Labview Programming Data Acquisition And Analysis

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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 solv

Learn LabVIEW 2013 / 2014 Fast Douglas Stamps 2015 Learn LabVIEW 2013 / 2014 Fast is written for users that have no experience with LabVIEW and only a limited understanding of automatic data acquisition. This primer will help you quickly become proficient using LabVIEW and confident in your ability to create applications in a wide variety of data acquisition topics. The goal of this primer is to introduce you to LabVIEW for hands-on use in automatic data acquisition and controls applications. This primer uses a number of practical real-life examples to provide both breadth and depth to the topic. The real-life examples used in this book demonstrate the value of LabVIEW, provide motivation for learning LabVIEW and make the examples fun to program. The first chapter of this book is designed to introduce you to the general concepts of LabVIEW through the development of a general program that acquires analog input data. The rest of the book introduces you to general concepts of data measurement and generation using LabVIEW's DAQ Assistants, Express VIs and the configuration approach for automatic data acquisition. This primer has a unique modular structure that does not require the chapters to be completed in succession. After you complete the first chapter you are free to complete whichever sections you would like, in the order you would like to complete them, allowing you to focus on the topics that are of most interest to you. Each section in the primer introduces you to a new data acquisition topic. After an introduction to the topic, a program is developed within this topic using step by step instructions. Each chapter concludes with several additional

practical application problems, where the data acquisition program is given, but the detailed steps to create the program are left to you. Example problems are provided for all modes of data acquisition, including analog input and output, digital input and output, and counters. For example, the problems show many aspects of analog input, such as hardware and software timing, buffered and triggered acquisition, and examples with common sensors, such as thermocouples and strain gages. Examples from other acquisition modes show how to drive many common output devices, such as stepper motors, servo motors, and DC motors, as well as software control programs, such as the PID compensator and pulse width modulation.

LabVIEW for Everyone Jeffrey Travis 2007 For beginning and intermediate LabVIEW programmers, this introductory guide assumes no prior knowledge of LabVIEW. There are in-depth examples in every chapter, and all the answers and source code is provided on the accompanying CD-ROM.

Research Anthology on Recent Trends, Tools, and Implications of Computer Programming Management Association, Information Resources 2020-08-03 Programming has become a significant part of connecting theoretical development and scientific application computation. Computer programs and processes that take into account the goals and needs of the user meet with the greatest success, so it behooves software engineers to consider the human element inherent in every line of code they write. Research Anthology on Recent Trends, Tools, and Implications of Computer Programming is a vital reference source that examines the latest scholarly material on trends, techniques, and uses of various programming applications and examines the benefits and challenges of these computational developments. Highlighting a range of topics such as coding standards, software engineering, and computer systems development, this multi-volume book is ideally designed for programmers, computer scientists, software developers, analysts, security experts, IoT software programmers, computer and software engineers, students, professionals, and researchers.

Computer and Information Science Roger Lee 2013-05-17 This edited book presents scientific results of the 12th IEEE/ACIS International Conference on Computer and Information Science (ICIS 2013) which was held on June 16-20, 2013 in Toki Messe, Niigata, Japan. The aim of this conference was to bring together scientists, engineers, computer users, and students to share their experiences and exchange new ideas, research results about all aspects (theory, applications and tools) of computer and information science, and to discuss the practical challenges encountered along the way and the solutions adopted to solve them The conference organizers selected the best 20 papers from those papers accepted for presentation at the conference. The papers were chosen based on review scores submitted by members of the program committee, and underwent further rigorous rounds of review.

LabVIEW for Data Acquisition Bruce Mihura 2001-06-26 The practical, succinct LabVIEW data acquisition tutorial for every professional. No matter how much LabVIEW experience you have, this compact tutorial gives you core skills for

producing virtually any data acquisition (DAQ) application-input and output. Designed for every engineer and scientist, LabVIEW for Data Acquisition begins with quick-start primers on both LabVIEW and DAQ, and builds your skills with extensive code examples and visual explanations drawn from Bruce Mihura's extensive experience teaching LabVIEW to professionals. Includes extensive coverage of DAQ-specific programming techniques Real-world techniques for maximizing accuracy and efficiency The 10 most common LabVIEW DAQ development problems-with specific solutions Addresses simulation, debugging, real-time issues, and network/distributed systems Preventing unauthorized changes to your LabVIEW code An overview of transducers for a wide variety of signals Non-NI alternatives for hardware and software LabVIEW for Data Acquisition includes an extensive collection of real-world LabVIEW applications, lists of LabVIEW tips and tricks, coverage of non-NI software and hardware alternatives, and much more. Whatever data acquisition application you need to create, this is the book to start and finish with. RELATED WEBSITE The accompanying website includes an evaluation version of LabVIEW and key LabVIEW code covered in the book.

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.

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.

Study and Implementation of Data Acquisition Tools in an Industrial Automation System Anshul Saxena 2007 As global price competition intensifies and complexity of the product increases, machine processes push the physical and operational limits of the system manufacturers. The most important result is increasingly narrow tolerances for the parameters controlling the machine process. In the present study the various parameters of a deposition machine such as flow rate, gas pressures, RF voltage etc. are controlled and regulated with narrow tolerances using a software tool and a high resolution data acquisition board (DAQ). A comparative study is made of two of the most widely-used data acquisition software tools in the industry, Matlab and LabView. A qualitative analysis is performed, and it is found that LabView is better suited towards the case in point, due to its higher flexibility, better driver support and wide-ranging I/O capabilities. To accomplish the objectives a user interface and a block diagram for each parameter is developed in LabView using NI-DAQmx programming. DAQ board is used to make the analog interface between the instruments and the personal computer. The acquired data can be seen in real time in LabView for instant calibration. Simulations for controlling and regulating all the parameters using LabView were performed to account for any discrepancies in the automation of the machine. Using TDMS File Viewer and Microsoft Excel, a database was created to load the real time data for export into graphs for later comparison. Modular development style also allows future improvements and advancements as one can easily remove or substitute industry systems in LabView. It was found that automation of an industrial machine with sophisticated data acquisition and control process can be accomplished using low cost Personal Computer (PC). Also, the system integration and software development are greatly simplified, and the total cost can be reduced. In addition, interfacing the software with the database for storage, recall of all the machine configuration parameters, and measurement results helps the user to search and sort the resulting database files in highly flexible and customizable data management architecture. The motivation of the study came from the need to develop an automated machine which can be controlled, regulated and able to store the data for later purposes. Display of real time data from the parameters also helps user to visualize the data flow of each parameter separately.

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 toLabVIEW 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 inLabVIEW 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

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.

LabVIEW for Electric Circuits, Machines, Drives, and Laboratories Nesimi Ertugrul 2002 Master electric circuits, machines, devices, and power electronics hands on-without expensive equipment. In LabVIEW for Electric Circuits, Machines, Drives, and Laboratories Dr. Nesimi Ertugrul uses custom-written LabVIEW Virtual Instruments to illuminate the analysis and operation of a wide range of AC and DC circuits, electrical machines, and drives-including high-voltage/current/power applications covered in no other book. Includes

detailed background, VI panels, lab practices, hardware information, and self-study questions - everything you need to achieve true mastery.

Computer Physics Research Trends Silvan J. Bianco 2007 This book includes within its scope: computational models in physics and physical chemistry; computer programs in physics and physical chemistry; computational models and programs associated with the design, control, and analysis of experiments; numerical methods and algorithms; algebraic computation; impact of advanced computer architecture and special purpose computers on computing in the physical sciences; software topics, including programming environments, languages, data bases, expert systems, and graphics packages related to physical sciences; and, analysis of computer systems performance.

Effective LabVIEW Programming Thomas Bress 2013-08-21 (Note: a new file with improved images was uploaded 02/19/15) Effective LabVIEW Programming by Thomas Bress is suitable for all beginning and intermediate LabVIEW programmers. It follows a "teach by showing, learn by doing" approach. It demonstrates what good LabVIEW programs look like by exploring a small set of core LabVIEW functions and common design patterns based on a project drawn from the Certified LabVIEW Developer exam. These patterns build on each other. They provide a firm starting point for most beginning and intermediate projects. Overall, the presentation emphasizes how to use the dataflow paradigm of LabVIEW to create effective programs that are readable, scalable and maintainable. The concepts presented in this book are reinforced by eleven problem sets with full solutions. This book will improve your fluency in LabVIEW and, in the process, will teach you how to "think" in LabVIEW. Visit http://www.ntspress.com/publications/effective-labview-programming/ for additional online resources.

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.

LabVIEW Signal Processing Mahesh L. Chugani 1998-06-03 Get results fast, with LabVIEW Signal Processing! This practical guide to LabVIEW Signal Processing and control system capabilities is designed to help you get results fast. You'll understand LabVIEW's extensive analysis capabilities and learn to identify and use the best LabVIEW tool for each application. You'll review classical DSP and other essential topics, including control system theory, curve fitting, and linear algebra. Along the way, you'll use LabVIEW's tools to construct practical applications that illuminate: Arbitrary waveform generation. Aliasing, signal separation, and their effects. The separation of two signals close in frequency but differing in amplitudes. Predicting the cost of producing a product in multiple quantities. Noise removal in biomedical applications. Determination of system stability and design linear state feedback. The accompanying website contains the complete LabVIEW FDS evaluation version, including analysis library, relevant elements of the G Math Toolkit, and complete demos of several other important products, including the Digital Filter Design Toolkit and the Signal Processing Suite. Whether you're a professional or student, LabVIEW represents an extraordinary opportunity to streamline signal processing and control systems projects--and this book is all you need to get started.

Hands-On Introduction to LabVIEW for Scientists and Engineers John Essick 2012-07-12 "Introduction to LabView programming for scientists and engineers"--

Curriculum Design and Classroom Management: Concepts, Methodologies, Tools, and Applications Management Association, Information Resources 2015-04-30 Educational pedagogy is a diverse field of study, one that all educators should be aware of and fluent in so that their classrooms may succeed. Curriculum Design and Classroom Management: Concepts, Methodologies, Tools, and Applications presents cutting-edge research on the development and implementation of various tools used to maintain the learning environment and present information to pupils as effectively as possible. In addition to educators and students of education, this multi-volume reference is intended for educational theorists, administrators, and industry professionals at all levels.

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.

Image Processing with LabVIEW and IMAQ Vision Thomas Klinger 2003 This book brings together everything you need to achieve superior results with PC-based image processing and analysis. Thomas Klinger combines a highly accessible overview of the field's key concepts, tools, and techniques; the first expert introduction to NI's breakthrough IMAQ Vision software; and several start-to-finish application case studies. You also get an extensive library of code and image samples, as well as a complete trial version of IMAQ Vision for Windows.

A Software Engineering Approach to LabVIEW Jon Conway 2003 Create more robust, more flexible LabVIEW applications--through software design principles! Writing LabVIEW software to perform a complex task is never easy--especially when those last-minute feature requests cause a complexity explosion in your system, forcing you to rework much of your code! Jon Conway and Steve Watts offer a better solution: LCOD-LabVIEW Component Oriented Design--which, for the first time, applies the theories and principles of software design to LabVIEW programming. The material is presented in a lighthearted, engaging manner that makes learning enjoyable, even if you're not a computer scientist. LCOD software engineering techniques make your software more robust and better able to handle complexity--by making it simpler! Even large, industrial-grade applications become manageable. Design to embrace flexibility first, making changes and bug fixes much less painful Pragmatic discussion of the authors' tried and tested techniques, written by--and for--working programmers Covers design principles; LCOD overview, implementation, and complementary techniques; engineering essentials; style issues; and more Complete with practical advice on requirements gathering, prototyping, user interface design, and rich with examples Work through an example LCOD project (all code included on companion Web site) to tie the lessons together This book is intended for test engineers, system integrators, electronics engineers, software engineers, and other intermediate to advanced LabVIEW programmers. None of the methods discussed are complex, so users can benefit as soon as they are proficient with the syntax of LabVIEW.Go to the companion Web site located at http: //author.phptr.com/watts/ for full source code and book updates.

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.

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 LogicFuzzy RulesA Tutorial Example of a Fuzzy ProgramLexical ElementsLanguage StructureTransducersSignal ConditioningThe Inverted Pendulum ProblemThe Hitachi Ping-Pong Ball ControllerA Comparison of Fuzzy Logic vs PID ControlDetermination of Air Polution CategoriesDigital Signal ProcessingImaging Software ToolkitsEdge DetectionSoft Attributes in Data ModelingSoft Query RepresentationDefining Data MiningDiscovering Relationships Among VariablesThe Sugeno-Takagi-Kang ModelExtensions of the NICEL LanguageMachine Training of Fuzzy RulesAnnotated Referencesand 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

A Practical Approach to Metaheuristics using LabVIEW and MATLAB® Pedro Ponce-Cruz 2020-06-08 Metaheuristic optimization has become a prime alternative for solving complex optimization problems in several areas. Hence, practitioners and researchers have been paying extensive attention to those metaheuristic algorithms that are mainly based on natural phenomena. However, when those algorithms are implemented, there are not enough books that deal with theoretical and experimental problems in a friendly manner so this book presents a novel structure that includes a complete description of the most

important metaheuristic optimization algorithms as well as a new proposal of a new metaheuristic optimization named earthquake optimization. This book also has several practical exercises and a toolbox for MATLAB® and a toolkit for LabVIEW are integrated as complementary material for this book. These toolkits allow readers to move from a simulation environment to an experimentation one very fast. This book is suitable for researchers, students, and professionals in several areas, such as economics, architecture, computer science, electrical engineering, and control systems. The unique features of this book are as follows: Developed for researchers, undergraduate and graduate students, and practitioners A friendly description of the main metaheuristic optimization algorithms Theoretical and practical optimization examples A new earthquake optimization algorithm Updated state-of-the-art and research optimization projects The authors are multidisciplinary/interdisciplinary lecturers and researchers who have written a structure-friendly learning methodology to understand each metaheuristic optimization algorithm presented in this book.

Analog Electronics with LabVIEW Kenneth L. Ashley 2002 -- Projects include many program files in LabView, Mathcad and SPICE which professionals would not have time to create on their own.-- LabView allows engineers to turn their desktop into the instrument-- Analog circuit design is still vital in building communications devices - the addition of LabView makes this process more precise and time efficientThis book presents a study of analog electronics. It consists of theory and closely coupled experiments, which are based entirely on computer-based data acquisition using LabView. The topics included treat many of the relevant aspects of basic modern electronics.

Physics and Engineering of Radiation Detection Syed Naeem Ahmed 2007-04-12 This book presents an overview of the physics of radiation detection and its applications. It covers the origins and properties of different kinds of ionizing radiation, their detection and measurement, and the procedures used to protect people and the environment from their potentially harmful effects. It details the experimental techniques and instrumentation used in different detection systems in a very practical way without sacrificing the physics content. It provides useful formulae and explains methodologies to solve problems related to radiation measurements. With abundance of worked-out examples and end-of-chapter problems, this book enables the reader to understand the underlying physical principles and their applications. Detailed discussions on different detection media, such as gases, liquids, liquefied gases, semiconductors, and scintillators make this book an excellent source of information for students as well as professionals working in related fields. Chapters on statistics, data analysis techniques, software for data analysis, and data acquisition systems provide the reader with necessary skills to design and build practical systems and perform data analysis. * Covers the modern techniques involved in detection and measurement of radiation and the underlying physical principles * Illustrates theoretical and practical details with an abundance of practical, worked-out examples * Provides practice problems at the end of each chapter

Practical Applications and Experiences in K-20 Blended Learning Environments
Kyei-Blankson, Lydia 2013-12-31 Learning environments continue to change
considerably and is no longer confined to the face-to-face classroom setting.
As learning options have evolved, educators must adopt a variety of pedagogical
strategies and innovative technologies to enable learning. Practical
Applications and Experiences in K-20 Blended Learning Environments compiles
pedagogical strategies and technologies and their outcomes that have been
successfully applied in blended instruction. Highlighting best practices as
elementary, secondary, and tertiary educational levels; this book is a vital
tool for educators who teach or plan to teach in blended learning environments
and for researchers interested in the area of blended education knowledge.

Electric Machines for Smart Grids Applications Adel El-Shahat 2018-12-12 In
this book, highly qualified scientists present their recent research motivated
by the importance of electric machines. It addresses advanced studies for high-
speed electrical machine design, mechanical design of rotors with surface-
mounted permanent magnets, design of motor drive for brushless DC motor,
single-phase motors for household applications, battery electric propulsion
systems for competition racing applications, robust diagnosis by observer using
the bond graph approach, a DC motor simulator based on virtual instrumentation,
start-up of a PID fuzzy logic embedded control system for the speed of a DC
motor using LabVIEW, advanced control of the permanent magnet synchronous motor
and optimization of fuzzy logic controllers by particle swarm optimization to
increase the lifetime in power electronic stages.

Data Acquisition Using LabVIEW Behzad Ehsani 2016-12-14 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-DAQmax 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.

Blended Learning Environments for Adults: Evaluations and Frameworks
Anastasiades, Panagiotes S. 2012-04-30 "This book demonstrates the view that Information and Communication Technologies should not be considered as a neutral teaching medium, but instead be implemented under pedagogical conditions; aiming at the development of critical thinking through their creative integration into the social and cultural context"--

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; anaccompanying 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"

Principles of Electrical Measurement Slawomir Tumanski 2006-01-20 The field of electrical measurement continues to grow, with new techniques developed each year. From the basic thermocouple to cutting-edge virtual instrumentation, it is also becoming an increasingly "digital" endeavor. Books that attempt to capture the state-of-the-art in electrical measurement are quickly outdated. Recognizing the need for a tex

A Flexible Labview{trademark}-based Data Acquisition and Analysis System for Scanning Microscopy 1998 A new data analysis system has been developed with computer-controlled beam and sample positioning, video sample imaging, multiple large solid angle detectors for x-rays and gamma-rays, and surface barrier detectors for charged particles. The system uses the LabVIEW{trademark} programming language allowing it to be easily ported between different computer operating systems. In the present configuration, digital signal processors are directly interfaced to a SCSI CAMAC controller. However, the modular software design permits the substitution of other hardware with LabVIEW-supported drivers. On-line displays of histogram and two-dimensional elemental map images provide a user-friendly data acquisition interface. Subregions of the two-dimensional maps may be selected interactively for detailed analysis or for subsequent scanning. Off-line data processing of archived data currently yields elemental maps, analyzed spectra and reconstructions of tomographic data.

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 capabilites 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/

Virtual Bio-Instrumentation Jon B. Olansen 2001-12-18 This is the eBook version of the print title. The eBook edition does not provide access to the content of the CD ROMs that accompanies the print book. Bringing the power of virtual instrumentation to the biomedical community. Applications across diverse medical specialties Detailed design guides for LabVIEW and BioBench applications Hands-on problem-solving throughout the book Laboratory, clinical, and healthcare applications Numerous VI's with source code, plus several demos, are available on the book's web site Virtual instrumentation allows medical

researchers and practitioners to combine the traditional diagnostic tools with advanced technologies such as databases, Active X, and the Internet. In both laboratory and clinical environments, users can interact with a wealth of disparate systems, facilitating better, faster, and more informed decision making. Virtual Bio-Instrumentation: Biomedical, Clinical, and Healthcare Applications in LabVIEW is the first book of its kind to apply VI technology to the biomedical field. Hands-on problems throughout the book demonstrate immediate practical uses Examples cover a variety of medical specialties Detailed design instructions give the inside view of LabVIEW and BioBench applications Both students and practicing professionals will appreciate the practical applications offered for modeling fundamental physiology, advanced systems analysis, medical device development and testing, and even hospital management and clinical engineering scenarios.

Proceedings of IncoME-V & CEPE Net-2020 Dong Zhen 2021-05-15 This volume gathers the latest advances, innovations and applications in the field of condition monitoring, plant maintenance and reliability, as presented by leading international researchers and engineers at the 5th International Conference on Maintenance Engineering and the 2020 Annual Conference of the Centre for Efficiency and Performance Engineering Network (IncoME-V & CEPE Net-2020), held in Zhuhai, China on October 23-25, 2020. Topics include vibro-acoustics monitoring, condition-based maintenance, sensing and instrumentation, machine health monitoring, maintenance auditing and organization, non-destructive testing, reliability, asset management, condition monitoring, life-cycle cost optimisation, prognostics and health management, maintenance performance measurement, manufacturing process monitoring, and robot-based monitoring and diagnostics. The contributions, which were selected through a rigorous international peer-review process, share exciting ideas that will spur novel research directions and foster new multidisciplinary collaborations.

VIRTUAL INSTRUMENTATION USING LABVIEW JOVITHA JEROME 2010-03-29 This book provides a practical and accessible understanding of the fundamental principles of virtual instrumentation. It explains how to acquire, analyze and present data using LabVIEW (Laboratory Virtual Instrument Engineering Workbench) as the application development environment. The book introduces the students to the graphical system design model and its different phases of functionality such as design, prototyping and deployment. It explains the basic concepts of graphical programming and highlights the features and techniques used in LabVIEW to create Virtual Instruments (VIs). Using the technique of modular programming, the book teaches how to make a VI as a subVI. Arrays, clusters, structures and strings in LabVIEW are covered in detail. The book also includes coverage of emerging graphical system design technologies for real-world applications. In addition, extensive discussions on data acquisition, image acquisition, motion control and LabVIEW tools are presented. This book is designed for undergraduate and postgraduate students of instrumentation and control engineering, electronics and instrumentation engineering, electrical and electronics engineering, electronics and communication engineering, and computer science and engineering. It will be also useful to engineering

students of other disciplines where courses in virtual instrumentation are offered. Key Features : Builds the concept of virtual instrumentation by using clear-cut programming elements. Includes a summary that outlines important learning points and skills taught in the chapter. Offers a number of solved problems to help students gain hands-on experience of problem solving. Provides several chapter-end questions and problems to assist students in reinforcing their knowledge.

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.

LabVIEW Graphical Programming Gary W. Johnson 1994

Encyclopedia of Computer Science and Technology Harry Henderson 2009-01-01 Presents an illustrated A-Z encyclopedia containing approximately 600 entries on computer and technology related topics.