

Labview Data Acquisition And Analysis For The Movement Sciences

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Proceeding of International Conference on Intelligent Communication, Control and Devices Rajesh Singh 2016-09-17 The book presents high-quality research papers presented at the first international conference, ICICCD 2016, organised by the Department of Electronics, Instrumentation and Control Engineering of University of Petroleum and Energy Studies, Dehradun on 2nd and 3rd April, 2016. The book is broadly divided into three sections: Intelligent Communication, Intelligent Control and Intelligent Devices. The areas covered under these sections are wireless communication and radio technologies, optical communication, communication hardware evolution, machine-to-machine communication networks, routing techniques, network analytics, network applications and services, satellite and space communications, technologies for e-communication, wireless Ad-Hoc and sensor networks, communications and information security, signal processing for communications, communication software, microwave informatics, robotics and automation, optimization techniques and algorithms, intelligent transport, mechatronics system, guidance and navigation, algorithms, linear/non-linear control, home automation, sensors, smart cities, control systems, high performance computing, cognition control, adaptive control, distributed control, prediction models, hybrid control system, control applications, power system, manufacturing, agriculture cyber physical system, network control system, genetic control based, wearable devices, nano devices, MEMS, bio-inspired computing, embedded and real-time software, VLSI and embedded systems, FPGA, digital system and logic design, image and video processing, machine vision, medical imaging, and reconfigurable computing systems.

Hands-On Introduction to LabVIEW for Scientists and Engineers John Essick 2013 "Introduction to LabVIEW programming for scientists and engineers"--

Hands-on Introduction to LabVIEW for Scientists and Engineers John Essick 2009 Hands-On Introduction to LabVIEW for Scientists and Engineers takes a "learn-by-doing" approach to acquiring the computer-based skills used in daily experimental work. Ideal as a course textbook or a self-study supplement, the text explores practical programming solutions for carrying out interesting and relevant projects. Readers--who are assumed to have no prior computer programming or LabVIEW background--will begin writing meaningful programs in the first few pages. Instructors adopting the book as a classroom text can easily choose the desired depth of coverage for their courses. The first four chapters focus on the fundamentals of LabVIEW programming and the basics of computer-based experimentation using a National Instruments data acquisition (DAQ) device; these chapters provide the instructional materials necessary for a three-week introduction to LabVIEW-based data acquisition. A full-featured course that uses most of the text's chapters will bring students to an intermediate skill level in computer-based data acquisition and analysis. Features *Flexible modular structure. The text's unique organization makes it suitable as either a short introduction to LabVIEW or a guide to more in-depth programming. *Easy-to-implement Express VIs enable introduction of data acquisition in early chapters. *"Do It Yourself" projects at the end of each chapter. Each project poses an interesting "real-world" problem and loosely directs readers in applying the chapter's material to find a solution. *Homework problems at the end of each chapter. A wide selection of homework-style problems allows interested students to test their understanding and further develop their computer-based experimentation skills.

Handbook of Research on Synthesizing Human Emotion in Intelligent Systems and Robotics Vallverd ú , Jordi 2014-11-30 Emotions convey significant information through means of natural language analysis, embodiment, and emotional signing. Machines equipped with the ability to experience and interpret emotions perform better in complex environments and share in the emotionally-rich social context. The Handbook of Research on Synthesizing Human Emotion in Intelligent Systems and Robotics presents a solid framework for taking human-robot interaction closer to its full potential. Presenting a close look at all the factors involved in modeling emotions and applying a thorough understanding of human emotional recognition to technology, this volume appeals to active researchers in the fields of artificial emotions, artificial intelligence, computing, robotics, philosophy, and psychology, as well as to students interested in the research of synthetic emotions.

Design of an Intelligent Embedded System for Condition Monitoring of an Industrial Robot Alaa Abdulhady Jaber 2016-09-08 This thesis introduces a successfully designed and commissioned intelligent health monitoring system, specifically for use on any industrial robot, which is able to predict the onset of faults in the joints of the geared transmissions. However the developed embedded wireless condition monitoring system leads itself very well for applications on any power transmission equipment in which the loads and speeds are not constant, and access is restricted. As such this provides significant scope for future development. Three significant achievements are presented in this thesis. First, the development of a condition monitoring algorithm based on vibration analysis of an industrial robot for fault detection and diagnosis. The combined use of a statistical control chart with time-domain signal analysis for detecting a fault via an arm-mounted wireless processor system represents the first stage of fault detection. Second, the design and development of a sophisticated embedded microprocessor base station for online implementation of the intelligent condition monitoring algorithm, and third, the implementation of a discrete wavelet transform, using an artificial neural network, with statistical feature extraction for robot fault diagnosis in which the vibration signals are first decomposed into eight levels of wavelet coefficients.

NASA Tech Briefs 1994

Mechanical Engineering and Control Systems Xiaolong Li 2016-01-15 This book consists of 113 selected papers presented at the 2015 International Conference on Mechanical Engineering and Control Systems (MECS2015), which was held in Wuhan, China during January 23 – 25, 2015. All accepted papers have been subjected to strict peer review by two to four expert referees, and selected based on originality, ability to test ideas and contribution to knowledge. MECS2015 focuses on eight main areas, namely, Mechanical Engineering, Automation, Computer Networks, Signal Processing, Pattern Recognition and Artificial Intelligence, Electrical Engineering, Material Engineering, and System Design. The conference provided an opportunity for researchers to exchange ideas and application experiences, and to establish business or research relations, finding global partners for future collaborations. The conference program was extremely rich, profound and featured high-impact presentations of selected papers and additional late-breaking contributions. Contents: Mechanical Engineering and Manufacturing Technologies Automation and Control Engineering Communication Networking and Computing Technologies Signal Processing and Image Processing Pattern Recognition and Artificial Intelligence Micro Electromechanical Systems Technology and Application Material Science and Material Engineering System Design and Simulation Sustainable City and Sustainable Development Readership: Researchers and graduate students interested in mechanical engineering and control systems. Key Features: It is one of the leading international conferences for presenting novel and fundamental advances in the fields of Mechanical Engineering and Control Systems The proceedings put together the most up-to-date, comprehensive and worldwide state-of-the-art knowledge in Mechanical Engineering and Control Systems Many of the articles are the output of research funded by Chinese research agencies, representing the state-of-the-art technologies in Chinese engineering R&D Keywords: Mechanical Engineering; Automation; Computer Networks; Signal Processing; Pattern Recognitions and Artificial Intelligence; Electrical Engineering; Material Engineering; System Design

ENERGY, ENVIRONMENTAL and SUSTAINABLE ECOSYSTEM DEVELOPMENT - INTERNATIONAL CONFERENCE on ENERGY, ENVIRONMENTAL and SUSTAINABLE ECOSYSTEM DEVELOPMENT (EESED 2015) Jamal KHATIB 2015-12-02 In the rapid development of global economics, energy, environmental & ecosystem are recognized as important factors for sustainable development in human society. The application of measurement and control technology also play a very important role in the utilization and protection of energy and the environment. 2015 International Conference on Energy, Environmental & Sustainable Ecosystem Development (EESED 2015) is a multidisciplinary international conference that provides a platform for scientists, engineers and researchers worldwide to share their ideas and present solutions to energy, environmental & sustainable ecosystem development issues.

Electronic Measurements and Instrumentation RS Sedha 2013 The book is meant for B.E./B.Tech. students of different universities of India and abroad. It contains all basic material required at undergraduate level. The author has included "Examination questions" from several Indian Universities as solved examples. The sections on "Descriptive Questions" and "Multiple Choice Questions" contains the theory type examination questions and objective questions respectively.

Applied Mathematics, Modeling and Computer Simulation C.-H. Chen 2022-02-25 The pervasiveness of computers in every field of science, industry and everyday life has meant that applied mathematics, particularly in relation to modeling and simulation, has become ever more important in recent years. This book presents the proceedings of the 2021 International Conference on Applied Mathematics, Modeling and Computer Simulation (AMMCS 2021), hosted in Wuhan, China, and held as a virtual event from 13 to 14 November 2021. The aim of the conference is to foster the knowledge and understanding of recent advances across the broad fields of applied mathematics, modeling and computer simulation, and it provides an annual platform for scholars and researchers to communicate important recent developments in their areas of specialization to colleagues and other scientists in related disciplines. This year more than 150 participants were able to exchange knowledge and discuss recent developments via the conference. The book contains 115 peer-reviewed papers, selected from more than 250 submissions and ranging from the theoretical and conceptual to the strongly pragmatic and all addressing industrial best practice. Topics covered include mathematical modeling and applications, engineering applications and scientific computations, and the simulation of intelligent systems. Providing an overview of recent development and with a mix of practical experiences and enlightening ideas, the book will be of interest to researchers and practitioners everywhere.

Computer-Aided Power System Analysis Ramasamy Natarajan 2002-04-03 This title evaluates the performance, safety, efficiency, reliability and economics of a power delivery system. It emphasizes the use and interpretation of computational data to assess system operating limits, load level increases, equipment failure and mitigating procedures through computer-aided analysis to maximize cost-effectiveness.

LabVIEW Andrew L. McDonough 2001 A one of a kind book that connects the LabView programming language with data acquisition and analysis. The hands-on approach includes ample practice exercises and provides a practical and direct way to learn, write and use programs for the purpose of collecting and analyzing human performance data. KEY TOPICS: Includes CD-ROM disk containing ready-to-use virtual instruments. The manual shows users how to build and run basic and more advanced computer programs within the flexible graphical framework of LabVIEW. For anyone interested in applying LabView programming language to the movement sciences.

Soft Computing in Information Communication Technology Jia Luo 2012-06-30 This is a collection of the accepted papers concerning soft computing in information communication technology. All accepted papers are subjected to strict peer-reviewing by 2 expert referees. The resultant dissemination of the latest research results, and the exchanges of views concerning the future research directions to be taken in this field makes the work of immense value to all those having an interest in the topics covered. The present book represents a cooperative effort to seek out the best strategies for effecting improvements in the quality and the reliability of Neural Networks, Swarm Intelligence, Evolutionary Computing, Image Processing Internet Security, Data Security, Data Mining, Network Security and Protection of data and Cyber laws. Our sincere appreciation and thanks go to these authors for their contributions to this conference. I hope you can gain lots of useful information from the book.

Energy, Environmental & Sustainable Ecosystem Development Jamal Khatib 2015-12-02 ' In the rapid development of global economics, energy, environmental & ecosystem are recognized as important factors for sustainable development in human society. The application of measurement and control technology also play a very important role in the utilization and protection of energy and the environment. 2015 International Conference on Energy, Environmental & Sustainable Ecosystem Development (EESED 2015) is a multidisciplinary international conference that provides a platform for scientists, engineers and researchers worldwide to share their ideas and present solutions to energy,

environmental & sustainable ecosystem development issues. Contents: Energy Science and Technology, Environmental Science and Engineering, Renewable Energy and Sustainable Development, Energy, Environmental & Sustainable Ecological Development, Infrastructure, Management and Environment. Readership: Researchers, academics, professionals and graduate students in environmental science. Keywords: Energy Science and Technology; Environmental Science and Engineering; Renewable Energy and Sustainable Development; Energy; Environmental " Sustainable Ecological Development"

Proceedings of the International Conference on Control and Information 1995 Wong Wing Shing 1995-06-22

Electric, Electronic and Control Engineering Fun Shao 2015-07-03 Electric, Electronic and Control Engineering contains the contributions presented at the 2015 International Conference on Electric, Electronic and Control Engineering (ICEECE 2015, Phuket Island, Thailand, 5-6 March 2015). The book is divided into four main topics: - Electric and Electronic Engineering - Mechanic and Control Engineering - Information Real-Time Data Acquisition in Human Physiology Dipali Bansal 2021-06-15 Real-Time Data Acquisition in Human Physiology: Real-Time Acquisition, Processing, and Interpretation—A MATLAB-Based Approach focuses on the design and development of a computer-based system to detect and digitally process human ECG, EMG, and carotid pulse waveforms in real time. The indigenous system developed and described in this book allows for an easy-to-interface, simple hardware arrangement for bio-signal detection. The computational functionality of MATLAB is verified for viewing, digital filtration, and feature extraction of acquired bio-signals. This book demonstrates a method of providing a relatively cost-effective solution to human physiology real-time monitoring, processing, and interpretation that is more realizable and would directly benefit a larger population of patients. Presents an application-driven, interdisciplinary, and experimental approach to bio-signal processing with a focus on acquiring, processing, and understanding human ECG, EMG, carotid pulse data and HRV. Covers instrumentation and digital signal processing techniques useful for detecting and interpreting human physiology in real time, including experimental layout and methodology in an easy-to-understand manner. Discusses development of a computer-based system that is capable of direct interface through the sound port of a PC and does not require proprietary DAQ units and ADC units. Covers a MATLAB-based algorithm for online noise reduction, features extraction techniques, and infers diagnostic features in real time. Provides proof of concept of a PC-based twin channel acquisition system for the recognition of multiple physiological parameters. Establishes the use of Digital Signal Controller to enhance features of acquired human physiology. Presents the use of carotid pulse waveforms for HRV analysis in critical situations using a very simple hardware/software arrangement.

LabVIEW Riccardo de Asmundis 2021-07-28 The LabVIEW software environment from National Instruments is used by engineers and scientists worldwide for a variety of applications. This book examines many of these applications, including modeling, data acquisition, monitoring electrical networks, studying the structural response of buildings to earthquakes, and more.

Communications and Information Processing Maotai Zhao 2012-06-28 The two volume set, CCIS 288 and 289, constitutes the thoroughly refereed post-conference proceedings of the First International Conference on Communications and Information Processing, ICCIP 2012, held in Aveiro, Portugal, in March 2012. The 168 revised full papers of both volumes were carefully reviewed and selected from numerous submissions. The papers present the state-of-the-art in communications and information processing and feature current research on the theory, analysis, design, test and deployment related to communications and information processing systems.

European Particle Accelerator Conference (Epac 94) (In 3 Volumes) Petit-jean-genaz Christine 1994-11-26

Mechanics of Materials Laboratory Course Ghatu Zimmerman 2022-05-31 This book is designed to provide lecture notes (theory) and experimental design of major concepts typically taught in most Mechanics of Materials courses in a sophomore- or junior-level Mechanical or Civil Engineering curriculum. Several essential concepts that engineers encounter in practice, such as statistical data treatment, uncertainty analysis, and Monte Carlo simulations, are incorporated into the experiments where applicable, and will become integral to each laboratory assignment. Use of common strain (stress) measurement techniques, such as strain gages, are emphasized. Application of basic electrical circuits, such as Wheatstone bridge for strain measurement, and use of load cells, accelerometers, etc., are employed in experiments. Stress analysis under commonly applied loads such as axial loading (compression and tension), shear loading, flexural loading (cantilever and four-point bending), impact loading, adhesive strength, creep, etc., are covered. LabVIEW software with relevant data acquisition (DAQ) system is used for all experiments. Two final projects each spanning 2-3 weeks are included: (i) flexural loading with stress intensity factor determination and (ii) dynamic stress wave propagation in a slender rod and determination of the stress-strain curves at high strain rates. The book provides theoretical concepts that are pertinent to each laboratory experiment and prelab assignment that a student should complete to prepare for the laboratory. Instructions for securing off-the-shelf components to design each experiment and their assembly (with figures) are provided. Calibration procedure is emphasized whenever students assemble components or design experiments. Detailed instructions for conducting experiments and table format for data gathering are provided. Each lab assignment has a set of questions to be answered upon completion of experiment and data analysis. Lecture notes provide detailed instructions on how to use LabVIEW software for data gathering during the experiment and conduct data analysis.

Information Technology and Computer Application Engineering Hsiang-Chuan Liu 2013-10-11 This proceedings volume brings together some 189 peer-reviewed papers presented at the International Conference on Information Technology and Computer Application Engineering, held 27-28 August 2013, in Hong Kong, China. Specific topics under consideration include Control, Robotics, and Automation, Information Technology, Intelligent Computing and

LabVIEW Jeffrey Y. Beyon 2001 Master LabVIEW programming -- hands-on! Learn through real-world data acquisition and analysis applications Dozens of key techniques presented through easy-to-adapt templates Extensively classroom-tested with professional engineers CD-ROM: Tools, templates, and complete LabVIEW evaluation version Master LabVIEW programming from the ground up -- fast! "LabVIEW Programming, Data Acquisition and Analysis" is your easy, hands-on guide to LabVIEW programming and data analysis. Whether you're learning LabVIEW from the ground up, or updating knowledge you already have, Jeffrey Beyon covers every key technique you need to build reliable, high-performance applications. You'll start with the basics: the structure of LabVIEW source files; using sub VIs; loops and conditional statements; data display; data types; and the prerequisites for data acquisition, including sampling theorems and data acquisition VIs. Next, Beyon covers every key category of data acquisition and analysis application -- analog and digital, input and output. Coverage includes: Practical

techniques for data save/read, data conversion, and much more Tips and tricks for memory management, large file management, and more
Implementing each leading data analysis VI Instrument control, counters, and more Avoiding and troubleshooting common LabVIEW programming problems Most examples are presented in the form of software templates that are easy enough to understand quickly, and robust enough to serve as building blocks for real-world solutions. You'll find detailed, end-of-chapter review questions; an accompanying lab workbook is also available. Whether you're a field engineer, scientist, researcher, or student, there's no faster way to get results with LabVIEW! CD-ROM INCLUDES: Complete library of LabVIEW tools and templates Full LabVIEW evaluation version Companion lab workbook: "Hands-On Exercise Manual for LabVIEW Programming, Data Acquisition and Analysis"

Nondestructive and Automated Testing for Soil and Rock Properties W. Allen Marr 1999

Innovations in Electronics and Communication Engineering H. S. Saini 2018-08-28 The book is a collection of best selected research papers presented at 6th International Conference on Innovations in Electronics and Communication Engineering at Guru Nanak Institutions Hyderabad, India. The book presents works from researchers, technocrats and experts about latest technologies in electronic and communication engineering. The book covers various streams of communication engineering like signal processing, VLSI design, embedded systems, wireless communications, and electronics and communications in general. The authors have discussed the latest cutting edge technology and the volume will serve as a reference for young researchers.

Advanced Topics in LabWindows/CVI Shahid F. Khalid 2001-11-01 Take virtual instrumentation to the next level with high-level programming. High-level programming with LabWindows/CVI Live data display via Internet or intranet sources Programmatic creation and control of GUIs Data acquisition and VXI device communication Graph control, table control, function panels, instrument drivers, and Open GL Unleash the true power of LabWindows/CVI when you employ the rich features of this programming environment. In this follow-up to his LabWindows CVI Programming for Beginners, Shahid F. Khalid presents the sophisticated techniques that allow experienced users to make the most of this virtual instrumentation powerhouse. The flexibility of LabWindows/CVI software means that you can build virtual instrumentation using Microsoft Visual Basic and Visual C++ as well as ANSI C. Advanced Topics in LabWindows/CVI focuses on the use of C in an open software architecture. It is a project-oriented guide that will teach you to build applications using the more complex features of this programming environment. Applications include: Live data acquisition via Internet or intranet sources using Data Socket technology GUI controls created and manipulated in real time Advanced features of graph and table controls 3-D data plotting with Open GL Communications with VXI devices using VISA Creating and using function panels and instrument drivers The material is organized to present information with maximum clarity, keeping the reader in mind. For convenience, each chapter concludes with an explanation of the purpose and prototype of the library functions under discussion. Advanced Topics in LabWindows/CVI will give students and working professionals the tools to build and automate sophisticated virtual instrumentation for a world of applications.

LabView7Express Robert H. Bishop 2006 For courses in Measurement and Instrumentation, Electrical Engineering lab, and Physics and Chemistry lab. Includes New LABVIEW 7.1 Student Edition for Windows XP/2000/NT. National Instruments' LabVIEW is the defacto industry standard for test, measurement, and automation software solutions. The LabVIEW 7 Express Student Edition delivers the graphical programming capabilities of the LabVIEW professional version. With the Student Edition, students can design graphical programming solutions to their classroom problems and laboratory experiments. The Student Edition is compatible with all National Instruments data acquisition and instrument control hardware. Note: The LabVIEW Student Edition is available to students, faculty, and staff for personal educational use only. It is not intended for research, institutional, or commercial use. For more information about these licensing options, please visit the National Instruments website at (<http://www.ni.com/academic/>)

Lecture Notes in Real-Time Intelligent Systems Jolanta Mizera-Pietraszko 2017-08-07 Intelligent computing refers greatly to artificial intelligence with the aim at making computer to act as a human. This newly developed area of real-time intelligent computing integrates the aspect of dynamic environments with the human intelligence. This book presents a comprehensive practical and easy to read account which describes current state-of-the-art in designing and implementing real-time intelligent computing to robotics, alert systems, IoT, remote access control, multi-agent systems, networking, mobile smart systems, crowd sourcing, broadband systems, cloud computing, streaming data and many other applications areas. The solutions discussed in this book will encourage the researchers and IT professional to put the methods into their practice.

Current Developments in Biotechnology and Bioengineering Ashok Pandey 2017-09-12 Current Developments in Biotechnology and Bioengineering: Current Advances in Solid-State Fermentation provides knowledge and information on solid-state fermentation involving the basics of microbiology, biochemistry, molecular biology, genetics and principles of genetic engineering, metabolic engineering and biochemical engineering. This volume of the series is on Solid-State fermentation (SSF), which would cover the basic and applied aspects of SSF processes, including engineering aspects such as design of bioreactors in SSF. The book offers a pool of knowledge on biochemical and microbiological aspects as well as chemical and biological engineering aspects of SSF to provide an integrated knowledge and version to the readers. Provides state-of-the-art information on basic and fundamental principles of solid-state fermentation Includes key features for the education and understanding of biotechnology education and R&D, in particular on SSF Lists fermentation methods for the production of a wide variety of enzymes and metabolites Provides examples of the various industrial applications of enzymes in solid state fermentation

LabVIEW Ian Fairweather 2011-12-12 LabVIEW™ has become one of the preeminent platforms for the development of data acquisition and data analysis programs. LabVIEW™: A Developer's Guide to Real World Integration explains how to integrate LabVIEW into real-life applications. Written by experienced LabVIEW developers and engineers, the book describes how LabVIEW has been pivotal in solving real-world challenges. Each chapter is self-contained and demonstrates the power and simplicity of LabVIEW in various applications, from image processing to solar tracking systems. Many of the chapters explore how exciting new technologies can be implemented in LabVIEW to enable novel solutions to new or existing problems. The text also presents novel tricks and tips for integrating LabVIEW with third-party hardware and software. Ideal for LabVIEW users who develop stand-alone applications, this down-to-earth guide shows how LabVIEW provides solutions to a variety of application problems. It includes projects and virtual instrumentation for most of the programs and utilities described. Many of the authors' own software contributions are available on the accompanying CD-ROM.

Intelligent Condition Based Monitoring Nishchal K. Verma 2020-01-13 This book discusses condition based monitoring of rotating machines using intelligent adaptive systems. The book employs computational intelligence and fuzzy control principles to deliver a module that can adaptively monitor and optimize machine health and performance. This book covers design and performance of such systems and provides case studies and data models for fault detection and diagnosis. The contents cover everything from optimal sensor positioning to fault diagnosis. The principles laid out in this book can be applied across rotating machinery such as turbines, compressors, and aircraft engines. The adaptive fault diagnostics systems presented can be used in multiple time and safety critical applications in domains such as aerospace, automotive, deep earth and deep water exploration, and energy.

Computer Engineering: Concepts, Methodologies, Tools and Applications Management Association, Information Resources 2011-12-31 "This reference is a broad, multi-volume collection of the best recent works published under the umbrella of computer engineering, including perspectives on the fundamental aspects, tools and technologies, methods and design, applications, managerial impact, social/behavioral perspectives, critical issues, and emerging trends in the field"--Provided by publisher.

Principles of Instrumental Analysis Douglas A. Skoog 2017-01-27 PRINCIPLES OF INSTRUMENTAL ANALYSIS is the standard for courses on the principles and applications of modern analytical instruments. In the 7th edition, authors Skoog, Holler, and Crouch infuse their popular text with updated techniques and several new Instrumental Analysis in Action case studies. Updated material enhances the book's proven approach, which places an emphasis on the fundamental principles of operation for each type of instrument, its optimal area of application, its sensitivity, its precision, and its limitations. The text also introduces students to elementary analog and digital electronics, computers, and the treatment of analytical data. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Data Acquisition Techniques Using PCs Howard Austerlitz 2002-12-04 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

Clinical Engineering Yadin David 2003-03-26 A volume in the Principles and Applications in Engineering series, Clinical Engineering focuses on managing the deployment of medical technology and integrating it appropriately with desired clinical practices. It provides a description of the wide range of responsibilities clinical engineers encounter, describes technology management and assessment in detail, and reviews the standards and regulatory agencies of interest. Then the book details various biomedical sensors, considering both biologic and electronic factors in sensor performance. Finally, the book covers bioinstrumentation, addressing traditional topics and recently developed instruments and devices such as pulse oximeters and home-care monitoring devices.

Smart Buildings Digitalization O.V. Gnana Swathika 2022-02-24 This book explains the concept of data centers, including data collection, public parking systems, smart metering, and sanitizer dispensers. Electric urban transport systems and effective electric distribution in smart cities are discussed as well. The extensive role of power electronics in smart building applications, such as electric vehicles, rooftop terracing, and renewable energy integration, is included. Case studies on automation in smart homes and commercial and official buildings are elaborated. This book describes the complete implication of smart buildings via industrial, commercial, and community platforms. FEATURES Systematically defines energy-efficient buildings employing power consumption optimization techniques with the inclusion of renewable energy sources Covers data centers and cybersecurity with excellent data storage features for smart buildings Includes systematic and detailed strategies for building air-conditioning and lighting Details smart building security propulsion This book is aimed at graduate students, researchers, and professionals in building systems engineering, architectural engineering, and electrical engineering.

Mechatronics and Intelligent Materials II Ran Chen 2012-03-15 Volume is indexed by Thomson Reuters CPCI-S (WoS). This work comprises 798 peer-reviewed papers on Mechatronics and Intelligent Materials, and seeks to promote the development of those topics by strengthening international academic cooperation and communication via the exchange of research ideas. It will provide readers with a broad overview of the latest advances made in the fields of mechatronics and intelligent materials.

Fuzzy-Logic-Based Programming Chin-Liang Chang 1997-09-01 The number of fuzzy logic applications is very large. This book tells the reader how to use fuzzy logic to find solutions in areas such as control systems, factory automation, product quality control, product inspection, instrumentation, pattern recognition, image analysis, database query processing, decision support, data mining, time series (waveform) databases, geographic information systems, and image databases. Those who have applications in these areas will find the book invaluable. The author was the first student to write a PhD fuzzy logic thesis under Professor Lotfi A Zadeh (the inventor of fuzzy logic), in 1967 at the University of California, Berkeley. In 1993, he designed and introduced the NICEL language for writing fuzzy programs that enclose if-then rules. NICEL is powerful and easy to use. The reader will find in the book that many algorithms for real world applications can be conveniently represented in NICEL. Contents: Basic Ideas of Fuzzy Logic Fuzzy Rules A Tutorial Example of a Fuzzy Program Lexical Elements Language Structure Transducers Signal Conditioning The Inverted Pendulum Problem The Hitachi Ping-Pong Ball Controller A Comparison of Fuzzy Logic vs PID Control Determination of Air Pollution Categories Digital Signal Processing Imaging Software Toolkits Edge Detection Soft Attributes in Data Modeling Soft Query Representation Defining Data Mining Discovering Relationships Among Variables The Sugeno-Takagi-Kang Model Extensions of the NICEL Language Machine Training of Fuzzy Rules Annotated References and other papers Readership: Engineers and developers. keywords: Fuzzy Logic; Fuzzy Program; Fuzzy Query; Artificial Intelligence; Control System; Data Mining; Data Analysis; Knowledge Acquisition; Knowledge System; Expert System

Testing and Measurement: Techniques and Applications Kennis Chan 2015-06-11 Testing and Measurement: Techniques and Applications is divided into 6 sections: Microwave, Ultrasonic and Acoustic Measurement and Application; Material Performance and Measuring and Testing Technique; Laser, Optics Fiber and Sensor; Industrial Autoimmunization and Measurement; Artificial Intelligence and Application; and Image,

Signal and In

Hands-on Exercise Manual for LabVIEW Programming, Data Acquisition and Analysis Jeffrey Y. Beyon 2001 Structured, focused practice for mastering LabVIEW programming fast! Master LabVIEW programming in six days, hands-on! Over 60 real-world problems and solutions Designed for easy learning and extensive real-world application Extensively classroom-tested with professional engineers Website: Tools, templates, solutions, and complete LabVIEW evaluation version The supplementary workbook to LabVIEW Programming, Data Acquisition, and Analysis, this book presents a series of real-world programming challenges designed to help professionals master LabVIEW development in six focused one-day learning sessions. Each session is organized into a series of short, 10 to 15 minute exercises, each with clear objectives and instructions designed to teach a single skill you can easily apply to your custom applications. Every skill is also mapped to the corresponding detailed explanations in LabVIEW Programming, Data Acquisition, and Analysis. Coverage includes: Installing LabVIEW and working with source files and subVIs Loops, conditional statements, and program flow Displaying data and working with data types Key categories of data acquisition and analysis applications Saving/reading data and file I/O Instrument control techniques Implementing leading data analysis VIs, and more The only way to truly master LabVIEW is to practice. This book gives you the structured, focused practice you need to achieve mastery fast. Whether you're a LabVIEW beginner or an experienced developer who want to update your skills, you'll find it an invaluable resource. WEBSITE INCLUDES: Complete library of LabVIEW tools and templates Solutions to every exercise in this workbook Full LabVIEW evaluation version