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 Computational Thinking Education
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 Optimization of Photovoltaic Power Systems
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 Metal Nanoclusters in Catalysis and Materials Science: The Issue of Size Control
 Continuous Manufacturing of Pharmaceuticals
 Advances in Biosensors
 Writing for Computer Science

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COLON BRENDEN

Advances in Sensors: Reviews, Vol. 3 McGraw-Hill Education

Photovoltaic generation is one of the cleanest forms of energy conversion available. One of the advantages offered by solar energy is its potential to provide sustainable electricity in areas not served by the conventional power grid. *Optimisation of Photovoltaic Power Systems* details explicit modelling, control and optimisation of the most popular stand-alone applications such as pumping, power supply, and desalination. Each section is concluded by an example using the MATLAB® and Simulink® packages to help the reader understand and evaluate the performance of different photovoltaic systems. *Optimisation of Photovoltaic Power Systems* provides engineers, graduate and postgraduate students with the means to understand, assess and develop their own photovoltaic systems. As such, it is an essential tool for all those wishing to specialise in stand-alone photovoltaic systems. *Optimisation of Photovoltaic Power Systems* aims to enable all researchers in the field of electrical engineering to thoroughly understand the concepts of photovoltaic systems; find solutions to their problems; and choose the appropriate mathematical model for optimising photovoltaic energy.

5th International Conference on Biomedical Engineering in Vietnam Elsevier

An Active Learning Approach to Teaching the Main Ideas in Computing
Explorations in Computing: An Introduction to Computer Science and Python Programming teaches computer science students how to use programming skills to explore fundamental concepts and computational approaches to solving problems. The book gives beginning students an introduction to

Computer Methods in Biomechanics and Biomedical Engineering Springer

A comprehensive look at existing technologies and processes for continuous manufacturing of pharmaceuticals. As rising costs outpace new drug development, the pharmaceutical industry has come under intense pressure to improve the efficiency of its manufacturing processes. Continuous process manufacturing provides a proven solution. Among its many benefits are: minimized waste, energy consumption, and raw material use; the accelerated introduction of new drugs; the use of smaller production facilities with lower building and capital costs; the ability to monitor drug quality on a continuous basis; and enhanced process reliability and flexibility. *Continuous Manufacturing of Pharmaceuticals* prepares professionals to take advantage of that exciting new approach to improving drug manufacturing efficiency. This book covers key aspects of the continuous manufacturing of pharmaceuticals. The first part provides an overview of key chemical engineering principles and the current regulatory environment. The second covers existing technologies for manufacturing both small-molecule-based products and protein/peptide products. The following section is devoted to process analytical tools for continuously operating manufacturing environments. The final two sections treat the integration of several individual parts of processing into fully operating continuous process systems and summarize state-of-art approaches for innovative new manufacturing principles. Brings together the essential know-how for anyone working in drug manufacturing, as well as chemical, food, and pharmaceutical scientists working on continuous processing. Covers chemical engineering principles, regulatory aspects, primary and secondary manufacturing, process analytical technology and quality-by-design. Contains contributions from researchers in leading pharmaceutical companies, the FDA, and academic institutions. Offers an extremely well-informed look at the most promising future approaches to continuous manufacturing of innovative pharmaceutical products. Timely, comprehensive, and authoritative, *Continuous Manufacturing of Pharmaceuticals* is an important professional resource for researchers in industry and academe working in the fields of pharmaceuticals development and manufacturing.

Resumptive Prolepsis Springer

Metal Nanoclusters in Catalysis and Materials Science: The Issue of Size Control deals with the synthesis of metal nanoclusters along all known methodologies. Physical and chemical properties of metal nanoclusters relevant to their applications in chemical processing and materials science are covered thoroughly. Special attention is given to the role of metal nanoclusters size and shape in catalytic processes and catalytic applications relevant to industrial chemical processing. An excellent text for expanding the knowledge on the chemistry and physics of metal nanoclusters. Divided in two parts; Part I deals with general aspects of the matter and Part II has to be considered a useful handbook dealing with the production of metal nanoclusters, especially from their size-control point of view. * Divided into two parts for ease of reference: general and operational * Separation of synthetic aspects, physical properties and applications* Specific attention is given to the task of metal nanoclusters size-control

Carbon Nanofiber Reinforced Polymer Composites Springer Science & Business Media

This book provides an approachable overview of the most recent advances in the fascinating field of media synchronization (mediasync), gathering contributions from the most representative and influential experts. Understanding the challenges of this field in the current multi-sensory, multi-device, and multi-protocol world is not an easy task. The book revisits the foundations of mediasync, including theoretical frameworks and models, highlights ongoing research efforts, like hybrid broadband broadcast (HBB) delivery and users' perception modeling (i.e., Quality of Experience or QoE), and paves the way for the future (e.g., towards the deployment of multi-sensory and ultra-realistic experiences). Although many advances around mediasync have been devised and deployed, this area of research is getting renewed attention to overcome remaining challenges in the next-generation (heterogeneous and ubiquitous) media ecosystem. Given the significant advances in this research area, its current relevance and the multiple disciplines it involves, the availability of a reference book on mediasync becomes necessary. This book fills the gap in this context. In particular, it addresses key aspects and reviews the most relevant contributions within the mediasync research space, from different perspectives. *Mediasync: Handbook on Multimedia Synchronization* is the perfect companion for scholars and practitioners that want to acquire strong knowledge about this research area, and also approach the challenges behind ensuring the best mediated experiences, by providing the adequate synchronization between the media elements that constitute these experiences.

Resources in Education CRC Press

The two-volume set LNAI 10061 and 10062 constitutes the proceedings of the 15th Mexican International Conference on Artificial Intelligence, MICAI 2016, held in Cancún, Mexico, in October 2016. The total of 86 papers presented in these two volumes was carefully reviewed and selected from 238 submissions. The contributions were organized in the following topical sections: Part I: natural language processing; social networks and opinion mining; fuzzy logic; time series analysis and forecasting; planning and scheduling; image processing and computer vision; robotics. Part II: general; reasoning and multi-agent systems; neural networks and deep learning; evolutionary algorithms; machine learning; classification and clustering; optimization; data mining; graph-based algorithms; and intelligent learning environments.

LPWAN Technologies for IoT and M2M Applications Springer

Embedded Systems with PIC Microcontrollers: Principles and Applications is a hands-on introduction to the principles and practice of embedded system design using the PIC microcontroller. Packed with helpful examples and illustrations, the book provides an in-depth treatment of microcontroller design as well as programming in both assembly language and C, along with advanced topics such as techniques of connectivity and networking and real-time operating systems. In this one book students get all they need to know to be highly proficient at embedded systems design. This text

combines embedded systems principles with applications, using the 16F84A, 16F873A and the 18F242 PIC microcontrollers. Students learn how to apply the principles using a multitude of sample designs and design ideas, including a robot in the form of an autonomous guide vehicle. Coverage between software and hardware is fully balanced, with full presentation given to microcontroller design and software programming, using both assembler and C. The book is accompanied by a companion website containing copies of all programs and software tools used in the text and a 'student' version of the C compiler. This textbook will be ideal for introductory courses and lab-based courses on embedded systems, microprocessors using the PIC microcontroller, as well as more advanced courses which use the 18F series and teach C programming in an embedded environment. Engineers in industry and informed hobbyists will also find this book a valuable resource when designing and implementing both simple and sophisticated embedded systems using the PIC microcontroller. *Gain the knowledge and skills required for developing today's embedded systems, through use of the PIC microcontroller.*Explore in detail the 16F84A, 16F873A and 18F242 microcontrollers as examples of the wider PIC family.*Learn how to program in Assembler and C.*Work through sample designs and design ideas, including a robot in the form of an autonomous guided vehicle.*Accompanied by a CD-ROM containing copies of all programs and software tools used in the text and a 'student' version of the C compiler.

Introduction to Data Acquisition with LabVIEW CD-ROM Springer

Transform physical phenomena into computer-acceptable data using a truly object-oriented language About This Book Create your own data acquisition system independently using LabVIEW and build interactive dashboards Collect data using National Instrument's and third-party, open source, affordable hardware Step-by-step real-world examples using various tools that illustrate the fundamentals of data acquisition Who This Book Is For If you are an engineer, scientist, experienced hobbyist, or student, you will highly benefit from the content and examples illustrated in this book. A working knowledge of precision testing, measurement instruments, and electronics, as well as a background in computer fundamentals and programming is expected. What You Will Learn Create a virtual instrument which highlights common functionality of LabVIEW Get familiarized with common buses such as Serial, GPIB, and SCPI commands Staircase signal acquisition using NI-DAQmx Discover how to measure light intensity and distance Master LabVIEW debugging techniques Build a data acquisition application complete with an installer and required drivers Utilize open source microcontroller Arduino and a 32-bit Arduino compatible Uno32 using LabVIEW programming environment In Detail NI LabVIEW's intuitive graphical interface eliminates the steep learning curve associated with text-based languages such as C or C++. LabVIEW is a proven and powerful integrated development environment to interact with measurement and control hardware, analyze data, publish results, and distribute systems. This hands-on tutorial guide helps you harness the power of LabVIEW for data acquisition. This book begins with a quick introduction to LabVIEW, running through the fundamentals of communication and data collection. Then get to grips with the auto-code generation feature of LabVIEW using its GUI interface. You will learn how to use NI-DAQmx Data acquisition VIs, showing how LabVIEW can be used to appropriate a true physical phenomenon (such as temperature, light, and so on) and convert it to an appropriate data type that can be manipulated and analyzed with a computer. You will also learn how to create Distribution Kit for LabVIEW, acquainting yourself with various debugging techniques offered by LabVIEW to help you in situations where bugs are not letting you run your programs as intended. By the end of the book, you will have a clear idea how to build your own data acquisition system independently and much more. Style and approach A hands-on practical guide that starts by laying down the software and hardware foundations necessary for subsequent data acquisition-intensive chapters. The book is packed full of specific examples with software screenshots and schematic diagrams to guide you through the creation of each virtual instrument.

Wearable Robots Pearson College Division

King's Introduction to Data Acquisition teaches students how to measure physical properties with a computer based instrumentation system. It uses numerous examples and the National Instruments LabVIEW graphical programming environment to lower the barriers to learning and reduce the time required to successfully perform automated measurements. LabVIEW is a powerful graphical programming environment that abstracts tedious low-level interface, syntax, and formatting tasks allowing users to focus on higher level goals and accomplish more.

Introduction to Data Acquisition with LabView Springer Science & Business Media

A complete update to a classic, respected resource Invaluable reference, supplying a comprehensive overview on how to undertake and present research

Fusion Neutronics Academic Press

The petroleum industry must minimize the environmental impact of its various operations. This extensively researched book assembles a tremendous amount of practical information to help reduce and control the environmental consequences of producing and processing petroleum and natural gas. The best way to treat pollution is not to create it in the first place. This book shows you how to plan and manage production activities to minimize and even eliminate some environmental problems without severely disrupting operations. It focuses on ways to treat drilling and production wastes to reduce toxicity and/or volume before their ultimate disposal. You'll also find methods for safely transporting toxic materials from the upstream petroleum industry away from their release sites. For those sites already contaminated with petroleum wastes, this book reviews the remedial technologies available. Other topics include United States federal environmental regulations, sensitive habitats, major U.S. chemical waste exchanges, and offshore releases of oil. Environmental Control in Petroleum Engineering is essential for industry personnel with little or no training in environmental issues as well as petroleum engineering students.

Advances in Computational Intelligence Packt Publishing Ltd

These papers are concerned with new advances and novel solutions in the areas of biofluids, image-guided surgery, tissue engineering and cardiovascular mechanics, implant analysis, soft tissue mechanics, bone remodeling and motion analysis. The contents also feature a special section on dental materials, dental adhesives and orthodontic mechanics. This edition contains many examples, tables and figures, and together with the many references, provides the reader with invaluable information on the latest theoretical developments and applications.

LabVIEW for Data Acquisition Springer Science & Business Media

Thomas D. Rossing String instruments are found in almost all musical cultures. Bowed string instruments form the backbone of symphony orchestras, and they are used widely as solo instruments and in chamber music as well. Guitars are used universally in pop music as well as in classical music. The piano is probably the most versatile of all musical instruments, used widely not only in ensemble with other musical instruments but also as a solo instrument and to accompany solo instruments and the human voice. In this book, various authors will discuss the science of plucked, bowed, and hammered string instruments as well as their electronic counterparts. We have tried to tell the fascinating story of scientific research with a minimum of mathematics to maximize the

usefulness of the book to performers and instrument builders as well as to students and researchers in musical acoustics. Sometimes, however, it is difficult to "translate" ideas from the exact mathematical language of science into words alone, so we include some basic mathematical equations to express these ideas. It is impossible to discuss all families of string instruments. Some instruments have been researched much more than others. Hopefully, the discussions in this book will help to encourage further scientific research by both musicians and scientists alike. 1.1 A Brief History of the Science of String Instruments Quite a number of good histories of acoustics have been written (Lindsay 1966, 1973; Hunt 1992; Beyer 1999), and these histories include musical acoustics.

Screw Compressors Prentice Hall

The most comprehensive book ever written on leatherback sea turtles. Weighing as much as 2,000 pounds and reaching lengths of over seven feet, leatherback turtles are the world's largest reptile. These unusual sea turtles have a thick, pliable shell that helps them to withstand great depths—they can swim more than one thousand meters below the surface in search of food. And what food source sustains these goliaths? Their diet consists almost exclusively of jellyfish, a meal they crisscross the oceans to find. Leatherbacks have been declining in recent decades, and some predict they will be gone by the end of this century. Why? Because of two primary factors: human redevelopment of nesting beaches and commercial fishing. There are only twenty-nine index beaches in the world where these turtles nest, and there is immense pressure to develop most of them into homes or resorts. At the same time, longline and gill net fisheries continue to overwhelm waters frequented by leatherbacks. In *The Leatherback Turtle*, James R. Spotila and Pilar Santidrián Tomillo bring together the world's leading experts to produce a volume that reveals the biology of the leatherback while putting a spotlight on the conservation problems and solutions related to the species. The book leaves us with options: embark on the conservation strategy laid out within its pages and save one of nature's most splendid creations, or watch yet another magnificent species disappear.

Appropriate Technologies for Environmental Protection in the Developing World IGI Global Sensors, Transducers, Signal Conditioning and Wireless (Book Series 'Advances in Sensors: Reviews', Vol. 3) is a premier sensor review source and contains 19 chapters with sensor related state-of-the-art reviews and descriptions of latest achievements written by 55 authors from academia and industry from 19 countries: Botswana, Canada, China, Finland, France, Germany, India, Jordan, Mexico, Portugal, Romania, Russia, Senegal, Serbia, South Africa, South Korea, UK, Ukraine and USA. Coverage includes current developments in physical sensors and transducers, chemical sensors, biosensors, sensing materials, signal conditioning energy harvesters and wireless sensor networks. This book ensures that readers will stay at the cutting edge of the field and get the right and effective start point and road map for the further researches and developments.

MediaSync McGraw-Hill Science/Engineering/Math

Since the invention of the first laser 30 years ago, the frequency conversion of laser radiation in nonlinear optical crystals has become an important technique widely used in quantum electronics and laser physics for solving various scientific and engineering problems. The fundamental physics of three-wave light interactions in nonlinear optical crystals is now largely understood. This has enabled the production of the various harmonic generators, sum and difference frequency generators, and parametric oscillators based on nonlinear crystals that are now commercially available. At the same time, scientists continue an active search for novel high-efficiency optical materials. Therefore, in our opinion, there is a great need for a handbook of nonlinear optical crystals, intended for specialists and practitioners with an engineering background. This book contains a complete description of the properties and applications of all nonlinear crystals reported in the literature up to the beginning of 1990. In addition, it contains the most important equations for calculating the main parameters (such as phase-matching direction, effective non-linearity, and conversion efficiency) of nonlinear frequency converters.

Introductory Electricity and Magnetism Elsevier

Create your own Arduino-based designs, gain in-depth knowledge of the architecture of Arduino, and learn the user-friendly Arduino language all in the context of practical projects that you can build yourself at home. Get hands-on experience using a variety of projects and recipes for everything from home automation to test equipment. Arduino has taken off as an incredibly popular building block among ubicomp (ubiquitous computing) enthusiasts, robotics hobbyists, and DIY home automation developers. Authors Jonathan Oser and Hugh Blemings provide detailed instructions for building a wide range of both practical and fun Arduino-related projects, covering areas such as hobbies, automotive, communications, home automation, and instrumentation. Take Arduino beyond "blink" to a wide variety of projects from simple to challenging Hands-on recipes for everything from home automation to interfacing with your car engine management system Explanations of techniques and references to handy resources for ubiquitous computing projects Supplementary material includes a circuit schematic reference, introductions to a range of electronic engineering principles and general hints & tips. These combine with the projects themselves to make *Practical Arduino: Cool Projects for Open Source Hardware* an invaluable reference for Arduino users of all levels. You'll learn a wide variety of techniques that can be applied to your own projects.

Analysis Springer

This book is the first edited compilation of selected, refereed papers submitted to ERTEP 2007. The selected papers either dealt with technologies or scientific work and policy findings that address specific environmental problems affecting humanity in general, but more specifically, people and ecosystems in developing countries. It was not necessary for the work to have been done in a developing country, but the findings and results must be appropriate or applicable to a developing country setting. It is acknowledged that environmental research, technology applications and policy implementation have been demonstrated to improve environmental sustainability and protection in several developed economies. The main argument of the book is that similar gains can be achieved in developing economies and economies in transition. The book is organized into six chapters along some of the key themes discussed at the conference: Environmental Health Management, Sustainable Energy and Fuel, Water Treatment, Purification and Protection, Mining and Environment, Soil Stabilization, and Environmental Monitoring. It is hoped that the contents of the book will provide an insight into some of the environmental and health management challenges confronting the developing world and the steps being taken to address them.

The Leatherback Turtle JHU Press

"Introduction to LabView programming for scientists and engineers"--Provided by publisher.

NanoBioEngineering Springer

This book presents the most up-to-date methods of three-dimensional modeling of the fluid dynamics and the solid-fluid interaction within these machines, which are still being developed. Adding modeling to the design process makes it possible not only to predict flow patterns more accurately, and also to determine distorting effects on rotors and casing of pressure and temperature distribution within the compressor. Examples outline the scope of the applied mathematical model.