B. Bandyopadhyay, Indian Institute of Technology Bombay, India; S. Janardhanan, Indian Institute of Technology Delhi, India; S. Spurgeon, University of Kent, UK (Eds)

Advances in Sliding Mode Control
Concept, Theory and Implementation
The sliding mode control paradigm has become a mature technique for the design of robust controllers for a wide class of systems including nonlinear, uncertain and time-delayed systems.

Features
► Latest research on Sliding Mode Control
► Constituted from the invited and plenary talks of the 12th IEEE International Workshop Variable Structure Systems (VSS), held 12-14 Jan. 2012 in Mumbai, India
► Written by leading experts in the field

Contents

Fields of interest
Control; Systems Theory, Control

Target groups
Research

Product category
Monograph

Due April 2013
2013. XII, 380 p. (Lecture Notes in Control and Information Sciences, Volume 440) Softcover
► $159.00
ISBN 978-3-642-36985-8

P. Caravani, University of L’Aquila, Italy
Modern Linear Control Design
A Time-Domain Approach
This book offers a compact introduction to modern linear control design. The simplified overview presented of linear time-domain methodology paves the road for the study of more advanced non-linear techniques. Only rudimentary knowledge of linear systems theory is assumed - no use of Laplace transforms or frequency design tools is required. Emphasis is placed on assumptions and logical implications, rather than abstract completeness; on interpretation and physical meaning, rather than theoretical formalism; on results and solutions, rather than derivation or solvability.

Features
► Provides a single-source, compact and practical introduction to modern linear control design, including fast and effective design methods
► Includes a state-of-the-art overview of time-domain linear methods
► Covers methods typically dispersed in numerous books, such as constraints on control variables, control robustness and the Asymptotic Regulation problem
► Uses examples from numerous application fields with solutions in MATLAB

Contents
Introduction to the Control Problem.- SIMO, x observed, w = 0.- SISO, x unobserved, w = 0.- MIMO, x observed, w = 0.- MIMO, x unobserved, w = 0.- MIMO, x observed, w = 0, norm-bounded.- MIMO, x;w observed, w = 0.- MIMO, x;w unobserved, w = 0 exogenously generated.

Fields of interest
Control, Applied Mathematics/Computational Methods of Engineering; Vibration, Dynamical Systems, Control

Target groups
Professional/practitioner

Product category
Professional book

Due May 2013
2013. XX, 157 p. 35 illus. (SpringerBriefs in Applied Sciences and Technology / PoliMI SpringerBriefs) Softcover
► $49.99

S. Carlucci, Politecnico di Milano, Italy
Thermal Comfort Assessment of Buildings
A number of metrics for assessing human thermal response to climatic conditions have been proposed in scientific literature over the last decades. They aim at describing human thermal perception of the thermal environment to which an individual or a group of people is exposed. More recently, a new type of “discomfort index” has been proposed for describing, in a synthetic way, long-term phenomena. Starting from a systematic review of a number of long-term global discomfort indices, they are then contrasted and compared on a reference case study in order to identify their similarities and differences and strengths and weaknesses.

Features
► Many tools for assessing the thermal comfort quality of a building during the design phase or the operational phase
► New long-term general discomfort indices harmonized with respect to the three comfort models
► A new short-term local discomfort index for the American Adaptive comfort model

Contents
A review of methods for long-term evaluation of the general thermal comfort conditions in buildings.
► A comparison of methods for long-term evaluation of general thermal comfort conditions in buildings.
► A gap analysis of methods for long-term evaluation of general thermal comfort conditions.
► A harmonized framework for the calculation of long-term discomfort indices.
► A new index for long-term evaluation of the general thermal comfort conditions in buildings.

Fields of interest
Building Physics, HVAC, Energy Efficiency (incl. Buildings); Design, general

Target groups
Research

Product category
Brief

Due April 2013
2013. XIV, 126 p. 34 illus., 18 in color. Hardcover
► $119.00
ISBN 978-1-4614-6942-1

Due May 2013
2013. XX, 157 p. 35 illus. (SpringerBriefs in Applied Sciences and Technology / PoliMI SpringerBriefs) Softcover
► $49.99
**Self-Healing Phenomena in Cement-Based Materials**


**Contents**

1 Introduction: 1.1 Self-healing phenomena.- 1.2 Why self-healing in cement-based materials.- 1.3 Definitions in an emerging field.- 1.4 Outline of the report.- 1.5 Link to other RILEM TC’s.- 1.6 References.- 2 Experimental techniques used to verify healing: 2.1 Introduction.- 2.2 Techniques used to examine crack healing.- 2.3 Techniques used to verify recovery against environmental actions: 2.4 Techniques used to verify recovery against mechanical actions: 2.5 References.- 3 Recovery against environmental action: 3.1 Autogenic self-healing.- 3.2 Autonomic self-healing.- 3.3 References.- 4 Recovery against mechanical actions: 4.1 Autogenic self-healing.- 4.2 Autonomic self-healing.- 4.3 References.- 5 Modelling of self-healing cementitious materials: 5.1 Introduction.- 5.2 Lattice modelling for concrete with tubular encapsulation.- 5.3 Simulation of autogenic self-healing for concrete at early age.- 5.4 Simulation of self-healing capacity of hybrid fibre material.- 5.5 Analytical models for cracks hitting encapsulated materials.- 5.6 Self-healing by on-going hydration.- 5.7 References.- 6 Other materials, applications and future developments: 6.1 Introduction.- 6.2 Self-healing in other materials.- 6.3 Applications.- 6.4 Future developments and outlook.- 6.5 References.

**Fields of interest**

Civil Engineering; Structural Materials; Continuum Mechanics and Mechanics of Materials

**Target groups**

Research

**Product category**

Contributed volume

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**Computing Nature**

Turing Centenary Perspective

**Features**

- Presents recent advances in natural computation, intended as computation found in nature, computation performed by natural materials and computation inspired by nature.
- Analyses the relevance of the relationship between human representation and machine representation, the contrast between symbolic representation and processing on the one hand and nature-inspired, non-symbolic forms of computation on the other hand, with a special focus on connectionism.
- Includes a selection of contributions from the Symposium on Natural Computing/Unconventional Computing and Its Philosophical Significance held during the AISB/IACAP World Congress 2012 in Birmingham, UK.

**Contents**


**Fields of interest**

Computational Intelligence; Artificial Intelligence (incl. Robotics); Philosophy of Mind

**Target groups**

Research

**Product category**

Monograph

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**Finite Element Analysis of the Collapse and Post-Collapse Behavior of Steel Pipes: Applications to the Oil Industry**

This book presents a detailed discussion of the models that were developed to simulate the collapse and post-collapse behavior of steel pipes. The finite element method offers to engineers the possibility of developing models to simulate the collapse behavior of casings inside oil wells and the collapse behavior of deepwater pipelines. However, if technological decisions are going to be reached from these model results, with implications for the economic success of industrial operations, for the occupational safety and health and for the environment, the engineering models need to be highly reliable. Using these models engineers can quantify the effect of manufacturing tolerances, wear, corrosion, etc.
**A Combined Data and Power Management Infrastructure For Small Satellites**

This book describes the development and design of a unique combined data and power management infrastructure. The use in small satellites gives some particular requirements to the systems like potential hardware failure robustness and handling of different types of external analog and digital interfaces. These requirements lead to a functional merge between On Board Computer and the satellite Power Control and Distribution Unit, which results in a very innovative design and even a patent affiliation. This book provides system engineers and university students with the technical knowledge as mix between technical brochure and a user guide.

**Features**
- Gives details on the development background to estimate the overall system's function, performance, and usability for satellite missions
- Provides a consistent documentation on the developed Data and Power Management Infrastructure for small satellites
- Written by experienced systems engineers from industry

**Contents**
- The OBC overall Design Concept
- The Processor Board
- The I/O-Board
- The CCSDS Encoder/Decoder IP-Core
- The CCSDS Decoder/Encoder Board
- The Power Control and Distribution Unit
- The OBC Power Supply Boards
- The OBC inter-board Harness
- OBC Mechanical and Thermal Design
- OBC HW/SW Integration Testing
- The Research Satellite Target

**Fields of interest**
- Aerospace Technology and Astronautics
- Control Structures and Microprogramming
- Circuits and Systems

**Target groups**
- Research

**Product category**
- Monograph

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**Ethics for Biomedical Engineers**

Over the last few decades, there are increasing public awareness of adverse events involving engineering failures that not only led to monetary losses but also more importantly, human injuries and deaths. Whilst it is vital for an engineering professional or student to acquire the necessary technical knowledge and skills in their respective field, they must also understand the ethical essences that are relevant to their profession. Engineering professionals like biomedical engineers need to appreciate the fundamentals of best practices and recognise how any derivation from such practices can have undesirable impacts on human lives. Through this book, it is hoped that readers would draw the relevance between the study of ethics and biomedical engineering. The book would be a useful source and reference for college-level and university-level students.

**Features**
- Provide valuable insights for existing biomedical engineers and those enrolled in continual engineering education programs
- Explores the relevance of the study of ethics to biomedical engineering
- Useful source and reference for college-level and university-level students

**Contents**
- Preface
- Ethical practices and engineering
- Ethics & biomedical engineering practice & research: origins of principles & consent
- Ethical considerations in clinical engineering
- Ethics of biomaterials for implants
- Ethics and data mining in biomedical engineering
- Whistle blowing: an option or an obligation?

**Fields of interest**
- Biomedical Engineering

**Target groups**
- Biomedical Engineering

**Product category**
- Monograph

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**Guide to Diagnosis and Appraisal of AAR Damage to Concrete in Structures**

**Part 1 Diagnosis (AAR 6.1)**

**Contents**
1. Introduction
2. Alkali-Aggregate Reaction
3. Symptoms of AAR
4. Confirmation investigation
5. Confirmation investigation: 6.1 Introduction
6. Reporting: 6.1 Purpose
7. Severity
8. Interpretation of results
9. Diagnosis

**Fields of interest**
- Building Repair and Maintenance
- Structural Materials
- Structural Mechanics

**Target groups**
- Research

**Product category**
- Contributed volume
Biomedical Applications of Control Engineering

Biomedical Applications of Control Engineering is a lucidly written textbook for graduate control engineering and biomedical engineering students as well as for medical practitioners who want to get acquainted with quantitative methods. It is based on decades of experience both in control engineering and clinical practice. The book begins by reviewing basic concepts of system theory and the modeling process. It then goes on to discuss control engineering application areas like: Different models for the human operator, dosage and timing optimization in oral drug administration, measuring symptoms of and optimal dopaminergic therapy in Parkinson’s disease, measurement and control of blood glucose levels both naturally and by means of external controllers in diabetes, and control of depth of anaesthesia using inhalational anaesthetic agents like sevoflurane using both fuzzy and state feedback controllers.

Features
- Recent Biomedical Applications of Control Engineering
- With applications on Parkinson’s disease and blood glucose
- Written by a leading expert in the field

Contents
Introduction to Systems.
Modeling and Identification.
The Human Operator.
Drug Administration and Dosage Optimization.
Parkinson’s Disease.
Diabetes and Control of Blood Glucose.
Controlling Depth of Anaesthesia.

Future Information Communication Technology and Applications
ICFICE 2013

These proceedings are based on the 2013 International Conference on Future Information & Communication Engineering (ICFICE 2013), which will be held at Shenyang in China from June 24-26, 2013. The conference is open to all over the world, and participation from Asia-Pacific region is particularly encouraged.

Features
- Focuses on the various aspects of advances in future information communication technology and its applications
- Presents the latest issues and progress in the area of future information communication technology
- Applicable to both researchers and professionals

Contents
Communication System and Application.
Networking and Services.
Intelligent Information System.
Multimedia and Digital Convergence.
Semiconductor and Communication Services.
Imaging and Biomedical Engineering.
Ubiquitous Sensor Network.
Database and Internet Application.
Mobile Communication.
IT Fusion Technology.

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Imaging and Biomedical Engineering.
Ubiquitous Sensor Network.
Database and Internet Application.
Mobile Communication.
IT Fusion Technology.
Signals, Processes, and Systems
An Interactive Multimedia Introduction to Signal Processing

This is a very new concept for learning Signal Processing, not only from the physically-based scientific perspective, but also from the didactic perspective, based on modern results of brain research. The textbook together with the DVD form a learning system that provides investigative studies and enables the reader to interactively visualize even complex processes. The unique didactic concept is built on visualizing signals and processes on the one hand, and on graphical programming of signal processing systems on the other.

Features
► A ground-breaking new approach to teaching elementary signal processing by closely connecting theory and application ► Includes a book, design software for hands-on exercises, and detailed explanations on how to learn from and use them ► Almost no mathematics required ► Suitable for self-study ► For beginners and practitioners in electrical engineering

Contents

Fields of interest
Signal, Image and Speech Processing; Multimedia Information Systems

Target groups
Research

Product category
Graduate/Advanced undergraduate textbook

Due April 2013
Translated by Richard Hooton and Ulrich Boltz

Robot Intelligence Technology and Applications
An Edition of the Presented Papers from the 1st International Conference on Robot Intelligence Technology and Applications

In recent years, robots have been built based on cognitive architecture which has been developed to model human cognitive ability. The cognitive architecture can be a basis for intelligence technology to generate robot intelligence. In this edited book the robot intelligence is classified into six categories: cognitive intelligence, social intelligence, behavioral intelligence, ambient intelligence, collective intelligence and genetic intelligence. This classification categorizes the intelligence of robots based on the different aspects of awareness and the ability to act deliberately as a result of such awareness.

Features
► Recent research on Robot Intelligence Technology and Applications ► Proceedings of the First International Conference on Robot Intelligence Technology and Applications (RITA 2012) held in Gwangju, Korea on December 16 - 18, 2012 ► Written by leading experts in the field

Contents
Cognitive Intelligence, Social Intelligence and Behavioral Intelligence.- Ambient Intelligence, Collective Intelligence and Genetic Intelligence.- Intelligent Robots and Applications.

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Robotics and Automation

Target groups
Research

Product category
Monograph

Due April 2013
J.-H. Kim, KAIST, Daejeon, Korea; E. Matson, Purdue University, West Lafayette, IN, USA; H. Myung, KAIST, Daejeon, Korea; P. Xu, The University of Auckland, New Zealand (Eds)

Multilayer Neural Networks
A Generalized Net Perspective

The primary purpose of this book is to show that a multilayer neural network can be considered as a multistage system, and then that the learning of this class of neural networks can be treated as a special sort of the optimal control problem. In this way, the optimal control problem methodology, like dynamic programming, with modifications, can yield a new class of learning algorithms for multilayer neural networks. Another purpose of this book is to show that the generalized net theory can be successfully used as a new description of multilayer neural networks.

Features
► Recent research on Multilayer Neural Networks ► Shows that a multilayer neural network can be considered as a multistage system, and that the learning of this class of neural networks can be treated as a special sort of the optimal control problem ► Presents a new way to describe the functioning of discrete dynamic systems ► Shows that the generalized net theory developed by Atanassov (1984) as the extension of the ordinary Petri net theory and its modifications can be successfully used as a new description of multilayer neural networks

Contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Control

Target groups
Research

Product category
Monograph

Due July 2013
M. Krawczak, Polish Academy of Sciences, Warsaw, Poland

Multilayer Neural Networks
A Generalized Net Perspective

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Contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Control

Target groups
Research

Product category
Monograph

Due July 2013
2014. 200 p. (Studies in Computational Intelligence, Volume 478) Hardcover ► $129.00 ISBN 978-3-319-00247-7
M. Kuna, TU Bergakademie Freiberg, Germany

**Finite Elements in Fracture Mechanics**

**Theory - Numerics - Applications**

Fracture mechanics has established itself as an important discipline of growing interest to those working to assess the safety, reliability and service life of engineering structures and materials. In order to calculate the loading situation at cracks and defects, nowadays numerical techniques like finite element method (FEM) have become indispensable tools for a broad range of applications. The present monograph provides an introduction to the essential concepts of fracture mechanics, its main goal being to procure the special techniques for FEM analysis of crack problems, which have to date only been mastered by experts. All kinds of static, dynamic and fatigue fracture problems are treated in two- and three-dimensional elastic and plastic structural components.

**Features**
- Unique presentation, from fracture mechanics basics up to advanced FEM techniques
- Combination of fundamental mechanics theory with requirements for practical engineers
- Densely illustrated

**Contents**

**Fields of interest**
Continuum Mechanics and Mechanics of Materials; Materials Science, general; Computational Science and Engineering

**Target groups**
Graduate

**Product category**
Graduate/Advanced undergraduate textbook

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T. Law, University of Tasmania, Launceston, TAS, Australia

**The Future of Thermal Comfort in an Energy-Constrained World**

The dissertation investigates the scientific and business factors that have resulted in air-conditioning being a major contributor to climate-change. With his architectural background, the author demonstrates how a design methodology, not commonly adopted in scientific studies, may actually be a suitable way of dealing with a complex problem: the ‘business as usual’ scenario involving building science, sociological values and consumer behavior.

**Features**
- Nominated as outstanding PhD thesis from the University of Tasmania
- Investigates the scientific and business factors that have resulted in air-conditioning being a major contributor to climate-change
- Advances the theory of personalized thermal comfort that has led to the innovation of a novel air-conditioning system that can potentially resolve the air-conditioning conundrum

**Contents**

**Fields of interest**
Building Construction; Energy Efficiency (incl. Buildings); Earth System Sciences

**Target groups**
Research

**Product category**
Monograph

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T. Lindblad, Royal Institute of Technology, Stockholm, Sweden; J. M. Kinser, George Mason University, Fairfax, VA, USA

**Image Processing using Pulse-Coupled Neural Networks**

**Applications in Python**

Image processing algorithms based on the mammalian visual cortex are powerful tools for extraction information and manipulating images. This book reviews the neural theory and translates them into digital models. Applications are given in areas of image recognition, foveation, image fusion and information extraction. The third edition reflects renewed international interest in pulse image processing with updated sections presenting several newly developed applications. This edition also introduces a suite of Python scripts that assist readers in replicating results presented in the text and to further develop their own applications.

**Features**
- Explains how to learn from nature image recognition
- Applies pulse-coupled neural networks to image processing
- Displays many applications accompanied by Python scripts
- Considers a wide variety of image processing applications

**Contents**
Biological Models - Programming in Python - NumPy, SciPy and Python Image Library - The PCNN and ICM - Image Analysis - Feedback and Isolation - Recognition and Classification - Texture Recognition - Color and Multiple Channels - Image Signatures - Logic

**Fields of interest**
Signal, Image and Speech Processing; Image Processing and Computer Vision; Biophysics and Biological Physics

**Target groups**
Research

**Product category**
Monograph
Ultra Low Power Transceiver for Wireless Body Area Networks

Wireless Body Area Networks (WBANs) are expected to promote new applications for the ambulatory health monitoring of chronic patients and elderly population, aiming to improve their quality of life and independence. These networks are composed by wireless sensor nodes (WSNs) used for measuring physiological variables (e.g., glucose level in blood or body temperature) or controlling therapeutic devices (e.g., implanted insulin pumps). These nodes should exhibit a high degree of energy autonomy in order to extend their battery lifetime or even make the node supply to rely on harvesting techniques.

Features
- Guides readers through the design of ultra-low power transceivers for body area networks, from architecture to circuit-level implementation
- Describes key strategies for ultra-low power transceiver design and specific, innovative techniques for circuit-level design
- Enables readers to design transceivers for body area networks with a total TX efficiency of 27% and an RX power consumption close to 1mW
- Includes a review of the state-of-the-art in low-power transceivers in the GHz frequency range

Fields of interest
- Electronics and Microelectronics, Instrumentation
- Electronic Circuits and Devices

Target groups
- Research

Product category
- Monograph

Reliability Physics and Engineering
Time-To-Failure Modeling

Contents
- Introduction
- Materials and Device Degradation
- From Material/Device Degradation to Time-To-Failure
- Time-To-Failure Modeling
- Gaussian Statistics
- An Overview
- Time-To-Failure Statistics
- Failure Rate Modeling
- Accelerated Degradation
- Acceleration Factor Modeling
- Ramp-To-Failure Testing
- Time-To-Failure Models for Selected Failure Mechanisms in Integrated Circuits Breakdown (TDDB)
- Time-To-Failure Models for Selected Failure Mechanisms in Mechanical Engineering
- Conversion of Dynamical Stresses Into Effective Static Values
- Increasing the Reliability of Device/Product Designs
- Screening
- Heat Generation and Dissipation
- Sampling Plans and Confidence Intervals
- Appendix A: Useful Conversion Factors
- Appendix B: Useful Physical Constants
- Appendix C: Useful Rough Rules-Of-Thumb
- Appendix D: Useful Mathematical Expressions
- Appendix E: Useful Differentials and Definite Integrals
- Appendix F: Free-Energy
- Appendix G: t(1-α/2,ν) Distribution Values
- Appendix H: χ2(P ,ν) Distribution Values
- Index

Features
- Provides the reader with application-orientated tools for studying complex socio-technical systems
- Authored by leading researchers in the field
- Includes data-driven case studies

Fields of interest
- Complexity
- Computer Appl. in Social and Behavioral Sciences
- Methodology of the Social Sciences

Target groups
- Research

Product category
- Monograph
S. C. Mukhopadhyay, Massey University, Palmerston North, New Zealand; A. Mason, Liverpool John Moores University, UK (Eds)

**Smart Sensors for Real-Time Water Quality Monitoring**

Sensors are being utilized to increasing degrees in all forms of industry.

**Features**
- Recent research on Smart Sensors for Real-Time Water Quality Monitoring
- For the first time International expertise for sensors to tackle the diverse subject of water quality is combined in a single text
- Written by leading experts in the field

**Contents**
Monitoring pollutants in wastewater: traditional lab based versus modern real-time approaches
- In situ phosphate monitoring in seawater: today and tomorrow
- Fluorescence and phosphorescence chemical sensors applied to water samples
- Monitoring wastewater treatment using voltammetric electronic tongues
- Automatic water and wastewater quality monitoring systems
- Development and deployment of a microfluidic platform for water quality monitoring
- Nitrate anion sensors, their applications and a case study of their status in waste water from selected areas of coastal Guyana via a spectrophotometric method
- The selection of novel planar electromagnetic sensors for the application of nitrate contamination detection
- Microwave sensors for real-time nutrient detection in water
- Remote Monitoring of Water Quality for Intensive Fish culture
- ICT as an enabler to Smart Water Management
- Emerging organic contaminants in groundwater

**Fields of interest**
- Electronics and Microelectronics, Instrumentation
- Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution / Hydrogeology

**Target groups**
Research

**Product category**
Monograph

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S. C. Mukhopadhyay, Massey University, Palmerston North, New Zealand

**Intelligent Sensing, Instrumentation and Measurements**

“Intelligent Sensing, Instrumentation and Measurements” addresses issues towards the development of sensor nodes for wireless Sensor Networks. The fundamentals of sensors, interfacing, power supplies, configuration of sensor node, and GUI development are covered. The book will be useful for engineers and researchers in the field, especially for higher undergraduate and postgraduate students as well as practitioners working on the development of Wireless Sensor Networks or Smart Sensors.

**Features**
- Introductory textbook on sensing and smart sensors, standards, instrumentation, interfacing, communication, measurements and effects of noises
- Covers aspects of sensors and intelligent sensing techniques, measurement science and instrumentation techniques
- Includes solved problems and exercises as well as applications to Noninvasive Instrumentation and Measurement in Medical Diagnosis

**Contents**
- Sensors Fundamental
- Interfacing of Sensors and Signal Conditioning
- Wireless Sensors and Sensors Network
- Power Supplies for Sensors
- Software Design for Data Reception and Analysis
- Sensors Signal Processing Techniques
- Description of a Few Projects.

**Fields of interest**
- Electronics and Microelectronics, Instrumentation
- Communications Engineering, Networks
- Computational Intelligence

**Target groups**
- Graduate

**Product category**
- Monograph

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A. Neustein, Linguistic Technology Systems, Fort Lee, NJ, USA; J. A. Markowitz, J. Markowitz Consultants, Chicago, IL, USA (Eds)

**Where Humans Meet Machines**

Innovative Solutions for Knotty Natural-Language Problems

**Contents**
- Preface
- Making the Case for an Open, Unified System Architecture in Response to Rapid Developments in the Natural Language Industry: Translingual Automatic Language Exploration System (TALES)
- The Burgeoning of Medical Social-Media Postings and the Need for Improved Natural Language Mapping Tools
- Machine Translation: the Enterprise Point of View
- Speech-Enabled Unified Communications: Overcoming the Multilingual Challenges of the European Market
- Exploiting Lexical Sensitivity in Performing Word-Sense Disambiguation
- Summarizing Short Texts through a Discourse-Centered Approach in a Multilingual Context
- Handling Two Difficult Challenges for Text-to-Speech Synthesis Systems: Out-of-Vocabulary Words and Prosody
- A Case Study in Romanian
- MAP: An Abstraction-Based Metaphor Analysis Program for Overcoming Cross-Modal Challenges
- Translation of Idiomatic Expressions across Different Languages: A Study of the Effectiveness of TransSearch
- Argumentation-Based Dialog Systems for Medical Training
- Design of Dialog-Based Intelligent Tutoring Systems to Simulate Human-to-Human Tutoring
- TCAD: Vocabulary Acquisition Tool for Motivating Bilingual Pupils with Hearing Impairments in Learning English
- A Hybrid Approach to Automated Rating of Foreign Language Proficiency Using Oral Test Responses

**Fields of interest**
- Signal, Image and Speech Processing
- Computational Linguistics
- Machinery and Machine Elements

**Target groups**
- Professional/practitioner

**Product category**
- Professional book
Smart Materials-Based Actuators at the Micro/Nano-Scale

Characterization, Control, and Applications

Contents

Fields of interest Control, Nanotechnology and Microengineering; Nanotechnology

Target groups Research

Product category Monograph

巨磁电阻效应（GMR）传感器

从基础到最先进的应用

自1988年发现巨磁电阻效应（GMR）以来，磁性电子学从一个新技术平台发展成为物理学的诺贝尔奖。目前初用于硬盘驱动器中的磁头，已成为汽车，消费电子，读写头等领域的重要传感器。

特性
- 参考文献
- GMR技术
- 呈现了GMR传感器在生物医学领域的应用。

内容
巨磁电阻效应基础
- GMR和TMR传感器的适应性接口
- GMR传感器在汽车应用中的应用
- GMR传感器在汽车应用中的应用
- 高空间分辨率GMR传感器
- 高空间分辨率GMR传感器

领域
电子和微电子学；传感器

目标群体
研究

产品类型
专著

新闻4/2013

M. Rakotondrabe, University of Franche-Comté at Besancon, France (Ed)

智能材料基底

工程学

粒子过滤器用于随机集模型

内容
简介
- 引言
- 参考文献
- 背景
- 在线粒子滤波器
- 非标准测量
- 精确测量
- 精确测量函数
- 不确定性影响规则
- 粒子滤波器的实现
- 应用
- 多个目标和不完美检测
- 随机有限集
- 多目标随机检测
- 超对称（OSPA）度量
- 专门的多目标滤波器
- 伯努利粒子滤波器
- PHD和CPHD粒子滤波器
- 应用
- 非标准测量
- 估计
- 精确测量模型
- 应用
- 通用多目标滤波器
- 伯努利粒子滤波器
- PHD和CPHD粒子滤波器
- 非标准测量
- 传感器控制
- 随机集粒子滤波器
- 伯努利粒子滤波器
- PHD和CPHD粒子滤波器

领域
传感器

目标群体
研究

产品类型
专著

工程

2013年出版

2013年XII, 298 p. (Smart Sensors, Measurement and Instrumentation, Volume 6) Hardcover
- $179.00
ISBN 978-3-642-37171-4

2013年XI, 173 p. 52 illus., 41 in color. Hardcover
- $129.00

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2013年XI, 298 p. (Smart Sensors, Measurement and Instrumentation, Volume 6) Hardcover
- $179.00
ISBN 978-3-642-37171-4

2013年XI, 173 p. 52 illus., 41 in color. Hardcover
- $129.00
K.-U. Schrog, European Space Agency, Paris, France (Ed)

**Handbook of Space Security**

**Policies, Applications and Programs**

Contents


Fields of interest

Aerospace Technology and Astronautics; Security Science and Technology; Computer Communication Networks  

Target groups

Research  

Product category

Handbook

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L. Seung-Yeon, Sungkyunkwan University, Gyeonggi-do, South Korea

**On the Formation of the Upper Monastic Area of Seon Buddhist Temples from Korea’s Late Silla to the Goryeo Era**

When Seon (Zen) Buddhism was first introduced to Korea around Korea’s late Silla and early Goryeo eras, the function of the "beopdang" (Dharma hall) was transferred to the lecture hall found in ancient Buddhist temples, establishing a pivotal area within the temple compound called the "upper monastic area."  

Features

► Explores the characteristics of Seon temple architecture from Korea’s late Silla to the early Goryeo eras through the evolution of the upper monastic area  
► One of the rare sources of information on Korean Buddhist architecture and temples  
► This book is a small endeavor to reinterpret the volumes of data gathered from field research based on excavated temple ruins and existing historical documents and, in the process, introduce Korean Seon temples to a global audience  

Contents

Background of Seon Temple Establishment in Early Seon Buddhism.- Ancient Lecture Hall and the Spatial Organization of the Buildings on its Left and Right.- Establishment of the Upper Monastic Area with the Beopdang as its Center in Korean Seon Temples.- Formation of Multiple Areas within Seon Temples in the Aftermath of the Dissolution of the Upper Monastic Area.  

Fields of interest

Building Construction, Architectural History and Theory; Cities, Countries, Regions  

Target groups

Research  

Product category

Monograph

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D. J. Shayler, Halesowen, UK; M. Shayler, Birmingham, UK

**Manned Spaceflight Log II — 2006–2012**

"Manned Spaceflight Log" discusses over 40 recent spaceflights from September 2006 through September 2012, a time of great change in human spaceflight history.  

Features

► Details the missions which completed the building of the ISS, serviced Hubble for the last time, retired the shuttle from service and saw the first Chinese EVA and space station missions  
► Forecasts future human space exploration up to 2020 and beyond including the difficulties that need to be addressed even before a piece of hardware leaves the ground  

Contents


Fields of interest

Aerospace Technology and Astronautics; Popular Science in Astronomy; Extraterrestrial Physics, Space Sciences  

Target groups

Popular/general  

Product category

Popular science
A. S. Sidhu, Curtin University, Miri, Malaysia; S. K. Dhillon, University of Malaya, Kuala Lumpur, Malaysia (Eds)

Advances in Biomedical Infrastructure 2013
Proceedings of International Symposium on Biomedical Data Infrastructure (BDI 2013)

Current Biomedical Databases are independently administered in geographically distinct locations, lending them almost ideally to adoption of intelligent data management approaches. This book focuses on research issues, problems and opportunities in Biomedical Data Infrastructure identifying new issues and directions for future research in Biomedical Data and Information Retrieval, Semantics in Biomedicine, and Biomedical Data Modeling and Analysis. The book will be a useful guide for researchers, practitioners, and graduate-level students interested in learning state-of-the-art development in biomedical data management.

Features
► Recent Research on Biomedical Infrastructure ► Proceedings of the International Symposium on Biomedical Data Infrastructure (BDI 2013) ► Written by leading experts in the field

Contents
From the Contents: Integrative approaches for Drug discovery – PPAR gamma as a case study.- Biomedical Informatics and the Future of Medicine.- Inferring E. coli SOS Response Pathway from Gene Expression Data Using IST-DBN with Time Lag Estimation.- Framework for Biodiversity Information Retrieval in Malaysia.- Using Ant Colony Optimization (ACO) on Kinetic Modeling of the Acetoin Production in Lactococcus lactis C7.

Fields of interest
Computational Intelligence; Biomedical Engineering

Target groups
Research

Product category
Monograph

S. K. Sinha, Indian Institute of Technology, Kanpur, India; N. Satyanarayana, S. C. Lim, National University of Singapore, Singapore (Eds)

Nano-tribology and Materials in MEMS

Features
► Brings together recent developments in the areas of MEMS tribology, novel lubricants and coatings for nanotechnological applications, biomimetics in tribology and fundamentals of micro/nano-tribology ► Provides a helpful resource in the industrial growth of MEMS ► Written by known experts

Contents
Formation of arrayed Au nanoparticles on SiO2/Si substrate by use of dewetting phenomenon: An example of bottom-up technologies in MEMS.- Nanofriction by Reciprocating Sliding.- The structure and tribological behaviors of nanostructure thin films.- Detection of lateral forces and formation of atomic chains.- Reducing friction force on silicon surface using submicron- to atomic-scale geometry effects.- Microfabricated sleds for friction studies.- Vapor Phase Lubrication-Nanotribology Fundamentals and MEMS Applications.- A Novel Method of Lubrication of Micro-Electro-Mechanical Systems.- Robust Tribological Solutions for Silicon and Polymer Based MEMS/NEMS.- Lubrication of High Sliding MEMS.- Pre-modifications of Si surface to enhance the wear durability of PFPE nano-lubricant.- Probing the complexities of Friction in submicron contacts between two pristine surfaces.- Atomic Simulation of Polymer Nanotribology.- Simulation of frictional behavior of polymer-on-polymer sliding.- Fundamentals of friction and wear mechanisms at loads relevant to MEMS applications.

Fields of interest
Nanotechnology and Microengineering; Tribology, Corrosion and Coatings; Mechatronics

Target groups
Research

Product category
Contributed volume

K. Suzuki, University of Chicago, IL, USA (Ed)

Computational Intelligence in Biomedical Imaging

Features
► Presents computational intelligence technology in biomedical images and medical decision making based on biomedical images ► Examines medical decision making based on biomedical images ► Covers the state-of-the-art research and technologies in computational intelligence in medical decision making

Contents

Fields of interest
Computational Intelligence; Biomedical Engineering; Computer Imaging, Vision, Pattern Recognition and Graphics

Target groups
Research

Product category
Monograph

Due April 2013

2013. VIII, 139 p. 52 illus. (Studies in Computational Intelligence, Volume 477) Hardcover ► $129.00 ISBN 978-3-642-37136-3

Due April 2013

2013. VI, 392 p. 157 illus., 89 in color. Hardcover ► $179.00 ISBN 978-3-642-36934-6

Due June 2013

Advanced Structural Wind Engineering

This book serves as a textbook for advanced courses as it introduces state-of-the-art information and the latest research results on diverse problems in the structural wind engineering field.

Features
- Most advanced textbook on state-of-the-art structural wind engineering
- World eminent professors collaborate to publish a textbook
- Discusses wide range problems and provides their solutions in the field of structural wind engineering

Contents

Fields of interest
Structural Mechanics; Geotechnical Engineering & Applied Earth Sciences; Architecture, general

Target groups
Professional/practitioner

Product category
Monograph

Dental Biotribology

Dental Biotribology summarizes the latest achievements in dental wear and is designed to help the reader better understand the relationship between structures and tribological properties of human teeth. This book provides guidance on the biomimic design of anti-wear engineering systems based on human teeth and also explains mechanisms of occlusal wear and erosion as well as fretting wear related to dental implants and orthodontics. Additionally, this book provides valuable insights into the development of improved dental materials and oral treatments.

Features
- Explains the relationship between structures and tribological properties of human teeth
- Provides guidance on the biomimic design of anti-wear engineering systems based on human teeth
- Explains mechanisms of occlusal wear and erosion as well as fretting wear related to dental implants and orthodontics
- Provides valuable insights into the development of improved dental materials and oral treatments

Contents

Fields of interest
Biomedical Engineering; Tribology, Corrosion and Coatings; Dentistry

Target groups
Research

Product category
Monograph