
Handbook Of Condition Monitoring Springer

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*Handbook Of Condition
Monitoring Springer*

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*Handbook of Maintenance Management
and Engineering Springer*

A long required resource to turn to for reliable, up-to-date information on the continually evolving field of metrology. In two easily searched volumes, the Wiley Handbook of Metrology provides a clear overview of both the fundamentals of metrology and recent advances.

Proceedings of the 5th International Conference on Condition Monitoring of Machinery in Non-stationary Operations, CMMNO'2016, 12-16 September 2016, Gliwice, Poland Springer Science & Business Media

This book provides readers with a snapshot of recent methods for non-stationary vibration analysis of machinery. It covers a broad range of advanced techniques in condition monitoring of machinery, such as mathematical models, signal processing

and pattern recognition methods and artificial intelligence methods, and their practical applications to the analysis of nonstationarities. Each chapter, accepted after a rigorous peer-review process, reports on a selected, original piece of work presented and discussed at the International Conference on Condition Monitoring of Machinery in Non-Stationary Operations, CMMNO'2016, held on September 12 - 16, 2016, in Gliwice, Poland. The contributions cover advances in both theory and practice in a variety of subfields, such as: smart materials and structures; fluid-structure interaction; structural acoustics as well as computational vibro-acoustics and numerical methods. Further topics include: engines control, noise

identification, robust design, flow-induced vibration and many others. By presenting state-of-the-art in predictive maintenance solutions and discussing important industrial issues the book offers a valuable resource to both academics and professionals and is expected to facilitate communication and collaboration between the two groups.

Springer Handbook of Mechanical Engineering Springer Science & Business Media

This is the first comprehensive two-volume collection on anhedonia, a disorder that played an important role in psychopathology theories at the beginning of the twentieth century. Anhedonia is a condition in which the capacity of pleasure is partially or

completely lost, and it refers to both a personality trait, and a “state symptom” in various neuropsychiatric and physical disorders. It has a putative neural substrate, originating in the dopaminergic mesolimbic and mesocortical reward circuit. Over the past three decades cognitive psychology and behavioral neuroscience have expanded our understanding of anhedonia and other reward-related processes. The aim of this new two-volume collection on anhedonia is to highlight the contributions of eminent scientists in this field as well as to provide readers with comprehensive accounts of recent developments as perceived by the authors. This monograph is divided into five parts. Volume I contains parts one and two

(Conceptual Issues and Neurobiological Advances) including 14 chapters that serve as an introduction and overview of conceptual issues. Volume II contains three parts (Anhedonia in Psychotic Disorders, Anhedonia in Mood and Personality Disorders, and Anhedonia in Neurological and Physical Disorders) including 15 chapters that provide an overview of the construct, measurement of anhedonia in schizophrenia spectrum disorders, hedonic capacity and related factors in schizophrenia and schizoaffective disorder, anhedonia as an indicator of genetic liability for schizophrenia, and as a trait marker for depression, the role of anhedonia in trauma-related disorders, anorexia nervosa, stress-induced eating disorders, schizotypal traits and risk of suicide. This

book will be of interest to a broad spectrum of readers including psychiatrists, psychologists, neurologists, neuroscientists, endocrinologists, pharmacologists, general practitioners, geriatricians, graduate students, and health care providers in the fields of mental health.

CRC Press

Mass production companies have become obliged to reduce their production costs and sell more products with lower profit margins in order to survive in competitive market conditions. The complexity and automation level of machinery are continuously growing. This development calls for some of the most critical issues that are reliability and dependability of automatic systems. In the future,

machines will be monitored remotely, and computer-aided techniques will be employed to detect faults in the future, and also there will be unmanned factories where machines and systems communicate to each other, detect their own faults, and can remotely intercept their faults. The pioneer studies of such systems are fault diagnosis studies. Thus, we hope that this book will contribute to the literature in this regard. Prognostics and Health Management of Engineering Systems Springer Nature Provides an extensive, up-to-date treatment of techniques used for machine condition monitoring Clear and concise throughout, this accessible book is the first to be wholly devoted to the field of condition monitoring for rotating machines using vibration signals. It

covers various feature extraction, feature selection, and classification methods as well as their applications to machine vibration datasets. It also presents new methods including machine learning and compressive sampling, which help to improve safety, reliability, and performance. Condition Monitoring with Vibration Signals: Compressive Sampling and Learning Algorithms for Rotating Machines starts by introducing readers to Vibration Analysis Techniques and Machine Condition Monitoring (MCM). It then offers readers sections covering: Rotating Machine Condition Monitoring using Learning Algorithms; Classification Algorithms; and New Fault Diagnosis Frameworks designed for MCM. Readers will learn signal processing in the time-

frequency domain, methods for linear subspace learning, and the basic principles of the learning method Artificial Neural Network (ANN). They will also discover recent trends of deep learning in the field of machine condition monitoring, new feature learning frameworks based on compressive sampling, subspace learning techniques for machine condition monitoring, and much more. Covers the fundamental as well as the state-of-the-art approaches to machine condition monitoring guiding readers from the basics of rotating machines to the generation of knowledge using vibration signals Provides new methods, including machine learning and compressive sampling, which offer significant improvements in accuracy with reduced

computational costs Features learning algorithms that can be used for fault diagnosis and prognosis Includes previously and recently developed dimensionality reduction techniques and classification algorithms Condition Monitoring with Vibration Signals: Compressive Sampling and Learning Algorithms for Rotating Machines is an excellent book for research students, postgraduate students, industrial practitioners, and researchers. Rational Machines and Artificial Intelligence Elsevier Provides Typical Abstract Representations of Different Steps for Analyzing Any Dynamic System Vibration and dynamics are common in everyday life, and the use of vibration measurements, tests, and analyses is

becoming standard for various applications. *Vibration Analysis, Instruments, and Signal Processing* focuses on the basic understanding of vibrat

Vibration Analysis, Instruments, and Signal Processing World Scientific

This Handbook compiles advanced methods for materials measurement and characterization from the macroscopic to the nano-scale. Materials professionals need not only handbooks of materials data but clear guidelines and standards for how to measure the full spectrum of materials characteristics of new materials and systems. Since materials science forms a bridge between the more traditional fields of physics, engineering, and chemistry, unifying the varying perspectives and covering the

full gamut of properties also serves a useful purpose. This handbook is the first dedicated to these practical and important considerations.

Encyclopedia of Quantitative Risk Analysis and Assessment Springer

This utterly comprehensive work is thought to be the first to integrate the literature on the physics of the failure of complex systems such as hospitals, banks and transport networks. It has chapters on particular aspects of maintenance written by internationally-renowned researchers and practitioners. This book will interest maintenance engineers and managers in industry as well as researchers and graduate students in maintenance, industrial engineering and applied mathematics. **Advancing Research, Policy, and**

Practice in Global Contexts Springer Science & Business Media

This is a comprehensive book on the theories of artificial intelligence with an emphasis on their applications. It combines fuzzy logic and neural networks, as well as hidden Markov models and genetic algorithm, describes advancements and applications of these machine learning techniques and describes the problem of causality. This book should serve as a useful reference for practitioners in artificial intelligence.

Building-Integrated Photovoltaic Systems (BIPVS) Springer Science & Business Media

This book describes in detail different types of vibration signals and the signal processing methods, including signal resampling and signal envelope, used for

condition monitoring of drivetrains. A special emphasis is placed on wind turbines and on the fact that they work in highly varying operational conditions. The core of the book is devoted to cutting-edge methods used to validate and process vibration data in these conditions. Key case studies, where advanced signal processing methods are used to detect failures of gearboxes and bearings of wind turbines, are described and discussed in detail. Vibration sensors, SCADA (Supervisory Control and Data Acquisition), portable data analyzers and online condition monitoring systems, are also covered. This book offers a timely guide to both researchers and professionals working with wind turbines (but also other machines), and to graduate students

willing to extend their knowledge in the field of vibration analysis.

Analysis and Identification BoD – Books on Demand

Seven years have passed since the publication of the previous edition of this book. During that time, sensor technologies have made a remarkable leap forward. The sensitivity of the sensors became higher, the dimensions became smaller, the selectivity became better, and the prices became lower. What have not changed are the fundamental principles of the sensor design. They are still governed by the laws of Nature. Arguably one of the greatest geniuses who ever lived, Leonardo Da Vinci, had his own peculiar way of praying. He was saying, “Oh Lord, thanks for Thou do not violate your own

laws.” It is comforting indeed that the laws of Nature do not change as time goes by; it is just our appreciation of them that is being renewed. Thus, this new edition examines the same good old laws of Nature that are employed in the designs of various sensors. This has not changed much since the previous edition. Yet, the sections that describe the practical designs are revised substantially. Recent ideas and developments have been added, and less important and nonessential designs were dropped. Probably the most dramatic recent progress in the sensor technologies relates to wide use of MEMS and MEOMS (micro-electro-mechanical systems and micro-electro-opto-mechanical systems). These are examined in this new edition with

greater detail. This book is about devices commonly called sensors. The invention of a microprocessor has brought highly sophisticated instruments into our everyday lives.

Structural Health Monitoring Damage Detection Systems for Aerospace

Butterworth-Heinemann

Intelligent machines are populating our social, economic and political spaces. These intelligent machines are powered by Artificial Intelligence technologies such as deep learning. They are used in decision making. One element of decision making is the issue of rationality. Regulations such as the General Data Protection Regulation (GDPR) require that decisions that are made by these intelligent machines are explainable. Rational Machines and

Artificial Intelligence proposes that explainable decisions are good but the explanation must be rational to prevent these decisions from being challenged. Noted author Tshilidzi Marwala studies the concept of machine rationality and compares this to the rationality bounds prescribed by Nobel Laureate Herbert Simon and rationality bounds derived from the work of Nobel Laureates Richard Thaler and Daniel Kahneman. *Rational Machines and Artificial Intelligence* describes why machine rationality is flexibly bounded due to advances in technology. This effectively means that optimally designed machines are more rational than human beings. Readers will also learn whether machine rationality can be quantified and identify how this can be achieved. Furthermore,

the author discusses whether machine rationality is subjective. Finally, the author examines whether a population of intelligent machines collectively make more rational decisions than individual machines. Examples in biomedical engineering, social sciences and the financial sectors are used to illustrate these concepts. Provides an introduction to the key questions and challenges surrounding Rational Machines, including, When do we rely on decisions made by intelligent machines? What do decisions made by intelligent machines mean? Are these decisions rational or fair? Can we quantify these decisions? and Is rationality subjective? Introduces for the first time the concept of rational opportunity costs and the concept of flexibly bounded rationality as a

rationality of intelligent machines and the implications of these issues on the reliability of machine decisions Includes coverage of Rational Counterfactuals, group versus individual rationality, and rational markets Discusses the application of Moore's Law and advancements in Artificial Intelligence, as well as developments in the area of data acquisition and analysis technologies and how they affect the boundaries of intelligent machine rationality

Machine Tool Metrology Academic Press

Leading the way in this field, the Encyclopedia of Quantitative Risk Analysis and Assessment is the first publication to offer a modern, comprehensive and in-depth resource to

the huge variety of disciplines involved. A truly international work, its coverage ranges across risk issues pertinent to life scientists, engineers, policy makers, healthcare professionals, the finance industry, the military and practising statisticians. Drawing on the expertise of world-renowned authors and editors in this field this title provides up-to-date material on drug safety, investment theory, public policy applications, transportation safety, public perception of risk, epidemiological risk, national defence and security, critical infrastructure, and program management. This major publication is easily accessible for all those involved in the field of risk assessment and analysis. For ease-of-use it is available in print and online.

Industrial Handbook Springer Nature
This book provides readers with a guide to the use of Digital Twin in manufacturing. It presents a collection of fundamental ideas about sensor electronics and data acquisition, signal and image processing techniques, seamless data communications, artificial intelligence and machine learning for decision making, and explains their necessity for the practical application of Digital Twin in Industry. Providing case studies relevant to the manufacturing processes, systems, and sub-systems, this book is beneficial for both academics and industry professionals within the field of Industry 4.0 and digital manufacturing.
Condition Monitoring with Vibration Signals John Wiley & Sons

Maximizing reader insights into the key scientific disciplines of Machine Tool Metrology, this text will prove useful for the industrial-practitioner and those interested in the operation of machine tools. Within this current level of industrial-content, this book incorporates significant usage of the existing published literature and valid information obtained from a wide-spectrum of manufacturers of plant, equipment and instrumentation before putting forward novel ideas and methodologies. Providing easy to understand bullet points and lucid descriptions of metrological and calibration subjects, this book aids reader understanding of the topics discussed whilst adding a voluminous-amount of footnotes utilised throughout

all of the chapters, which adds some additional detail to the subject. Featuring an extensive amount of photographic-support, this book will serve as a key reference text for all those involved in the field.

Handbook of Metrology IGI Global
Handbook of Condition
Monitoring Techniques and
Methodology Springer Science & Business
Media

Failure Analysis Springer

This book presents the most important tools, techniques, strategy and diagnostic methods used in industrial engineering. The current widely accepted methods of diagnosis and their properties are discussed. Also, the possible fruitful areas for further research in the field are identified.

Physics, Designs, and Applications

Handbook of Condition

Monitoring Techniques and Methodology

It is a well acknowledged fact that virtually all of our modern-day components and assemblies rely to some extent on machining operations in their manufacturing process. Thus, there is clearly a substantive machining requirement which will continue to be of prime importance for the foreseeable future. Cutting Tool Technology provides a comprehensive guide to the latest developments in the use of cutting tool technology. The book covers new machining and tooling topics such as high-speed and hard-part machining, near-dry and dry-machining strategies, multi-functional tooling, 'diamond-like' and 'atomically-modified' coatings, plus

many others. Also covered are subjects important from a research perspective, such as micro-machining and artificial intelligence coupled to neural network tool condition monitoring. A practical handbook complete with troubleshooting tables for common problems, Cutting Tool Technology is an invaluable reference for researchers, manufacturers and users of cutting tools.

Decision Support Systems in Condition Monitoring and Diagnosis

Springer Science & Business Media

Successful development of effective computational systems is a challenge for IT developers across sectors due to uncertainty issues that are inherently present within computational problems. Soft computing proposes one such solution to the problem of uncertainty

through the application of generalized set structures including fuzzy sets, rough sets, and multisets. The Handbook of Research on Generalized and Hybrid Set Structures and Applications for Soft Computing presents double blind peer-reviewed and original research on soft computing applications for solving problems of uncertainty within the computing environment. Emphasizing essential concepts on generalized and hybrid set structures that can be applied across industries for complex problem solving, this timely resource is essential to engineers across disciplines, researchers, computer scientists, and graduate-level students.

Ultrasonic and Advanced Methods for Nondestructive Testing and Material Characterization Springer Science &

Business Media

This open access book presents established methods of structural health monitoring (SHM) and discusses their technological merit in the current aerospace environment. While the aerospace industry aims for weight reduction to improve fuel efficiency, reduce environmental impact, and to decrease maintenance time and operating costs, aircraft structures are often designed and built heavier than required in order to accommodate unpredictable failure. A way to overcome this approach is the use of SHM systems to detect the presence of defects. This book covers all major contemporary aerospace-relevant SHM methods, from the basics of each method to the various defect types that SHM is required to

detect to discussion of signal processing developments alongside considerations of aerospace safety requirements. It will

be of interest to professionals in industry and academic researchers alike, as well as engineering students.