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Standard Handbook for Aerospace Engineers, Second Edition
Information and Communication Technology for Sustainable Development
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Feedback Systems
Intelligent Systems Technologies and Applications 2016
The Architecture of Ruins
Radiation in Bioanalysis
Information in Contemporary Society
From Bioinspired Systems and Biomedical Applications to Machine Learning

Critical management studies in the South African context

This book provides an introduction to data science and offers a practical overview of the concepts and techniques that readers need to get the most out of their large-scale data mining projects and research studies. It discusses data-analytical thinking, which is essential to extract useful knowledge and obtain commercial value from the data. Also known as data-driven science, soft computing and data mining disciplines cover a broad interdisciplinary range of scientific methods and processes. The book provides readers with sufficient knowledge to tackle a wide range of issues in complex systems, bringing together the scopes that integrate soft computing and data mining in various combinations of applications and practices, since to thrive in these data-driven ecosystems, researchers, data analysts and practitioners must understand the design choice and options of these approaches. This book helps readers to solve complex benchmark problems and to better appreciate the concepts, tools and techniques used.

Structured Computer Organization

This book is a printed edition of the Special Issue "Advances in Multi-Sensor Information Fusion: Theory and Applications 2017" that was published in Sensors

Risk Measures with Applications in Finance and Economics

Hydrothermal processes on Earth have played an important role in the evolution of our planet. These processes link the lithosphere, hydrosphere and biosphere in continuously evolving dynamic systems. Terrestrial hydrothermal processes have been active since water condensed to form the hydrosphere, most probably from about 4.4 Ga. The circulation of hot aqueous solution (hydrothermal systems) at, and below, the Earth's surface is ultimately driven by magmatic heat. This book presents an in-depth review of hydrothermal processes and systems that form beneath the oceans and in intracontinental rifts, continental margins and magmatic arcs. The interaction of hydrothermal fluids with rockwalls, the hydrosphere and the biosphere, together with changes in their composition through time and space, contribute to the formation of a wide range of mineral deposit types and associated wallrock alteration. On Earth, sites of hydrothermal activity support varied ecosystems based on a range of chemotrophic microorganisms both at surface and in the subsurface. This book also provides an overview of hydrothermal systems associated with meteorite impacts and explores the possibility that hydrothermal processes operate on other terrestrial planets, such as Mars, or satellites of the outer planets such as Titan and Europa. Possible analogues of extraterrestrial putative hydrothermal processes pose the intriguing question of whether primitive life, as we know it, may exist or existed in these planetary bodies. Audience: This volume will be of interest to scientists and researchers in geosciences and life sciences departments, as well as to professionals and scientists involved in mining and mineral exploration.

Occupational and Environmental Safety and Health II

Collectively working robot teams can solve a problem more efficiently than a single robot, while also providing robustness and flexibility to the group. Swarm robotics model is a key component of a cooperative algorithm that controls the behaviors and interactions of all individuals. The robots in the swarm should have some basic functions, such as sensing, communicating, and monitoring, and satisfy the following properties.

Climate Change and Aviation

This book constitutes the proceedings of the 12th IFIP TC 8 International Conference, CISIM 2013, held in Cracow, Poland, in September 2013. The 44 papers presented in this volume were carefully reviewed and selected from over 60 submissions. They are organized in topical sections on biometric and biomedical applications; pattern recognition and image processing; various aspects of computer security, networking, algorithms, and industrial applications. The book also contains full papers of a keynote speech and the invited talk.

Probability with Applications in Engineering, Science, and Technology

This book gathers the proceedings of the Sixth International Conference on Computational Science and Technology 2019 (ICCST2019), held in Kota Kinabalu,

Malaysia, on 29–30 August 2019. The respective contributions offer practitioners and researchers a range of new computational techniques and solutions, identify emerging issues, and outline future research directions, while also showing them how to apply the latest large-scale, high-performance computational methods.

Planning Algorithms

Structured Computer Organization is a bestselling text that provides an accessible introduction to computer hardware and architecture. The book takes a modern structured, layered approach to understanding computer systems.

Distributed Computing and Artificial Intelligence, 13th International Conference

This updated and revised first-course textbook in applied probability provides a contemporary and lively post-calculus introduction to the subject of probability. The exposition reflects a desirable balance between fundamental theory and many applications involving a broad range of real problem scenarios. It is intended to appeal to a wide audience, including mathematics and statistics majors, prospective engineers and scientists, and those business and social science majors interested in the quantitative aspects of their disciplines. The textbook contains enough material for a year-long course, though many instructors will use it for a single term (one semester or one quarter). As such, three course syllabi with expanded course outlines are now available for download on the book's page on the Springer website. A one-term course would cover material in the core chapters (1-4), supplemented by selections from one or more of the remaining chapters on statistical inference (Ch. 5), Markov chains (Ch. 6), stochastic processes (Ch. 7), and signal processing (Ch. 8—available exclusively online and specifically designed for electrical and computer engineers, making the book suitable for a one-term class on random signals and noise). For a year-long course, core chapters (1-4) are accessible to those who have taken a year of univariate differential and integral calculus; matrix algebra, multivariate calculus, and engineering mathematics are needed for the latter, more advanced chapters. At the heart of the textbook's pedagogy are 1,100 applied exercises, ranging from straightforward to reasonably challenging, roughly 700 exercises in the first four "core" chapters alone—a self-contained textbook of problems introducing basic theoretical knowledge necessary for solving problems and illustrating how to solve the problems at hand – in R and MATLAB, including code so that students can create simulations. New to this edition

- Updated and re-worked Recommended Coverage for instructors, detailing which courses should use the textbook and how to utilize different sections for various objectives and time constraints
- Extended and revised instructions and solutions to problem sets
- Overhaul of Section 7.7 on continuous-time Markov chains
- Supplementary materials include three sample syllabi and updated solutions manuals for both instructors and students

Cyber-Physical Systems: Advances in Design & Modelling

This book gathers the proceedings of the Fourth International Conference on Computational Science and Technology 2017 (ICCST2017), held in Kuala Lumpur,

Malaysia, on 29–30 November 2017. These proceedings offer practitioners and researchers the opportunity to present exciting advances in computational techniques and solutions in this area. They also identify emerging issues, help to shape future research directions, and will enable industrial users to apply cutting-edge, large-scale and high-performance computational methods.

Principles of Computer Speech

The purpose of authority control is to ensure consistency in representing a value - a name of a person, a place name, or a term or code representing a subject - in the elements used as access points in information retrieval. The primary purpose of this study is to produce a framework that will provide a clearly stated and commonly shared understanding of what the subject authority data/record/file aims to provide information about, and the expectation of what such data should achieve in terms of answering user needs."

Progress in Gas Turbine Performance

The Architecture of Ruins: Designs on the Past, Present and Future identifies an alternative and significant history of architecture from the sixteenth century to the twenty-first century, in which a building is designed, occupied and imagined as a ruin. This design practice conceives a monument and a ruin as creative, interdependent and simultaneous themes within a single building dialectic, addressing temporal and environmental questions in poetic, psychological and practical terms, and stimulating questions of personal and national identity, nature and culture, weather and climate, permanence and impermanence and life and death. Conceiving a building as a dialogue between a monument and a ruin intensifies the already blurred relations between the unfinished and the ruined and envisages the past, the present and the future in a single architecture. Structured around a collection of biographies, this book conceives a monument and a ruin as metaphors for a life and means to negotiate between a self and a society. Emphasising the interconnections between designers and the particular ways in which later architects learned from earlier ones, the chapters investigate an evolving, interdisciplinary design practice to show the relevance of historical understanding to design. Like a history, a design is a reinterpretation of the past that is meaningful to the present. Equally, a design is equivalent to a fiction, convincing users to suspend disbelief. We expect a history or a novel to be written in words, but they can also be delineated in drawing, cast in concrete or seeded in soil. The architect is a 'physical novelist' as well as a 'physical historian'. Like building sites, ruins are full of potential. In revealing not only what is lost, but also what is incomplete, a ruin suggests the future as well as the past. As a stimulus to the imagination, a ruin's incomplete and broken forms expand architecture's allegorical and metaphorical capacity, indicating that a building can remain unfinished, literally and in the imagination, focusing attention on the creativity of users as well as architects. Emphasising the symbiotic relations between nature and culture, a building designed, occupied and imagined as a ruin acknowledges the coproduction of multiple authors, whether human, non-human or atmospheric, and is an appropriate model for architecture in an era of increasing climate change.

ICT for Competitive Strategies

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. A single source of essential information for aerospace engineers This fully revised resource presents theories and practices from more than 50 specialists in the many sub-disciplines of aeronautical and astronautical engineering—all under one cover. The Standard Handbook for Aerospace Engineers, Second Edition, contains complete details on classic designs as well as the latest techniques, materials, and processes used in aviation, defense, and space systems. You will get insightful, practical coverage of the gamut of aerospace engineering technologies along with hundreds of informative diagrams, charts, and graphs. Standard Handbook for Aerospace Engineers, Second Edition covers:

- Futures of aerospace
- Aircraft systems
- Aerodynamics, aeroelasticity, and acoustics
- Aircraft performance
- Aircraft flight mechanics, stability, and control
- Avionics and air traffic management systems
- Aeronautical design
- Spacecraft design
- Astrodynamics
- Rockets and launch vehicles
- Earth's environment and space
- Attitude dynamics and control

Computational Science and Technology

Building on the first edition published in 1995 this new edition of Kinematic Geometry of Gearing has been extensively revised and updated with new and original material. This includes the methodology for general tooth forms, radius of torsure', cylinder of osculation, and cylindroid of torsure; the author has also completely reworked the '3 laws of gearing', the first law re-written to better parallel the existing 'Law of Gearing' as pioneered by Leonard Euler, expanded from Euler's original law to encompass non-circular gears and hypoid gears, the 2nd law of gearing describing a unique relation between gear sizes, and the 3rd law completely reworked from its original form to uniquely describe a limiting condition on curvature between gear teeth, with new relations for gear efficiency are presented based on the kinematics of general toothed wheels in mesh. There is also a completely new chapter on gear vibration load factor and impact. Progressing from the fundamentals of geometry to construction of gear geometry and application, Kinematic Geometry of Gearing presents a generalized approach for the integrated design and manufacture of gear pairs, cams and all other types of toothed/motion/force transmission mechanisms using computer implementation based on algebraic geometry.

Multi-Core Embedded Systems

This book explores a number of important issues in the area of occupational safety and hygiene. Presenting both research and best practices for the evaluation of occupational risk, safety and health in various types of industry, it particularly focuses on occupational safety in automated environments, innovative management systems and occupational safety in a global context. The different chapters examine the perspectives of all those involved, such as managers, workers and OSH professionals. Based on selected contributions presented at the 16th International Symposium on Occupational Safety and Hygiene (SHO 2020),

held on 6–7 April, 2020, in Porto, Portugal, the book serves as a timely reference guide and source of inspiration to OSH researchers, practitioners and organizations operating in a global context.

Computer Information Systems and Industrial Management

Risk measures play a vital role in many subfields of economics and finance. It has been proposed that risk measures could be analysed in relation to the performance of variables extracted from empirical real-world data. For example, risk measures may help inform effective monetary and fiscal policies and, therefore, the further development of pricing models for financial assets such as equities, bonds, currencies, and derivative securities. A Special Issue of “Risk Measures with Applications in Finance and Economics” will be devoted to advancements in the mathematical and statistical development of risk measures with applications in finance and economics. This Special Issue will bring together the theory, practice and real-world applications of risk measures. This book is a collection of papers published in the Special Issue of “Risk Measures with Applications in Finance and Economics” for Sustainability in 2018.

Advances in Multi-Sensor Information Fusion: Theory and Applications 2017

This book describes the state of the art across the broad range of spectroscopic techniques used in the study of biological systems. It reviews some of the latest advances achieved in the application of these techniques in the analysis and characterization of small and large biological compounds, covering topics such as VUV/UV and UV-visible spectroscopies, fluorescence spectroscopy, IR and Raman techniques, dynamic light scattering (DLS), circular dichroism (CD/SR-CD), pulsed electron paramagnetic resonance techniques, Mössbauer spectroscopy, nuclear magnetic resonance, X-ray methods and electron and ion impact spectroscopies. The second part of the book focuses on modelling methods and illustrates how these tools have been used and integrated with other experimental and theoretical techniques including also electron transfer processes and fast kinetics methods. The book will benefit students, researchers and professionals working with these techniques to understand the fundamental mechanisms of biological systems.

Understanding Smart Sensors

This book provides an introduction to the mathematics needed to model, analyze, and design feedback systems. It is an ideal textbook for undergraduate and graduate students, and is indispensable for researchers seeking a self-contained reference on control theory. Unlike most books on the subject, Feedback Systems develops transfer functions through the exponential response of a system, and is accessible across a range of disciplines that utilize feedback in physical, biological, information, and economic systems. Karl Åström and Richard Murray use techniques from physics, computer science, and operations research to introduce control-oriented modeling. They begin with state space tools for analysis and design, including stability of solutions, Lyapunov functions, reachability, state feedback observability, and estimators. The matrix exponential plays a central role

in the analysis of linear control systems, allowing a concise development of many of the key concepts for this class of models. Åström and Murray then develop and explain tools in the frequency domain, including transfer functions, Nyquist analysis, PID control, frequency domain design, and robustness. They provide exercises at the end of every chapter, and an accompanying electronic solutions manual is available. Feedback Systems is a complete one-volume resource for students and researchers in mathematics, engineering, and the sciences. Covers the mathematics needed to model, analyze, and design feedback systems Serves as an introductory textbook for students and a self-contained resource for researchers Includes exercises at the end of every chapter Features an electronic solutions manual Offers techniques applicable across a range of disciplines

Advances in Robot Kinematics 2016

This book constitutes the thoroughly refereed proceedings of the Third International Conference on Advances in Communication, Network, and Computing, CNC 2012, held in Chennai, India, February 24-25, 2012. The 41 revised full papers presented together with 29 short papers and 14 poster papers were carefully selected and reviewed from 425 submissions. The papers cover a wide spectrum of issues in the field of Information Technology, Networks, Computational Engineering, Computer and Telecommunication Technology, ranging from theoretical and methodological issues to advanced applications.

13th International Conference on Theory and Application of Fuzzy Systems and Soft Computing – ICAFS-2018

The 13th International Symposium on Distributed Computing and Artificial Intelligence 2016 (DCAI 2016) is a forum to present applications of innovative techniques for studying and solving complex problems. The exchange of ideas between scientists and technicians from both the academic and industrial sector is essential to facilitate the development of systems that can meet the ever-increasing demands of today's society. The present edition brings together past experience, current work and promising future trends associated with distributed computing, artificial intelligence and their application in order to provide efficient solutions to real problems. This symposium is organized by the University of Sevilla (Spain), Osaka Institute of Technology (Japan), and the Universiti Teknologi Malaysia (Malaysia)

Swarm Robotics

This book presents new findings on cyber-physical systems design and modelling approaches based on AI and data-driven techniques, identifying the key industrial challenges and the main features of design and modelling processes. To enhance the efficiency of the design process, it proposes new approaches based on the concept of digital twins. Further, it substantiates the scientific, practical, and methodological approaches to modelling and simulating of cyber-physical systems. Exploring digital twins of cyber-physical systems as well as of production systems, it proposes combining both mathematical models and data processing techniques as advanced methods for cyber-physical system design and modelling. Moreover, it

presents the implementation of the developed prototypes, including testing in real industries, which have collected and analyzed big data and proved their effectiveness. The book is intended for practitioners, enterprise representatives, scientists, and Ph.D. and master's students interested in the research and applications of cyber-physical systems in different domains.

Functional Requirements for Subject Authority Data (FRSAD)

This book presents the proceedings of the 13th International Conference on Application of Fuzzy Systems and Soft Computing (ICAFS 2018), held in Warsaw, Poland on August 27–28, 2018. It includes contributions from diverse areas of soft computing such as uncertain computation, Z-information processing, neuro-fuzzy approaches, evolutionary computing and others. The topics of the papers include theory of uncertainty computation; theory and application of soft computing; decision theory with imperfect information; neuro-fuzzy technology; image processing with soft computing; intelligent control; machine learning; fuzzy logic in data analytics and data mining; evolutionary computing; chaotic systems; soft computing in business, economics and finance; fuzzy logic and soft computing in the earth sciences; fuzzy logic and soft computing in engineering; soft computing in medicine, biomedical engineering and the pharmaceutical sciences; and probabilistic and statistical reasoning in the social and educational sciences. The book covers new ideas from theoretical and practical perspectives in economics, business, industry, education, medicine, the earth sciences and other fields. In addition to promoting the development and application of soft computing methods in various real-life fields, it offers a useful guide for academics, practitioners, and graduates in fuzzy logic and soft computing fields.

Advances in Safety, Reliability and Risk Management

Details a real-world product that applies a cutting-edge multi-core architecture. Increasingly demanding modern applications—such as those used in telecommunications networking and real-time processing of audio, video, and multimedia streams—require multiple processors to achieve computational performance at the rate of a few giga-operations per second. This necessity for speed and manageable power consumption makes it likely that the next generation of embedded processing systems will include hundreds of cores, while being increasingly programmable, blending processors and configurable hardware in a power-efficient manner. Multi-Core Embedded Systems presents a variety of perspectives that elucidate the technical challenges associated with such increased integration of homogeneous (processors) and heterogeneous multiple cores. It offers an analysis that industry engineers and professionals will need to understand the physical details of both software and hardware in embedded architectures, as well as their limitations and potential for future growth. Discusses the available programming models spread across different abstraction levels. The book begins with an overview of the evolution of multiprocessor architectures for embedded applications and discusses techniques for autonomous power management of system-level parameters. It addresses the use of existing open-source (and free) tools originating from several application domains—such as traffic modeling, graph theory, parallel computing and network simulation. In addition, the authors cover other important topics associated with multi-core

embedded systems, such as: Architectures and interconnects Embedded design methodologies Mapping of applications

Computational Science and Technology

Fourth International Conference on Information and Communication Technology for Competitive Strategies targets state-of-the-art as well as emerging topics pertaining to information and communication technologies (ICTs) and effective strategies for its implementation for engineering and intelligent applications.

Designing EEG Experiments for Studying the Brain

This book constitutes the thoroughly refereed proceedings of the second International Symposium on Intelligent Systems Technologies and Applications (ISTA'16), held on September 21-24, 2016 in Jaipur, India. The 80 revised papers presented were carefully reviewed and selected from 210 initial submissions and are organized in topical sections on image processing and artificial vision, computer networks and distributed systems, intelligent tools and techniques and applications using intelligent techniques.

Proceedings of the Global Symposium on Soil Erosion

The possibility of stimulated light emission was discussed by Einstein in 1917, eight years before the quantum-mechanical description of energy levels of many-electron systems. Though it is imperative to use samples having optical properties greatly different from the standard continuous spectrum of opaque objects ("black body" radiation) it is not always necessary to restrict the study to monatomic entities. Thus, spectral lines can be obtained (in absorption and in emission) from lanthanide compounds, containing from one to thirteen 4f electrons going from trivalent cerium to ytterbium, that are nearly as sharp as the ones from gaseous atoms. However, the presence of adjacent atoms modifies the simple picture of an isolated electron configuration, and in particular, it is possible to pump excited levels efficiently by energy transfer from species with intense absorption bands, such as the inter-shell transitions of other lanthanides and of thallium(I), lead(II) and bismuth(III) or the electron transfer bands of the uranyl ion or other complexes. On the other hand, it is possible to diminish the multi-phonon relaxation (competing with sharp line luminescence) by selecting vitreous or crystalline materials with low phonon energies. Obviously, one cannot circumvent the conservation of energy by lasers, but they may have unprecedented consequences for the future by allowing nuclear fusion of light elements, effects of non-linear optics and time-resolved spectroscopy, besides the more conventional applications of coherent light beams with negligible angular extension.

Hydrothermal Processes and Mineral Systems

The book proposes new technologies and discusses future solutions for ICT design infrastructures, and includes high-quality submissions presented at the Third International Conference on ICT for Sustainable Development (ICT4SD 2018), held in Goa, India on 30-31 August 2018. The conference stimulated cutting-edge

research discussions among pioneering researchers, scientists, industrial engineers, and students from all around the world. Bringing together experts from different countries, the book focuses on innovative issues at an international level.

Recent Advances on Soft Computing and Data Mining

Advanced Multimedia and Ubiquitous Engineering

Designing EEG Experiments for Studying the Brain: Design Code and Example Datasets details the design of various brain experiments using electroencephalogram (EEG). Providing guidelines for designing an EEG experiment, it is primarily for researchers who want to venture into this field by designing their own experiments as well as those who are excited about neuroscience and want to explore various applications related to the brain. The first chapter describes how to design an EEG experiment and details the various parameters that should be considered for success, while remaining chapters provide experiment design for a number of neurological applications, both clinical and behavioral. As each chapter is accompanied with experiment design codes and example datasets, those interested can quickly design their own experiments or use the current design for their own purposes. Helpful appendices provide various forms for one's experiment including recruitment forms, feedback forms, ethics forms, and recommendations for related hardware equipment and software for data acquisition, processing, and analysis. Written to assist neuroscientists in experiment designs using EEG Presents a step-by-step approach to designing both clinical and behavioral EEG experiments Includes experiment design codes and example datasets Provides inclusion and exclusion criteria to help correctly identify experiment subjects and the minimum number of samples Includes appendices that provide recruitment forms, ethics forms, and various subjective tests associated with each of the chapters

Advances in Communication, Network, and Computing

This volume presents selected papers from prominent researchers participating in the 11th International Conference on Future Information Technology and the 10th International Conference on Multimedia and Ubiquitous Engineering, Beijing, China, April 20-22, 2016. These large international conferences provided an opportunity for academic and industry professionals to discuss recent progress in the fields of multimedia technology and ubiquitous engineering including new models and systems and novel applications associated with the utilization and acceptance of ubiquitous computing devices and systems. The contributions contained in this book also provide more information about digital and multimedia convergence, intelligent applications, embedded systems, mobile and wireless communications, bio-inspired computing, grid and cloud computing, the semantic web, user experience and HCI, security and trust computing. This book describes the state of the art in multimedia and ubiquitous engineering, and future IT models and their applications.

Standard Handbook for Aerospace Engineers, Second Edition

The purpose of this book is to establish the first formalised scholarly work on critical management studies (CMS) in the South African context. The book is a collection of seven chapters, six of which employ a conceptual methodology and one of which follows an interpretive paradigm employing qualitative methods of inquiry. CMS is a relatively young school of thought, arising in the early 1990s and still very much a peripheral movement within the academic discipline of management. South Africa has very little scholarship on CMS as precious few scholars work in this space. Furthermore, publication opportunities are virtually non-existent as CMS is virtually unknown in the South African community of management scholars. Thus, this book represents the first academic work on CMS published in South Africa, written and reviewed by scholars who are familiar with the field. The primary target readership would be management academics, but it could also be a useful reference for postgraduate students in management.

Information and Communication Technology for Sustainable Development

Planning algorithms are impacting technical disciplines and industries around the world, including robotics, computer-aided design, manufacturing, computer graphics, aerospace applications, drug design, and protein folding. This coherent and comprehensive book unifies material from several sources, including robotics, control theory, artificial intelligence, and algorithms. The treatment is centered on robot motion planning, but integrates material on planning in discrete spaces. A major part of the book is devoted to planning under uncertainty, including decision theory, Markov decision processes, and information spaces, which are the 'configuration spaces' of all sensor-based planning problems. The last part of the book delves into planning under differential constraints that arise when automating the motions of virtually any mechanical system. This text and reference is intended for students, engineers, and researchers in robotics, artificial intelligence, and control theory as well as computer graphics, algorithms, and computational biology.

Advanced Wind Turbine Technology

This book constitutes the proceedings of the 14th International Conference on Information in Contemporary Society, iConference 2019, held in Washington, DC, USA, in March/April 2019. The 44 full papers and 33 short papers presented in this volume were carefully reviewed and selected from 133 submitted full papers and 88 submitted short papers. The papers are organized in the following topical sections: Scientific work and data practices; methodological concerns in (big) data research; concerns about "smart" interactions and privacy; identity questions in online communities; measuring and tracking scientific literature; limits and affordances of automation; collecting data about vulnerable populations; supporting communities through public libraries and infrastructure; information behaviors in academic environments; data-driven storytelling and modeling; online activism; digital libraries, curation and preservation; social-media text mining and sentiment analysis; data and information in the public sphere; engaging with multi-media content; understanding online behaviors and experiences; algorithms at work; innovation and professionalization in technology communities; information

behaviors on Twitter; data mining and NLP; informing technology design through offline experiences; digital tools for health management; environmental and visual literacy; and addressing social problems in iSchool research.

Kinematic Geometry of Gearing

Now in its third edition, *Understanding Smart Sensors* is the most complete, up-to-date, and authoritative summary of the latest applications and developments impacting smart sensors in a single volume. This thoroughly expanded and revised edition of an Artech bestseller contains a wealth of new material, including critical coverage of sensor fusion and energy harvesting, the latest details on wireless technology, and greater emphasis on applications through the book. Utilizing the latest in smart sensor, microelectromechanical systems (MEMS) and microelectronic research and development, Engineers get the technical and practical information they need keep their designs and products on the cutting edge. Providing an extensive variety of information for both technical and non-technical professionals, this easy-to-understand, time-saving book covers current and emergent technologies, as well as their practical implementation. This comprehensive resource also includes an extensive list of smart sensor acronyms and a glossary of key terms.

Lasers and Excited States of Rare Earths

Trends such as the massive growth in availability of air travel and air freight are among those which have led to aviation becoming one of the fastest growing emitters of greenhouse gases. These trends have also caused a shift in expectations of how we do business where we go on holiday and what food and goods we can buy. For these reasons aviation is (and is set to stay) high up on global political organizational and media agendas. This textbook is the first to attempt a comprehensive review of the topic bringing together an international team of leading scientists. Starting with the science.

Feedback Systems

This book brings together 46 peer-reviewed papers that are of interest to researchers wanting to know more about the latest topics and methods in the fields of the kinematics, control and design of robotic systems. These papers cover the full range of robotic systems, including serial, parallel and cable-driven manipulators, both planar and spatial. The systems range from being less than fully mobile, to kinematically redundant, to over-constrained. In addition to these more familiar areas, the book also highlights recent advances in some emerging areas: such as the design and control of humanoids and humanoid subsystems; the analysis, modeling and simulation of human-body motions; mobility analyses of protein molecules; and the development of machines that incorporate man.

Intelligent Systems Technologies and Applications 2016

The two volume set LNCS 11486 and 11487 constitutes the proceedings of the International Work-Conference on the Interplay Between Natural and Artificial

Computation, IWINAC 2019, held in Almería, Spain,, in June 2019. The total of 103 contributions was carefully reviewed and selected from 190 submissions during two rounds of reviewing and improvement. The papers are organized in two volumes, one on understanding the brain function and emotions, addressing topics such as new tools for analyzing neural data, or detection emotional states, or interfacing with physical systems. The second volume deals with bioinspired systems and biomedical applications to machine learning and contains papers related bioinspired programming strategies and all the contributions oriented to the computational solutions to engineering problems in different applications domains, as biomedical systems, or big data solutions.

The Architecture of Ruins

This book introduces the current challenges in modern wind turbine analysis, design and development, and provides a comprehensive examination of state-of-the-art technologies from both academia and industry. The twelve information-rich chapters cover a wide range of topics including reliability-based design, computational fluid dynamics, gearbox and bearing analyses, lightning analysis, structural dynamics, health condition monitoring, advanced techniques for field repair, offshore floating wind turbines, advanced turbine control and grid integration, and other emerging technologies. Each chapter begins with the current status of technology in a lucid, is easy-to-follow treatment, then elaborates on the corresponding advanced technology using detailed methodologies, graphs, mathematical models, computational simulations, and experimental instrumentation. Relevant to a broad audience from students and faculty to researchers, manufacturers, and wind energy engineers and designers, the book is ideal for both educational and research needs. Presents the latest developments in reliability-based design optimization, CFD of wind turbines, structural dynamics for wind turbine blades, off-shore floating wind turbines, advanced wind turbine control, and wind power and ramp forecasting for grid integration; Includes techniques for wind turbine gearboxes and bearings, evaluation of lightning strike damage, health condition monitoring and reparation techniques; Illustrates theories and operational considerations using graphics, tables, computational algorithms, simulation models, and experimental instrumentation; Examines unique, innovative technologies for wind energy.

Radiation in Bioanalysis

There has been a remarkable difference in the research and development regarding gas turbine technology for transportation and power generation. The former remains substantially florid and unaltered with respect to the past as the superiority of air-breathing engines compared to other technologies is by far immense. On the other hand, the world of gas turbines (GTs) for power generation is indeed characterized by completely different scenarios in so far as new challenges are coming up in the latest energy trends, where both a reduction in the use of carbon-based fuels and the raising up of renewables are becoming more and more important factors. While being considered a key technology for base-load operations for many years, modern stationary gas turbines are in fact facing the challenge to balance electricity from variable renewables with that from flexible conventional power plants. The book intends in fact to provide an updated picture

as well as a perspective view of some of the abovementioned issues that characterize GT technology in the two different applications: aircraft propulsion and stationary power generation. Therefore, the target audience for it involves design, analyst, materials and maintenance engineers. Also manufacturers, researchers and scientists will benefit from the timely and accurate information provided in this volume. The book is organized into three main sections including 10 chapters overall: (i) Gas Turbine and Component Performance, (ii) Gas Turbine Combustion and (iii) Fault Detection in Systems and Materials.

Information in Contemporary Society

The proceedings book of the Global Symposium on Soil Erosion (GSER19) contains all papers presented both orally and in poster format during the symposium (15-17 May 2019, FAO HQ). The papers presented have provided sufficient scientific evidence to show that soil erosion is a global threat to food production systems, available land for future demand, rural livelihoods, human health and biodiversity, and that coordinated effective action needs to be fostered and accelerated to address this issue. Studies presented provided scientific evidence that soil erosion is accelerated by anthropogenic action. In the current context of population increase and climate change, urgent action is needed from governments to support farmers and land-users in the transition to sustainable production systems, and crucial action is needed at global level to raise awareness of the importance of healthy and productive soils, to ensure a sustainable future and the achievement of many of the SDGs targeting hunger, water quality, and life on land, amongst others.

From Bioinspired Systems and Biomedical Applications to Machine Learning

Advances in Safety, Reliability and Risk Management contains the papers presented at the 20th European Safety and Reliability (ESREL 2011) annual conference in Troyes, France, in September 2011. The books covers a wide range of topics, including: Accident and Incident Investigation; Bayesian methods; Crisis and Emergency Management; Decision Making

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