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IC Master
 Practical Control of Electric Machines
 Development of a Sub-glacial Radio Telescope for the Detection of GZK Neutrinos
 Practical Data Acquisition for Instrumentation and Control Systems
 Data Conversion Handbook
 Filter Design Solutions for RF systems
 Digital Signal Processing in Power Electronics Control Circuits
 Efficiency of Manufacturing Processes
 Bioluminescence
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 Pervasive Cardiovascular and Respiratory Monitoring Devices
 NASA Tech Briefs
 Signal Conditioning and PC-based Data Acquisition Handbook
 EEM
 Advances in Biomedical Measurement
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 5G Wireless Systems
 Nuclear Science Abstracts
 Digital Signal Processing
 Telstar I.
 High-Resolution NMR Techniques in Organic Chemistry
 EDN, Electrical Design News
 Building Electro-Optical Systems
 Computer Design
 Mini and Microcomputers in Control, Filtering and Signal Processing
 The PC Systems Handbook for Scientists and Engineers
 Smart Civil Structures
 High-Resolution NMR Techniques in Organic Chemistry
 Data Acquisition Techniques Using PCs
 The Shock and Vibration Bulletin
 Power Theories for Improved Power Quality
 Commerce Business Daily
 Advances in Human Factors and Ergonomics in Healthcare and Medical Devices
 Advances in Artificial Intelligence, Software and Systems Engineering
 Expanding and Networking Microcomputers

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Power quality describes a set of parameters of electric power and the load's ability to function properly under specific conditions. It is estimated that problems relating to power quality costs the European industry hundreds of billions of Euros annually. In contrast, financing for the prevention of these problems amount to fragments of these costs. Power Theories for Improved Power Quality addresses this imbalance by presenting and assessing a range of methods and problems related to improving the quality of electric power supply. Focusing particularly on active compensators and the DSP based control algorithms, Power Theories for Improved Power Quality introduces the fundamental problems of electrical power. This introduction is followed by chapters which discuss: 'Power theories' including their historical development and application to practical problems, operational principles of active compensator's DSP control based algorithms using examples and results from laboratory research, and the key

areas of application for these methods and suggested practical solutions. Power Theories for Improved Power Quality is a key study resource for students in engineering and technical degrees as well as a reference for professional and practitioners in the electrical energy sector working with power quality.

Practical Control of Electric Machines Springer

This Special Issue focuses on the state-of-the-art results from the definition and design of filters for low- and high-frequency applications and systems. Different technologies and solutions are commonly adopted for filter definition, from electrical to electromechanical and mechanical solutions, from passive to active devices, and from hybrid to integrated designs. Aspects related to both theoretical and experimental research in filter design, CAD modeling and novel technologies and applications, as well as filter fabrication, characterization and testing, are covered. The proposed research articles deal with different topics as follows: Modeling, design and simulation of filters; Processes and fabrication technologies for filters; Automated characterization and test of filters; Voltage and current mode filters; Integrated and discrete filters; Passive and active filters; Variable filters, characterization and tunability.

Development of a Sub-glacial Radio Telescope for the Detection of GZK Neutrinos CRC Press

This complete update of a classic handbook originally created by Analog Devices and never previously published offers the most complete and up-to-date reference available on data conversion, from the world authority on the subject. It describes in depth the theory behind and the practical design of data conversion circuits. It describes the different architectures used in A/D and D/A converters - including many advances that have been made in this technology in recent years - and provides guidelines on which types are best suited for particular applications. It covers error characterization and testing specifications, essential design information that is difficult to find elsewhere. The book also contains a wealth of practical application circuits for interfacing and supporting A/D and D/A converters within an electronic system. In short, everything an electronics engineer needs to know about data converters can be found in this volume, making it an indispensable reference with broad appeal. The accompanying CD-ROM provides software tools for testing and analyzing data converters as well as a searchable pdf version of the text. * brings together a huge amount of information impossible to locate elsewhere. * many recent advances in converter technology simply aren't covered in any other book. * a must-have design reference for any electronics design engineer or technician

Practical Data Acquisition for Instrumentation and Control Systems Elsevier

The second edition of this highly successful text focuses on the major changes that have taken place in this field in recent times. Data Acquisition Techniques Using PCs, Second Edition, recognises that data acquisition is the core of most engineering and many life science systems in measurement and instrumentation. It will prove invaluable to scientists, engineers, students and technicians wishing to keep up with the latest technological developments. Teaches the reader how to set up a PC-based system that measures, analyzes, and controls experiments and processes through detailed design examples. Geared for beginning and advanced users, with many tutorials for less experienced readers, and detailed standards references for more experienced readers. Fully revised new edition discusses latest programming languages and includes a list of over 80 product manufacturers to save valuable time

Data Conversion Handbook Anaheim, CA ; Calgary : ACTA Press
Introduction to Data Acquisition & Control; Analog and Digital Signals; Signal Conditioning; The Personal Computer for Real Time Work; Plug-in Data Acquisition Boards; Serial Data Communications; Distributed & Standalone Loggers/Controllers; IEEE 488 Standard; Ethernet & LAN Systems; The Universal Serial Bus (USB); Specific Techniques; The PCMCIA Card; Appendix A: Glossary; Appendix B: IBM PC Bus Specifications; Appendix C: Review of the Intel 8255 PPI Chip; Appendix D: Review of the Intel 8254 Timer-Counter Chip; Appendix E: Thermocouple Tables; Appendix F: Numbers Systems; Appendix G: GPIB (IEEE-488) Mnemonics & their Definition; Appendix H: Practical Laboratories & Demonstrations; Appendix I: Command Structure & Programming.

Filter Design Solutions for RF systems Newnes

Over 5,200 high quality CT, MR, and hybrid technology images in one definitive reference. For the radiologist who needs information on the latest cutting-edge techniques in rapidly changing imaging technologies, such as CT, MRI, and PET/CT, and for the resident who needs a comprehensive resource that gives a broad overview of CT and MRI capabilities. Brand-new team of new international associate editors provides a unique global perspective on the use of CT and MRI across the world.

Completely revised in a new, more succinct presentation without redundancies for faster access to critical content. Vastly expanded section on new MRI and CT technology keeps you current with continuously evolving innovations.

Digital Signal Processing in Power Electronics Control Circuits Springer

The current scientific and technical literature in the fields of medicine and engineering, in addition to learned society journals, embraces textbooks, monographs and conference proceedings. The last of these categories is potentially of prime importance given the increasing pace at which knowledge is advancing. However, traditional conference proceedings often tend to be indigestible, both due to their excessive volume and to the unevenness of the ingredients. Here we have attempted to overcome these deficiencies by selecting a set of contributions which, in our opinion, in the best sense convey the flavour of the 4th IMEKO Conference on "Advances in Biomedical Measurement". This meeting, which took place in Bratislava in May, 1987, was held concurrently with the 1st Regional Conference of the Socialist European Countries on Biomedical Engineering and the 2nd Czechoslovak Conference on Biomedical Engineering. From more than 200 papers presented in 14 sessions, 56 contributions have been selected to represent four major areas within which advances in biomedical measurement are occurring. These are: measurement and instrumentation (including prosthetics); signal and image processing; modelling and simulation; and decision support. The process of deciding which authors should be invited to contribute to this volume was not always easy. What we have tried to do is to achieve a mix which provides an overview of the state of the art across this broad spectrum of endeavour.

Efficiency of Manufacturing Processes Springer Science & Business Media

Many digital control circuits in current literature are described using analog transmittance. This may not always be acceptable, especially if the sampling frequency and power transistor switching frequencies are close to the band of interest. Therefore, a digital circuit is considered as a digital controller rather than an analog circuit. This helps to avoid errors and instability in high frequency components. Digital Signal Processing in Power Electronics Control Circuits covers problems concerning the design and realization of digital control algorithms for power electronics circuits using digital signal processing (DSP) methods. This book bridges the gap between power electronics and DSP. The following realizations of digital control circuits are considered: digital signal processors, microprocessors, microcontrollers, programmable digital circuits. Discussed in this book is signal processing, starting from analog signal acquisition, through its conversion to digital form, methods of its filtration and separation, and ending with pulse control of output power transistors. The book is focused on two applications for the considered methods of digital signal processing: an active power filter and a digital class D power amplifier. The major benefit to readers is the acquisition of specific knowledge concerning discussions on the processing of signals from voltage or current sensors using a digital signal processor and to the signals controlling the output inverter transistors. Included are some Matlab examples for illustration of the considered problems.

Bioluminescence John Wiley & Sons

This volume presents the fundamentals of data signal processing, ranging from data conversion to z-transforms and spectral analysis. In addition to presenting basic theory and describing the devices, the material is complemented by real examples in specific case studies.

Cryocoolers 12 Springer Science & Business Media

This monograph presents a reliable methodology for characterising the energy and eco-efficiency of unit manufacturing processes. The Specific Energy Consumption, SEC, will be identified as the key indicator for the energy efficiency of unit processes. An empirical approach will be validated on different machine tools and manufacturing processes to depict the relationship between process parameters and energy consumptions. Statistical results and additional validation runs will corroborate the high level of accuracy in predicting the energy consumption. In relation to the eco-efficiency, the value and the associated environmental impacts of manufacturing processes will also be discussed. The interrelationship between process parameters, process value and the associated environmental impact will be integrated in the evaluation of eco-efficiency. The book concludes with a further investigation of the results in order to develop strategies for further efficiency improvement. The target audience primarily comprises researchers and experts in the field, but the book may also be beneficial for graduate students.

Pervasive Cardiovascular and Respiratory Monitoring Devices
Newnes

"Nuclear Magnetic Resonance (NMR) Spectroscopy remains the foremost analytical technique for the structure elucidation of organic molecules and an indispensable tool for the synthetic, medicinal and natural product chemist. New techniques continue to emerge and the application of NMR methods continues to expand. High-Resolution NMR Techniques in Organic Chemistry is designed for use in academic and industrial NMR facilities, as a text for graduate-level NMR courses, and as an accessible reference for the chemist's or spectroscopist's desk."--BOOK JACKET.

NASA Tech Briefs Elsevier Health Sciences

This book presents deep analysis of machine control for different applications, focusing on its implementation in embedded systems. Necessary peripherals for various microcontroller families are analysed for machine control and software architecture patterns for high-quality software development processes in motor control units are described. Abundant figures help the reader to understand the theoretical, simulation and practical implementation stages of machine control. Model-based design, used as a mathematical and visual approach to construction of complex control algorithms, code generation that eliminates hand-coding errors, and co-simulation tools such as Simulink, PSIM and finite element analysis are discussed. The simulation and verification tools refine, and retest the models without having to resort to prototype construction. The book shows how a voltage source inverter can be designed with tricks, protection elements, and space vector modulation. Practical Control of Electric Machines: Model-Based Design and Simulation is based on the author's experience of a wide variety of systems in domestic, automotive and industrial environments, and most examples have implemented and verified controls. The text is ideal for readers looking for an insight into how electric machines play an important role in most real-life applications of control. Practitioners and students preparing for a career in control design applied in electric machines will benefit from the book's easily understood theoretical approach to complex machine control. The book contains mathematics appropriate to various levels of experience, from the student to the academic and the experienced professional. Advances in Industrial Control reports and encourages the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.

Signal Conditioning and PC-based Data Acquisition Handbook
Springer

Brain-Computer Interfacing, Volume 168, not only gives readers a clear understanding of what BCI science is currently offering, but also describes future expectations for restoring lost brain function in patients. In-depth technological chapters are aimed at those interested in BCI technologies and the nature of brain signals, while more comprehensive summaries are provided in the more applied chapters. Readers will be able to grasp BCI concepts, understand what needs the technologies can meet, and provide an informed opinion on BCI science. Explores how many different causes of disability have similar functional consequences (loss of mobility, communication etc.) Addresses how BCI can be of use Presents a multidisciplinary review of BCI technologies and the opportunities they provide for people in need of a new kind of prosthetic Offers a comprehensive, multidisciplinary review of BCI for researchers in neuroscience and traumatic brain injury that is also ideal for clinicians in neurology and neurosurgery

EEM MDPI

The goal of the project presented in this book is to detect neutrinos created by resonant interactions of ultrahigh energy cosmic rays on the CMB photon field filling the Universe. In this pioneering first analysis, the author puts forward much of the analysis framework, including calibrations of the electronic hardware and antenna geometry, as well as the development of algorithms for event reconstruction and data reduction. While only two of the 37 stations planned for the Askaryan Radio Array were used in this assessment of 10 months of data, the analysis was able to exclude neutrino fluxes above 10 PeV with a limit not far from the best current limit set by the IceCube detector, a result which establishes the radio detection technique as the path forward to achieving the massive volumes needed to detect these ultrahigh energy neutrinos.

Advances in Biomedical Measurement Springer Nature

This detailed collection explores recent advances in molecular imaging techniques involving bioluminescence, currently employed in biolaboratories around the world. Volume 2 delves into techniques for heterogeneous conjugates, protein fragment-complementation assays, BRET-based imaging, as well as instrumentation and software. Written for the highly successful Methods in Molecular Biology series, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and comprehensive, Bioluminescence: Methods and Protocols, Fourth Edition, Volume 2 presents practical guidance for researchers and technical staff on how to proceed with bioluminescence studies in their laboratories.

Computed Tomography & Magnetic Resonance Imaging Of The Whole Body E-Book Elsevier

The development and application of cryocoolers - small cryogenic refrigerators designed to provide localized cooling at cryogenic temperatures - is expanding at an ever increasing rate. Small, highly portable cryocoolers are serving growing numbers of advanced infrared sensor and viewing systems; others provide cooling for medical applications, laboratory experiments, vacuum cryopumps, and advanced radio-frequency devices. Long-life spacecraft cooling for space infrared and gamma-ray instruments is a growing field, as is serving the expanding high-temperature superconductor community, and the emerging field of cryogenic cooling of computer systems. Composed of papers written by leading engineers and scientists in the field, Cryocoolers 12 reports the most recent advances in cryocooler development, contains extensive performance test results and comparisons,

and relates the latest experience in integrating cryocoolers into advanced applications. The contributions contained in *Cryocoolers 12* will be a valuable asset for researchers, product designers, and development engineers associated with the design and application of cryocoolers to the ever expanding number of military, space, semiconductor, medical, computing, and high-temperature superconductor cryogenic applications.

Test & Measurement Catalog Springer Science & Business Media

From the initial observation of proton magnetic resonance in water and in paraffin, the discipline of nuclear magnetic resonance has seen unparalleled growth as an analytical method. Modern NMR spectroscopy is a highly developed, yet still evolving, subject which finds application in chemistry, biology, medicine, materials science and geology. In this book, emphasis is on the more recently developed methods of solution-state NMR applicable to chemical research, which are chosen for their wide applicability and robustness. These have, in many cases, already become established techniques in NMR laboratories, in both academic and industrial establishments. A considerable amount of information and guidance is given on the implementation and execution of the techniques described in this book.

Technical Memorandum Springer Science & Business Media

Pervasive Cardiac and Respiratory Monitoring Devices: Model-Based Design is the first book to combine biomedical instrumentation and model-based design. As the scope is limited to cardiac and respiratory devices only, this book offers more depth of information on these devices; focusing in on signals used for home monitoring and offering additional analysis of these devices. The author offers an insight into new industry and research trends, including advances in contactless monitoring of breathing and heart rate. Each chapter presents a section on current trends. As instrumentation as a field is becoming increasingly smart, basic signal processing is also discussed. Real case-studies for each modelling approach are used, primarily covering blood pressure, ECG and radar-based devices. This title is ideal for teaching and supporting learning as it is written in an accessible style and a solutions manual for the problem sets is provided. It will be useful to 4th year undergraduate students, graduate/masters/PhD students, early career researchers and professionals working on an interdisciplinary project; as it introduces the field and provides real world applications. For engineers this book solves the problem of how to assess and calibrate a medical device to ensure the data collected is trustworthy. For students, this book allows for trying concepts and circuits via simulations and learning modeling techniques. Students will learn concepts from this book and be ready to design bioinstrumentations devices based on

specifications/requirements. Focuses on model-based design using Simscape/MATLAB; learn how to design a system and how to evaluate how different choices affect the output of the system
Covers pervasive monitoring: shows how to design optimal solutions for pervasive and personalized healthcare monitoring
Explores uncertainty and sensitivity analysis; understand your model better

Personal Engineering and Instrumentation News Springer Nature

This book addresses emerging issues concerning the integration of artificial intelligence systems in our daily lives. It focuses on the cognitive, visual, social and analytical aspects of computing and intelligent technologies, and highlights ways to improve the acceptance, effectiveness, and efficiency of said technologies. Topics such as responsibility, integration and training are discussed throughout. The book also reports on the latest advances in systems engineering, with a focus on societal challenges and next-generation systems and applications for meeting them. Based on the AHFE 2020 Virtual Conference on Software and Systems Engineering, and the AHFE 2020 Virtual Conference on Artificial Intelligence and Social Computing, held on July 16–20, 2020, it provides readers with extensive information on current research and future challenges in these fields, together with practical insights into the development of innovative services for various purposes.

Intelligent Robotics and Applications Springer

This book focuses on key simulation and evaluation technologies for 5G systems. Based on the most recent research results from academia and industry, it describes the evaluation methodologies in depth for network and physical layer technologies. The evaluation methods are discussed in depth. It also covers the analysis of the 5G candidate technologies and the testing challenges, the evolution of the testing technologies, fading channel measurement and modeling, software simulations, software hardware cosimulation, field testing and other novel evaluation methods. The fifth-generation (5G) mobile communications system targets highly improved network performances in terms of the network capacity and the number of connections. Testing and evaluation technologies is widely recognized and plays important roles in the wireless technology developments, along with the research on basic theory and key technologies. The investigation and developments on the multi-level and comprehensive evaluations for 5G new technologies, provides important performance references for the 5G technology filtering and future standardizations. Students focused on telecommunications, electronic engineering, computer science or other related disciplines will find this book useful as a secondary text. Researchers and professionals working within these related fields will also find this book useful as a reference.