3 Numerical Simulations -- 3.1 Stationary Operating Conditions -- 3.2 Non-stationary Operating Conditions -- 3.3 Influence of Noise -- 4 Conclusion -- References -- Dynamic Remaining Useful Life Estimation for a Shaft Bearings System -- 1 Introduction -- 2 Methodology -- 3 Validation of the Proposed Approach -- 3.1 Experimental Setup -- 3.2 Results and Discussion -- 4 Conclusion -- References.
