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Applied Abstract Algebra with Maple™ and MATLAB® Richard Klima 2015-11-18 Applied Abstract Algebra with Maple™ and MATLAB® provides an in-depth introduction to real-world abstract algebraic problems. This popular textbook covers a variety of topics including block designs, coding theory, cryptography, and counting techniques, including Pólya's and Burnside's theorems. The book also includes a concise review of all prerequisite advanced mathematics. The use of sophisticated mathematical software packages such as Maple™ and MATLAB® allows students to work through realistic examples without having to struggle with extensive computations. Notable additions to the third edition include expanded contemporary applications, coverage of the two-message problem, and a full chapter on symmetry in Western music. Several other parts of the book were also updated, including some MATLAB sections due to their adoption of the MuPAD computer algebra system since the last edition. This edition also contains more than 100 new exercises. This new edition includes the two most widely used mathematical software packages. It builds upon the successful previous editions, favored by instructors and students alike.

Network Modeling, Simulation and Analysis in MATLAB Dac-Nhuong Le 2019-08-06 The purpose of this book is first to study MATLAB programming concepts, then the basic concepts of modeling and simulation analysis, particularly focus on digital communication simulation. The book will cover the topics practically to describe network routing simulation using MATLAB tool. It will cover the dimensions' like Wireless network and WSN simulation using MATLAB, then depict the modeling and simulation of vehicles power network in detail along with considering different case studies. Key features of the book include: Discusses different basics and advanced methodology with their fundamental concepts of exploration and exploitation in NETWORK SIMULATION. Elaborates practice questions and simulations in MATLAB Student-friendly and Concise Useful for UG and PG level research scholar Aimed at Practical approach for network simulation with more programs with step by step comments. Based on the Latest technologies, coverage of wireless simulation and WSN concepts and implementations

CDMA2000 Simulation with the WiSE Lab Hardware/Software Testbed Ernest En-Ping Seah 1999

Informatics and Management Science V Wenjiang Du 2012-12-06 The International Conference on Informatics and Management Science (IMS) 2012 will be held on November 16-19, 2012, in Chongqing, China, which is organized by Chongqing Normal University, Chongqing University, Shanghai Jiao Tong University, Nanyang Technological University, University of Michigan, Chongqing University of Arts and Sciences, and sponsored by National Natural Science Foundation of China (NSFC). The objective of IMS 2012 is to facilitate an exchange of information on best practices for the latest research advances in a range of areas. Informatics and Management Science contains over 600 contributions to suggest and inspire solutions and methods drawing from multiple disciplines including: Computer Science Communications and Electrical Engineering Management Science Service Science Business Intelligence

Modelling Flexible AC Transmission Systems (FACTS) Devices on Weak Transmission Lines in the Nigerian Power Network Olalekan Olagunju 2020-02-26 Research Paper (postgraduate) from the year 2019 in the subject Electrotechnology, , language: English, abstract: The aim of the study is to model FACTS devices on weak transmission line in the Nigeria power network and consider their effect on the bus voltages, reactive and active power using genetic algorithm(GA) approach for loss minimization. The Nigeria 330KV existing network to be considered consist of nine (9) generating stations, thirty(30)Buses and forty one (41) transmission lines which will be modelled and simulated using Matlab Version 7.10. The study is limited to Nigeria 330kV existing power network with the focus on the comparison of the Bus voltages and power flow on the transmission lines when FACTS devices are incorporated and when the FACTS devices are not incorporated. Research Questions: For the realization of the objectives mentioned above and the aim, the following research questions were set as a guide: 1. What is the significant effect of FACTS devices on weak transmission lines? 2. Can FACTS device be used with genetic algorithm for optimization of power loss and improvement of the bus voltages? 3. What is the limitation of using just genetic algorithm without FACTS device for the optimization of power loss and the improvement of the bus voltages? This research work is divided into five chapters with each chapter buttressing more on minimization of power loss. The scope of the work , the objective and aim of the research work to be achieved is addressed in chapter one (1). Chapter two(2) focus on the literature review of other researchers on FACTS device in the improvement of the power network, the concept of FACTS device and the choice of FACTS device to be used was also addressed in chapter two (2) of this research work. Chapter three focus on the methodology used for this study. The simulation of the 330kV Nigeria power network was done on MATLAB /SIMULINK 7.5. Also the chapter three focused on the use of power flow analysis toolbox which is a collection of a written codes of m files that has a compatible interface with MATLAB to generate the load flow of the power network instead of using ETAP. The genetic algorithm was also discussed as an optimization tool deployed to optimize the losses on the transmission line. Chapter four focus on the research findings with possible explanation as to some of the result obtained. Finally chapter five talks about the conclusion of this research work and highlight some areas to explore in the future.

Load Compensation in Three Phase Power Systems Andreas Beuschel 2003-05-21 Inhaltsangabe:Abstract: The object of this thesis is to design software and hardware to obtain the device parameters of a compensator. This compensator should restore the balance and the power factor of a three-phase three-wire system by using reactive elements only. The derived parameters should be accessible remotely and displayed on a PC. L. S. Czarnecki

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recently presented a highly respected approach to derive the device parameters of the compensating susceptances. He defined the admittances Y_e and A which represent the conditions in a three-phase system. He also suggested a way to derive these susceptances by measuring two line-to-line voltages and two line currents. The load balancing technique used in this project was based on Czarnecki's approach. The first phase of the project concentrated on understanding and proving the theory behind the project by means of computer simulation. The second phase of the project involved writing software for the DSP and building an interface to successfully task the requirements set by the theory. The aspect of being able to transfer the data to a PC via a modem-to-modem connection was taken into account too. In the final stage it is shown that the implemented system is able to derive the necessary parameters in order to balance the currents and restore the power factor as supplied from mains. It was found that even though the supply from the University of Cape Town does not meet the requirements of the theory in terms of harmonic distortion, it is possible to achieve sufficient load balancing and power factor correction. It was not possible to establish a reliable connection from one modem to the other because of the limitations of the telephone exchange system used at the University of Cape Town. The parts that are necessary for communication, however, were implemented and tested successfully. Therefore it was solely a reliable transmission of data that was unsuccessful and this was due to factors beyond the control or influence of the author.

Inhaltsverzeichnis: Table of Contents: ERKLÄRUNG II
 Acknowledgements III Terms of Reference IV Synopsis V Table of Contents VI List of Figures X List of Tables XIII Glossary XIV

1 Introduction
 1.1 The Need for Load Compensation
 1.2 The Thesis as a Part of a Project
 2 Theory for Balancing a Three-Phase Three-Wire System
 2.1 Fictitious Impedance
 2.2 Sufficient Condition for Balancing a Three-Phase Load
 2.2.1 Compensator to [...]

Systematic Design of Analog CMOS Circuits Paul G. A. Jespers 2017-10-12 This hands-on guide contains a fresh approach to efficient and insight-driven integrated circuit design in nanoscale-CMOS. With downloadable MATLAB code and over forty detailed worked examples, this is essential reading for professional engineers, researchers, and graduate students in analog circuit design.

Electromagnetic and Photonic Simulation for the Beginner: Finite-Difference Frequency-Domain in MATLAB®

Raymond C. Rumpf 2022-01-31 This book teaches the finite-difference frequency-domain (FDFD) method from the simplest concepts to advanced three-dimensional simulations. It uses plain language and high-quality graphics to help the complete beginner grasp all the concepts quickly and visually. This single resource includes everything needed to simulate a wide variety of different electromagnetic and photonic devices. The book is filled with helpful guidance and computational wisdom that will help the reader easily simulate their own devices and more easily learn and implement other methods in computational electromagnetics. Special techniques in MATLAB® are presented that will allow the reader to write their own FDFD programs. Key concepts in electromagnetics are reviewed so the reader can fully understand the calculations happening in FDFD. A powerful method for implementing the finite-difference method is taught that will enable the reader to solve entirely new differential equations and sets of differential equations in mere minutes. Separate chapters are included that describe how Maxwell's equations are approximated using finite-differences and how outgoing waves can be absorbed using a perfectly matched layer absorbing boundary. With this background, a chapter describes how to calculate guided modes in waveguides and transmission lines. The effective index method is taught as way to model

many three-dimensional devices in just two-dimensions. Another chapter describes how to calculate photonic band diagrams and isofrequency contours to quickly estimate the properties of periodic structures like photonic crystals. Next, a chapter presents how to analyze diffraction gratings and calculate the power coupled into each diffraction order. This book shows that many devices can be simulated in the context of a diffraction grating including guided-mode resonance filters, photonic crystals, polarizers, metamaterials, frequency selective surfaces, and metasurfaces. Plane wave sources, Gaussian beam sources, and guided-mode sources are all described in detail, allowing devices to be simulated in multiple ways. An optical integrated circuit is simulated using the effective index method to build a two-dimensional model of the 3D device and then launch a guided-mode source into the circuit. A chapter is included to describe how the code can be modified to easily perform parameter sweeps, such as plotting reflection and transmission as a function of frequency, wavelength, angle of incidence, or a dimension of the device. The last chapter is advanced and teaches FDFD for three-dimensional devices composed of anisotropic materials. It includes simulations of a crossed grating, a doubly-periodic guided-mode resonance filter, a frequency selective surface, and an invisibility cloak. The chapter also includes a parameter retrieval from a left-handed metamaterial. The book includes all the MATLAB codes and detailed explanations of all programs. This will allow the reader to easily modify the codes to simulate their own ideas and devices. The author has created a website where the MATLAB codes can be downloaded, errata can be seen, and other learning resources can be accessed. This is an ideal book for both an undergraduate elective course as well as a graduate course in computational electromagnetics because it covers the background material so well and includes examples of many different types of devices that will be of interest to a very wide audience.

NASA Tech Briefs 1995

Business Economics and Finance with MATLAB, GIS, and Simulation Models Patrick L. Anderson 2004-07-27 This book takes recent theoretical advances in Finance and Economics and shows how they can be implemented in the real world. It presents tactics for using mathematical and simulation models to solve complex tasks of forecasting income, valuing businesses, predicting retail sales, and evaluating markets and tax and regulatory problems. Busine

Information Technology Applications in Industry Jun Zhang 2012-12-27 The present book includes selected papers from the 2012 International Conference on Information Technology and Management Innovation (ICITMI 2012), held in Guangzhou, from 10 to 11 November 2012. Volume is indexed by Thomson Reuters CPCI-S (WoS). These selected papers reflect the interdisciplinary nature of the conference and the diversity of topics is an important feature of this conference, enabling an overall perception of several important scientific and technological trends.

PLATSIM: A Simulation and Analysis Package for Large-Order Flexible Systems

Peiman G. Maghami 1997

Platsim: an Efficient Linear Simulation and Analysis Package for Large-order Flexible Systems

Peiman G. Maghami 1995

Fuzzy Information and Engineering Volume 2 Bingyuan Cao 2009-10-14 This book is the

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proceedings of the Third International Conference on Fuzzy Information and Engineering (ICFIE 2009) held in the famous mountain city Chongqing in Southwestern China, from September 26-29, 2009. Only high-quality papers are included. The ICFIE 2009, built on the success of previous conferences, the ICFIE 2007 (Guangzhou, China), is a major symposium for scientists, engineers and practitioners in the world to present their updated results, ideas, developments and applications in all areas of fuzzy information and engineering. It aims to strengthen relations between industry research laboratories and universities, and to create a primary symposium for world scientists in fuzzy fields as follows: Fuzzy Information; Fuzzy Sets and Systems; Soft Computing; Fuzzy Engineering; Fuzzy Operation Research and Management; Artificial Intelligence; Fuzzy Mathematics and Systems in Applications, etc.

Theory and Design for Mechanical Measurements Richard S. Figliola 2020-06-23 Theory and Design for Mechanical Measurements merges time-tested pedagogy with current technology to deliver an immersive, accessible resource for both students and practicing engineers. Emphasizing statistics and uncertainty analysis with topical integration throughout, this book establishes a strong foundation in measurement theory while leveraging the e-book format to increase student engagement with interactive problems, electronic data sets, and more. This new Seventh edition has been updated with new practice problems, electronically accessible solutions, and dedicated Instructor Problems that ease course planning and assessment. Extensive coverage of device selection, test procedures, measurement system performance, and result reporting and analysis sets the field for generalized understanding, while practical discussion of data acquisition hardware, infrared imaging, and other current technologies demonstrate real-world methods and techniques. Designed to align with a variety of undergraduate course structures, this unique text offers a highly flexible pedagogical framework while remaining rigorous enough for use in graduate studies, independent study, or professional reference.

VSC-FACTS-HVDC Enrique Acha 2019-08-05 An authoritative reference on the new generation of VSC-FACTS and VSC-HVDC systems and their applicability within current and future power systems VSC-FACTS-HVDC and PMU: Analysis, Modelling and Simulation in Power Grids provides comprehensive coverage of VSC-FACTS and VSC-HVDC systems within the context of high-voltage Smart Grids modelling and simulation. Readers are presented with an examination of the advanced computer modelling of the VSC-FACTS and VSC-HVDC systems for steady-state, optimal solutions, state estimation and transient stability analyses, including numerous case studies for the reader to gain hands-on experience in the use of models and concepts. Key features: Wide-ranging treatment of the VSC achieved by assessing basic operating principles, topology structures, control algorithms and utility-level applications. Detailed advanced models of VSC-FACTS and VSC-HVDC equipment, suitable for a wide range of power network-wide studies, such as power flows, optimal power flows, state estimation and dynamic simulations. Contains numerous case studies and practical examples, including cases of multi-terminal VSC-HVDC systems. Includes a companion website featuring MATLAB software and Power System Computer Aided Design (PSCAD) scripts which are provided to enable the reader to gain hands-on experience. Detailed coverage of electromagnetic transient studies of VSC-FACTS and VSC-HVDC systems using the de-facto industry standard PSCAD/EMTDC simulation package. An essential guide for utility engineers, academics, and research students as well as industry managers, engineers in equipment design and manufacturing, and consultants.

Computational Techniques for Process Simulation and Analysis Using MATLAB®

Niket S. Kaisare 2017-09-18 MATLAB® has become one of the prominent languages used in research and industry and often described as "the language of technical computing". The focus of this book will be to highlight the use of MATLAB® in technical computing; or more specifically, in solving problems in Process Simulations. This book aims to bring a practical approach to expounding theories: both numerical aspects of stability and convergence, as well as linear and nonlinear analysis of systems. The book is divided into three parts which are laid out with a "Process Analysis" viewpoint. First part covers system dynamics followed by solution of linear and nonlinear equations, including Differential Algebraic Equations (DAE) while the last part covers function approximation and optimization. Intended to be an advanced level textbook for numerical methods, simulation and analysis of process systems and computational programming lab, it covers following key points

- Comprehensive coverage of numerical analyses based on MATLAB for chemical process examples.
- Includes analysis of transient behavior of chemical processes.
- Discusses coding hygiene, process animation and GUI exclusively.
- Treatment of process dynamics, linear stability, nonlinear analysis and function approximation through contemporary examples.
- Focus on simulation using MATLAB to solve ODEs and PDEs that are frequently encountered in process systems.

Motion Control Federico Casolo 2010-01-01 The book reveals many different aspects of motion control and a wide multiplicity of approaches to the problem as well. Despite the number of examples, however, this volume is not meant to be exhaustive: it intends to offer some original insights for all researchers who will hopefully make their experience available for a forthcoming publication on the subject.

Power System Simulation, Control and Optimization José Antonio Domínguez-Navarro 2021-06-21 This Special Issue "Power System Simulation, Control and Optimization" offers valuable insights into the most recent research developments in these topics. The analysis, operation, and control of power systems are increasingly complex tasks that require advanced simulation models to analyze and control the effects of transformations concerning electricity grids today: Massive integration of renewable energies, progressive implementation of electric vehicles, development of intelligent networks, and progressive evolution of the applications of artificial intelligence.

Nonlinear Distortion in Wireless Systems Khaled M. Gharaibeh 2011-12-30 This book covers the principles of modeling and simulation of nonlinear distortion in wireless communication systems with MATLAB simulations and techniques. In this book, the author describes the principles of modeling and simulation of nonlinear distortion in single and multichannel wireless communication systems using both deterministic and stochastic signals. Models and simulation methods of nonlinear amplifiers explain in detail how to analyze and evaluate the performance of data communication links under nonlinear amplification. The book addresses the analysis of nonlinear systems with stochastic inputs and establishes the performance metrics of communication systems with regard to nonlinearity. In addition, the author also discusses the problem of how to embed models of distortion in system-level simulators such as MATLAB and MATLAB Simulink and provides practical techniques that professionals can use on their own projects. Finally, the book explores simulation and programming issues and provides a comprehensive reference of simulation tools for nonlinearity in wireless communication systems. Key Features: Covers the theory, models and simulation tools needed for understanding nonlinearity and nonlinear distortion in wireless

systems Presents simulation and modeling techniques for nonlinear distortion in wireless channels using MATLAB Uses random process theory to develop simulation tools for predicting nonlinear system performance with real-world wireless communication signals Focuses on simulation examples of real-world communication systems under nonlinearity Includes an accompanying website containing MATLAB code This book will be an invaluable reference for researchers, RF engineers, and communication system engineers working in the field. Graduate students and professors undertaking related courses will also find the book of interest.

Discrete Event Simulations Aitor Goti 2010-08-18 Considered by many authors as a technique for modelling stochastic, dynamic and discretely evolving systems, this technique has gained widespread acceptance among the practitioners who want to represent and improve complex systems. Since DES is a technique applied in incredibly different areas, this book reflects many different points of view about DES, thus, all authors describe how it is understood and applied within their context of work, providing an extensive understanding of what DES is. It can be said that the name of the book itself reflects the plurality that these points of view represent. The book embraces a number of topics covering theory, methods and applications to a wide range of sectors and problem areas that have been categorised into five groups. As well as the previously explained variety of points of view concerning DES, there is one additional thing to remark about this book: its richness when talking about actual data or actual data based analysis. When most academic areas are lacking application cases, roughly the half part of the chapters included in this book deal with actual problems or at least are based on actual data. Thus, the editor firmly believes that this book will be interesting for both beginners and practitioners in the area of DES.

Critical Information Infrastructures Security Christos G. Panayiotou 2016-03-24 This book constitutes revised selected papers from the 9th International Conference on Critical Information Infrastructures Security, CRITIS 2014, held in Limassol, Cyprus, in October 2014. The 20 full and 19 short papers presented in this volume were carefully reviewed and selected from 74 submissions. They are organized in topical sections named: cyber-physical systems and sensor networks; security of water systems; power and energy system security; security and recovery policies, cyber security; and security tools and protocols.

An Introduction to Reservoir Simulation Using MATLAB/GNU Octave Knut-Andreas Lie 2019-06-30 This book provides a self-contained introduction to the simulation of flow and transport in porous media, written by a developer of numerical methods. The reader will learn how to implement reservoir simulation models and computational algorithms in a robust and efficient manner. The book contains a large number of numerical examples, all fully equipped with online code and data, allowing the reader to reproduce results, and use them as a starting point for their own work. All of the examples in the book are based on the MATLAB Reservoir Simulation Toolbox (MRST), an open-source toolbox popular popularity in both academic institutions and the petroleum industry. The book can also be seen as a user guide to the MRST software. It will prove invaluable for researchers, professionals and advanced students using reservoir simulation methods. This title is also available as Open Access on Cambridge Core.

Understanding Delta-Sigma Data Converters Shanthi Pavan 2017-01-24 This new edition introduces operation and design techniques for Sigma-Delta converters in physical and

conceptual terms, and includes chapters which explore developments in the field over the last decade Includes information on MASH architectures, digital-to-analog converter (DAC) mismatch and mismatch shaping Investigates new topics including continuous-time $\Delta\Sigma$ analog-to-digital converters (ADCs) principles and designs, circuit design for both continuous-time and discrete-time $\Delta\Sigma$ ADCs, decimation and interpolation filters, and incremental ADCs Provides emphasis on practical design issues for industry professionals

Renewable Energy Manuel Perez Donsion 2016-03-08 From a scientific point of view, several challenges to renewable energy come from the intermittent nature of energy sources such as wind, solar photovoltaic and solar thermal. These problems are currently being addressed with research on power electronics converters, storage systems, Artificial Intelligence techniques, new materials and production technologies, numerical analysis techniques, among others. This research endeavours to reduce costs and find alternative energy sources that are competitive with fossil fuels. Consequently, these efforts of the scientific community will contribute to improving the quality of life on the planet. This book summarises ten years of contributions to these topics, and contains a selection of the best papers presented at the International Conferences on Renewable Energy and Power Quality (ICREPQ) from 2003 to 2012. These contributions have been selected by a team of voluntary reviewers, with two to four reviewers assigned to each paper. At the end of this process only about 5% of all presented papers were selected. Considering each paper had been reviewed before, in order to be accepted for the conference, the selected papers represent “the best of the best”. The contributors to this book represent some of the leading authorities in their areas of expertise. This book will be of particular interest to professional engineers and researchers dealing with renewable energy exploitation, but will also prove useful to postgraduate level students. In addition, it can be used as a reference book for engineers, physicists and mathematicians who are interested and involved in the operation, project management, design, and analysis of renewable sources equipment.

Numerical Computing with MATLAB Cleve B. Moler 2010-08-12 A revised textbook for introductory courses in numerical methods, MATLAB and technical computing, which emphasises the use of mathematical software.

Sustainable Development: Concepts, Methodologies, Tools, and Applications Management Association, Information Resources 2017-10-31 To maintain a healthy ecosystem for contemporary society, and for future generations, policies must be implemented to protect the environment. This can be achieved by consistent evaluation of new initiatives and strategies. Sustainable Development: Concepts, Methodologies, Tools, and Applications is a comprehensive source of scholarly information on the latest research for sustainability concerns across a multidisciplinary perspective. Highlighting a broad range of innovative topics such as renewable energy, urban development, and green technologies, this multi-volume book is ideally designed for academics, researchers, professionals, students, and practitioners interested in the preservation of the environment.

MATLAB Simulations for Radar Systems Design Bassem R. Mahafza 2003-12-17 Simulation is integral to the successful design of modern radar systems, and there is arguably no better software for this purpose than MATLAB. But software and the ability to use it does not guarantee success. One must also:
Ö Understand radar operations and design philosophy
Ö Know how to select the radar parameters to meet the design requirements
Ö Be able to

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perform detailed trade-off analysis in the context of radar sizing, modes of operation, frequency selection, waveforms, and signal processing. Develop loss and error budgets associated with the design. MATLAB Simulations for Radar Systems Design teaches all of this and provides the M-files and hands-on simulation experience needed to design and analyze radar systems. Part I forms a comprehensive description of radar systems, their analysis, and the design process. The authors' unique approach involves a design case study introduced in Chapter 1 and followed throughout the text. As the treatment progresses, the complexity increases and the case study requirements are adjusted accordingly. Part II presents a series of chapters—some authored by other experts in the field—on specialized radar topics important to a full understanding of radar systems design and analysis. A comprehensive set of MATLAB programs and functions support both parts of the book and are available for download from the CRC Press Web site.

MATLAB® for Engineers Explained Fredrik Gustafsson 2003-01-24 Based on the new 'guided-tour' concept that eliminates the start-up transient encountered in learning new programming languages, this beginner's introduction to MATLAB teaches a sufficient subset of the functionality and gives the reader practical experience on how to find more information. Recent developments in MATLAB to advance programming are described using realistic examples in order to prepare students for larger programming projects. In addition, a large number of exercises, tips, and solutions mean that the course can be followed with or without a computer. The development of MATLAB programming and its use in engineering courses makes this a valuable self-study guide for both engineering students and practicing engineers.

New Trends in Technologies Er Meng Joo 2010-11-02 The grandest accomplishments of engineering took place in the twentieth century. The widespread development and distribution of electricity and clean water, automobiles and airplanes, radio and television, spacecraft and lasers, antibiotics and medical imaging, computers and the Internet are just some of the highlights from a century in which engineering revolutionized and improved virtually every aspect of human life. In this book, the authors provide a glimpse of the new trends of technologies pertaining to control, management, computational intelligence and network systems.

Basic Simulation Models of Phase Tracking Devices Using MATLAB William Tranter 2022-06-01 The Phase-Locked Loop (PLL), and many of the devices used for frequency and phase tracking, carrier and symbol synchronization, demodulation, and frequency synthesis, are fundamental building blocks in today's complex communications systems. It is therefore essential for both students and practicing communications engineers interested in the design and implementation of modern communication systems to understand and have insight into the behavior of these important and ubiquitous devices. Since the PLL behaves as a nonlinear device (at least during acquisition), computer simulation can be used to great advantage in gaining insight into the behavior of the PLL and the devices derived from the PLL. The purpose of this Synthesis Lecture is to provide basic theoretical analyses of the PLL and devices derived from the PLL and simulation models suitable for supplementing undergraduate and graduate courses in communications. The Synthesis Lecture is also suitable for self study by practicing engineers. A significant component of this book is a set of basic MATLAB-based simulations that illustrate the operating characteristics of PLL-based devices and enable the reader to investigate the impact of varying system parameters. Rather than providing a comprehensive treatment of the underlying theory of phase-locked loops, theoretical analyses are provided in

sufficient detail in order to explain how simulations are developed. The references point to sources currently available that treat this subject in considerable technical depth and are suitable for additional study. Download MATLAB codes (.zip) Table of Contents: Introduction / Basic PLL Theory / Structures Developed From The Basic PLL / Simulation Models / MATLAB Simulations / Noise Performance Analysis

A Client/server Based Communication System Testbed Gregory John Schulberg 1999

Data Analytics for Renewable Energy Integration. Technologies, Systems and Society Wei Lee Woon 2018-11-16 This book constitutes the revised selected papers from the 6th ECML PKDD Workshop on Data Analytics for Renewable Energy Integration, DARE 2018, held in Dublin, Ireland, in September 2018. The 9 papers presented in this volume were carefully reviewed and selected for inclusion in this book and handle topics such as time series forecasting, the detection of faults, cyber security, smart grid and smart cities, technology integration, demand response, and many others.

Simulation of Dynamic Systems with MATLAB® and Simulink® Harold Klee 2018-02-02 Continuous-system simulation is an increasingly important tool for optimizing the performance of real-world systems. The book presents an integrated treatment of continuous simulation with all the background and essential prerequisites in one setting. It features updated chapters and two new sections on Black Swan and the Stochastic Information Packet (SIP) and Stochastic Library Units with Relationships Preserved (SLURP) Standard. The new edition includes basic concepts, mathematical tools, and the common principles of various simulation models for different phenomena, as well as an abundance of case studies, real-world examples, homework problems, and equations to develop a practical understanding of concepts.

Computational Nanotechnology Sarhan M. Musa 2018-09-03 Applications of nanotechnology continue to fuel significant innovations in areas ranging from electronics, microcomputing, and biotechnology to medicine, consumer supplies, aerospace, and energy production. As progress in nanoscale science and engineering leads to the continued development of advanced materials and new devices, improved methods of modeling and simulation are required to achieve a more robust quantitative understanding of matter at the nanoscale. Computational Nanotechnology: Modeling and Applications with MATLAB® provides expert insights into current and emerging methods, opportunities, and challenges associated with the computational techniques involved in nanoscale research. Written by, and for, those working in the interdisciplinary fields that comprise nanotechnology—including engineering, physics, chemistry, biology, and medicine—this book covers a broad spectrum of technical information, research ideas, and practical knowledge. It presents an introduction to computational methods in nanotechnology, including a closer look at the theory and modeling of two important nanoscale systems: molecular magnets and semiconductor quantum dots. Topics covered include: Modeling of nanoparticles and complex nano and MEMS systems Theory associated with micromagnetics Surface modeling of thin films Computational techniques used to validate hypotheses that may not be accessible through traditional experimentation Simulation methods for various nanotubes and modeling of carbon nanotube and silicon nanowire transistors In regard to applications of computational nanotechnology in biology, contributors describe tracking of nanoscale structures in cells, effects of various forces on cellular behavior, and use of protein-coated gold nanoparticles to better understand protein-associated

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nanomaterials. Emphasizing the importance of MATLAB for biological simulations in nanomedicine, this wide-ranging survey of computational nanotechnology concludes by discussing future directions in the field, highlighting the importance of the algorithms, modeling software, and computational tools in the development of efficient nanoscale systems.

Frontier and Future Development of Information Technology in Medicine and Education Shaozi Li 2013-12-05 IT changes everyday's life, especially in education and medicine. The goal of ITME 2013 is to further explore the theoretical and practical issues of IT in education and medicine. It also aims to foster new ideas and collaboration between researchers and practitioners.

Renewable Energy Devices and Systems with Simulations in MATLAB® and ANSYS® Frede Blaabjerg 2017-05-18 Due to the increasing world population, energy consumption is steadily climbing, and there is a demand to provide solutions for sustainable and renewable energy production, such as wind turbines and photovoltaics. Power electronics are being used to interface renewable sources in order to maximize the energy yield, as well as smoothly integrate them within the grid. In many cases, power electronics are able to ensure a large amount of energy saving in pumps, compressors, and ventilation systems. This book explains the operations behind different renewable generation technologies in order to better prepare the reader for practical applications. Multiple chapters are included on the state-of-the-art and possible technology developments within the next 15 years. The book provides a comprehensive overview of the current renewable energy technology in terms of system configuration, power circuit usage, and control. It contains two design examples for small wind turbine system and PV power system, respectively, which are useful for real-life installation, as well as many computer simulation models.

Harmony Search and Nature Inspired Optimization Algorithms Neha Yadav 2018-08-23 The book covers different aspects of real-world applications of optimization algorithms. It provides insights from the Fourth International Conference on Harmony Search, Soft Computing and Applications held at BML Munjal University, Gurgaon, India on February 7-9, 2018. It consists of research articles on novel and newly proposed optimization algorithms; the theoretical study of nature-inspired optimization algorithms; numerically established results of nature-inspired optimization algorithms; and real-world applications of optimization algorithms and synthetic benchmarking of optimization algorithms.

The Design Warrior's Guide to FPGAs Clive Maxfield 2004-06-16 Field Programmable Gate Arrays (FPGAs) are devices that provide a fast, low-cost way for embedded system designers to customize products and deliver new versions with upgraded features, because they can handle very complicated functions, and be reconfigured an infinite number of times. In addition to introducing the various architectural features available in the latest generation of FPGAs, The Design Warrior's Guide to FPGAs also covers different design tools and flows. This book covers information ranging from schematic-driven entry, through traditional HDL/RTL-based simulation and logic synthesis, all the way up to the current state-of-the-art in pure C/C++ design capture and synthesis technology. Also discussed are specialist areas such as mixed hardware/software and DSP-based design flows, along with innovative new devices such as field programmable node arrays (FPNAs). Clive "Max" Maxfield is a bestselling author and engineer with a large following in the electronic design automation (EDA) and embedded

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systems industry. In this comprehensive book, he covers all the issues of interest to designers working with, or contemplating a move to, FPGAs in their product designs. While other books cover fragments of FPGA technology or applications this is the first to focus exclusively and comprehensively on FPGA use for embedded systems. First book to focus exclusively and comprehensively on FPGA use in embedded designs World-renowned best-selling author Will help engineers get familiar and succeed with this new technology by providing much-needed advice on choosing the right FPGA for any design project

Understanding LTE with MATLAB Houman Zarrinkoub 2014-01-28 An introduction to technical details related to the Physical Layer of the LTE standard with MATLAB® The LTE (Long Term Evolution) and LTE-Advanced are among the latest mobile communications standards, designed to realize the dream of a truly global, fast, all-IP-based, secure broadband mobile access technology. This book examines the Physical Layer (PHY) of the LTE standard by incorporating three conceptual elements: an overview of the theory behind key enabling technologies; a concise discussion regarding standard specifications; and the MATLAB® algorithms needed to simulate the standard. The use of MATLAB®, a widely used technical computing language, is one of the distinguishing features of this book. Through a series of MATLAB® programs, the author explores each of the enabling technologies, pedagogically synthesizes an LTE PHY system model, and evaluates system performance at each stage. Following this step-by-step process, readers will achieve deeper understanding of LTE concepts and specifications through simulations. Key Features: • Accessible, intuitive, and progressive; one of the few books to focus primarily on the modeling, simulation, and implementation of the LTE PHY standard • Includes case studies and test benches in MATLAB®, which build knowledge gradually and incrementally until a functional specification for the LTE PHY is attained • Accompanying Web site includes all MATLAB® programs, together with PowerPoint slides and other illustrative examples Dr Houman Zarrinkoub has served as a development manager and now as a senior product manager with MathWorks, based in Massachusetts, USA. Within his 12 years at MathWorks, he has been responsible for multiple signal processing and communications software tools. Prior to MathWorks, he was a research scientist in the Wireless Group at Nortel Networks, where he contributed to multiple standardization projects for 3G mobile technologies. He has been awarded multiple patents on topics related to computer simulations. He holds a BSc degree in Electrical Engineering from McGill University and MSc and PhD degrees in Telecommunications from the Institut Nationale de la Recherche Scientifique, in Canada.

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