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### Analog Circuit Design

## (X)DSL and other Communication Systems; RF MOST Models; Integrated Filters and Oscillators

**Springer Science & Business Media** This new book on Analog Circuit Design contains the revised contributions of all the tutorial speakers of the eight workshop AACD (Advances in Analog Circuit Design), which was held at Nice, France on March 23-25, 1999. The workshop was organized by Yves Leduc of TI Nice, France. The program committee consisted of Willy Sansen, K.U.Leuven, Belgium, Han Huijsing, T.U.Delft, The Netherlands and Rudy van de Plassche, T.U.Eindhoven, The Netherlands. The aim of these AACD workshops is to bring together a restricted group of about 100 people who are personally advancing the frontiers of analog circuit design to brainstorm on new possibilities and future developments in a restricted number of fields. They are concentrated around three topics. In each topic six speakers give a tutorial presentation. Eighteen papers are thus included in this book. The topics of 1999 are: (X)DSL and other communication systems RF MOST models Integrated filters and oscillators The other topics, which have been covered before, are: 1992 Operational amplifiers A-D Converters Analog CAD 1993 Mixed-mode A+D design Sensor interfaces Communication circuits 1994 Low-power low-voltage design Integrated filters Smart power 1995 Low-noise low-power low-voltage design Mixed-mode design with CAD tools Voltage, current and time references vii viii 1996 RF CMOS circuit design Bandpass sigma-delta and other data converters Translinear circuits 1997 RF A-D Converters Sensor and actuator interfaces Low-noise oscillators, PLL's and synthesizers 1998 I-Volt electronics Design and implementation of mixed-mode systems Low-noise amplifiers and RF power amplifiers for telecommunications

## Ergodic Theory, Analysis, and Efficient Simulation of Dynamical Systems

**Springer Science & Business Media** Presenting very recent results in a major research area, this book is addressed to experts and non-experts in the mathematical community alike. The applied issues range from crystallization and dendrite growth to quantum chaos, conveying their significance far into the neighboring disciplines of science.

### NASA Tech Briefs

## Bayesian Networks in Fault Diagnosis

### Practice and Application

**World Scientific** Fault diagnosis is useful for technicians to detect, isolate, identify faults, and troubleshoot. Bayesian network (BN) is a probabilistic graphical model that effectively deals with various uncertainty problems. This model is increasingly utilized in fault diagnosis. This unique compendium presents bibliographical review on the use of BNs in fault diagnosis in the last decades with focus on engineering systems. Subsequently, eleven important issues in BN-based fault diagnosis methodology, such as BN structure modeling, BN parameter modeling, BN inference, fault identification, validation, and verification are discussed in various cases. Researchers, professionals, academics and graduate students will better understand the theory and application, and benefit those who are keen to develop real BN-based fault diagnosis system.

### NASA Reference Publication

## Intelligence and Safety for Humanoid Robots: Design, Control, and Applications

Frontiers Media SA

## Artificial Intelligence and Evolutionary Computations in Engineering Systems

### Proceedings of ICAIECES 2015

**Springer** The book is a collection of high-quality peer-reviewed research papers presented in the first International Conference on International Conference on Artificial Intelligence and Evolutionary Computations in Engineering Systems (ICAIECES -2015) held at Velammal Engineering College (VEC), Chennai, India during 22 - 23 April 2015. The book discusses wide variety of industrial, engineering and scientific applications of the emerging techniques. Researchers from academic and industry present their original work and exchange ideas, information, techniques and applications in the field of Communication, Computing and Power Technologies.

## Self-Calibration of Multi-Camera Systems

**Logos Verlag Berlin GmbH** Multi-camera systems play an increasingly important role in computer vision. They enable applications like 3D video reconstruction, motion capture, smart homes, wide area surveillance, etc. Most of these require or benefit from a calibration of the multi-camera system. This book presents a novel approach for automatically estimating that calibration. In contrast to established methods, it neither requires a calibration object nor any user interaction. From a theoretical point of view, this book also presents and solves the novel graph theoretical problem of finding shortest triangle paths.

## Advances in Signal Processing

### Theories, Algorithms, and System Control

**Springer Nature** This book attempts to improve algorithms by novel theories and complex data analysis in different scopes including object detection, remote sensing, data transmission, data fusion, gesture recognition, and medical image processing and analysis. The book is directed to the Ph.D. students, professors, researchers, and software developers working in the areas of digital video processing and computer vision technologies.

## Wearable EHealth Systems for Personalised Health Management

### State of the Art and Future Challenges

**IOS Press** The new generation of wearable personal eHealth systems has to be affordable, user-friendly, "invisible", autonomous in terms of power consumption and able to assist individuals in their own health management. Major challenges are ahead such as further research and development, user acceptance and trust, cost-effectiveness and business models. Intelligent Biomedical Clothing and biomedical sensors are becoming major driving forces for cutting-edge developments. The synergy and close collaboration of all involved disciplines and sectors is of paramount importance. This book consists of papers describing developments and trends all over the world in the areas of smart wearable monitoring and diagnostic systems, smart treatment systems, biomedical clothing and smart fibres and fabrics. It covers also non-research aspects such as citizens and patients needs, interoperability, risk management and market perspectives. The chapters are preceded by a short executive summary which highlights the main issues, findings and conclusions for the convenience of the reader. The participation of the major actors involved in research, development, decision making and business should make this book unique and a pioneer in the field.

## BASIC ELECTRONICS DEVICES, CIRCUITS AND IT FUNDAMENTALS

**PHI Learning Pvt. Ltd.** This comprehensive and well-organized text discusses the fundamentals of electronic communication, such as devices and analog and digital circuits, which are so essential for an understanding of digital electronics. Professor Santiram Kal, with his wealth of knowledge and his years of teaching experience, compresses, within the covers of a single volume, all the aspects of electronics - both analog and digital - encompassing devices such as microprocessors, microcontrollers, fibre optics, and photonics. In so doing, he has struck a fine balance between analog and digital electronics. A distinguishing feature of the book is that it gives case studies in modern applications of electronics, including information technology, that is, DBMS, multimedia, computer networks, Internet, and optical communication. Worked-out examples, interspersed throughout the text, and the large number of diagrams should enable the student to have a better grasp of the subject. Besides, exercises, given at the end of each chapter, will sharpen the student's mind in self-study. These student-friendly features are intended to enhance the value of the text and make it both useful and interesting.

### Stability, Instability and Chaos

## An Introduction to the Theory of Nonlinear Differential Equations

**Cambridge University Press** An introduction to nonlinear differential equations which equips undergraduate students with the know-how to appreciate stability theory and bifurcation.

## Computer Vision: Systems, Theory and Applications

**World Scientific** This book contains a selection of papers which were presented at the Vision Interface '92 Conference. It also includes several invited articles from prominent researchers in the field, suggesting future directions in Computer Vision. Contents: On Seeing Robots (A K Mackworth) Computer Vision: Attitudes, Barriers, Counseling (R Chellappa & A Rosenfeld) From Curve Detection to Shape Description: An Outline (S W Zucker et al.) Real-Time Pyramidal Vision (Z-N Li) Analyzing Overlapping Patterns to Recognize Letters in Handwritten Words (C Barrière & R Plamondon) Use of Colour in Gradient-Based Estimation of Dense Two-Dimensional Motion (J Konrad) Representational Issues in Texture Analysis (H C Shen et al.) Resampling Large Voxel Datasets for Reconstruction or Magnification of 3D Images (H H Atkinson et al.) A Two-Step Robust Approach to Motion Estimation (X Sun & M E Spetsakis) and other papers Readership: Computer scientists and engineers. Keywords: Computer Vision; Curve Detection; Pyramidal Vision; Motion Estimation; Octree Models; Realtime Image Segmentation; Texture Representation;;

## Power System Protection

**John Wiley & Sons** A newly updated guide to the protection of power systems in the 21st century Power System Protection, 2nd Edition combines brand new information about the technological and business developments in the field of power system protection that have occurred since the last edition was published in 1998. The new edition includes updates on the effects of short circuits on: Power quality Multiple setting groups Quadrilateral distance relay characteristics Loadability It also includes comprehensive information about the impacts of business changes, including deregulation, disaggregation of power systems, dependability, and security issues. Power System Protection provides the analytical basis for design, application, and setting of power system protection equipment for today's engineer. Updates from protection engineers with distinct specializations contribute to a comprehensive work covering all aspects of the field. New regulations and new components included in modern power protection systems are discussed at length. Computer-based protection is covered in-depth, as is the impact of renewable energy systems connected to distribution and transmission systems.

## Official Gazette of the United States Patent and Trademark Office

### Patents

## A Course in Lens Design

**Springer** A Course in Lens Design is an instruction in the design of image-forming optical systems. It teaches how a satisfactory design can be obtained in a straightforward way. Theory is limited to a minimum, and used to support the practical design work. The book introduces geometrical optics, optical instruments and aberrations. It gives a description of the process of lens design and of the strategies used in this process. Half of its content is devoted to the design of sixteen types of lenses, described in detail from beginning to end. This book is different from most other books on lens design because it stresses the importance of the initial phases of the design process: (paraxial) lay-out and (thin-lens) pre-design. The argument for this change of accent is that in these phases much information can be obtained about the properties of the lens to be designed. This information can be used in later phases of the design. This makes A Course in Lens Design a useful self-study book and a suitable basis for an introductory course in lens design. The mathematics mainly used is college algebra, in a few sections calculus is applied. The book could be used by students of engineering and technical physics and by engineers and scientists.

## Army Research Task Summary

## Problem-Based Learning in Communication Systems Using MATLAB and Simulink

**John Wiley & Sons** Designed to help teach and understand communication systems using a classroom-tested, active learning approach. Discusses communication concepts and algorithms, which are explained using simulation projects, accompanied by MATLAB and Simulink Provides step-by-step code exercises and instructions to implement execution sequences Includes a companion website that has MATLAB and Simulink model samples and templates (password: matlab)

## Electrical Generation and Distribution Systems and Power Quality Disturbances

**BoD - Books on Demand** The utilization of renewable energy sources such as wind energy, or solar energy, among others, is currently of greater interest. Nevertheless, since their availability is arbitrary and unstable this can lead to frequency variation, to grid instability and to a total or partial loss of load power supply, being not appropriate sources to be directly connected to the main utility grid. Additionally, the presence of a static converter as output interface of the generating plants introduces voltage and current harmonics into the electrical system that negatively affect system power quality. By integrating distributed power generation systems closed to the loads in the electric grid, we can eliminate the need to transfer energy over long distances through the electric grid. In this book the reader will be introduced to different power generation and distribution systems with an analysis of some types of existing disturbances and a study of different industrial applications such as battery charges.

## The Switching Function

## Analysis of Power Electronic Circuits

**IET** This book demonstrates the usefulness of the switching function in analyzing power electronic circuits in the steady state. A procedure is suggested for the effective application of this effective application of this method for the analysis of all types of power electronic circuits. The Kirchoff's Laws and the Superposition theorem are applied by introducing the appropriate switching functions in order to derive Unified Expressions of voltage and current in switched circuits valid at all times. The exact expressions of the current in each semiconductor device in the circuit enables the circuit designer to collect all the relevant data to set the ratings of the device such as rms, average and peak values of voltage and current. The order of the voltage and current harmonics at any point in the circuit are derived with simple arithmetic. Compact expressions are derived for Sinusoidal PWM signals based on the switching function. The order, magnitude and phase of each component are derived directly from the expression with simple arithmetic. The educator has a simple way to present to his students the mechanism of operation of complex switched circuits where all the statements regarding their operation are actually presented in the model of the circuit.

## Multilevel Converters: Analysis, Modulation, Topologies, and Applications

**MDPI** This book is a collection of scientific papers concerning multilevel inverters examined from different points of view. Many applications are considered, such as renewable energy interface, power conditioning systems, electric drives, and chargers for electric vehicles. Different topologies have been examined in both new configurations and well-established structures, introducing novel and particular modulation strategies, and examining the effect of modulation techniques on voltage and current harmonics and the total harmonic distortion.

## Database Systems for Advanced Applications

10th International Conference, DASFAA 2005, Beijing, China, April 17-20, 2005, Proceedings

Springer On behalf of the Organizing Committee, we would like to welcome you to the proceedings of the 10th International Conference on Database Systems for Advanced Applications (DASFAA 2005).

## Photovoltaic Systems Engineering, Third Edition

CRC Press The U.S. Department of Energy now estimates a factor of 14 increase in grid-connected systems between 2009 and 2017, depending upon various factors such as incentives for renewables and availability and price of conventional fuels. With this fact in mind, *Photovoltaic Systems Engineering, Third Edition* presents a comprehensive engineering basis for photovoltaic (PV) system design, so engineers can understand the what, why, and how associated with the electrical, mechanical, economic, and aesthetic aspects of PV system design. Building on the popularity of the first two editions, esteemed authors Roger Messenger and Jerry Ventre explore the significant growth and new ideas in the PV industry. They integrate their experience in system design and installation gained since publication of the last edition. Intellectual tools to help engineers and students to understand new technologies and ideas in this rapidly evolving field The book educates about the design of PV systems so that when engineering judgment is needed, the engineer can make intelligent decisions based on a clear understanding of the parameters involved. This goal differentiates this textbook from the many design and installation manuals that train the reader how to make design decisions, but not why. The authors explain why a PV design is executed a certain way, and how the design process is actually implemented. In exploring these ideas, this cutting-edge book presents: An updated background of energy production and consumption Mathematical background for understanding energy supply and demand A summary of the solar spectrum, how to locate the sun, and how to optimize the capture of its energy Analysis of the components used in PV systems Also useful for students, the text is full of additional practical considerations added to the theoretical background associated with mechanical and structural design. A modified top-down approach organizes the material to quickly cover the building blocks of the PV system. The focus is on adjusting the parameters of PV systems to optimize performance. The last two chapters present the physical basis of PV cell operation and optimization. Presenting new problems based upon contemporary technology, this book covers a wide range of topics—including chemistry, circuit analysis, electronics, solid state device theory, and economics—this book will become a relied upon addition to any engineer's library.

## Power Distribution Conference

## Power Electronics Handbook

Elsevier Power electronics, which is a rapidly growing area in terms of research and applications, uses modern electronics technology to convert electric power from one form to another, such as ac-dc, dc-dc, dc-ac, and ac-ac with a variable output magnitude and frequency. It has many applications in our every day life such as air-conditioners, electric cars, sub-way trains, motor drives, renewable energy sources and power supplies for computers. This book covers all aspects of switching devices, converter circuit topologies, control techniques, analytical methods and some examples of their applications. Designed to appeal to a new generation of engineering professionals, *Power Electronics Handbook, 3rd Edition* features four new chapters covering renewable energy, energy transmission, energy storage, as well as an introduction to Distributed and Cogeneration (DCG) technology, including gas turbines, gensets, microturbines, wind turbines, variable speed generators, photovoltaics and fuel cells, has been gaining momentum for quite some time now. smart grid technology. With this book readers should be able to provide technical design leadership on assigned power electronics design projects and lead the design from the concept to production involving significant scope and complexity. Contains 45 chapters covering all aspects of power electronics and its applications Three new chapters now including coverage Energy Sources, Energy Storage and Electric Power Transmission Contributions from more than fifty leading experts spanning twelve different countries

## Lens and Optical Systems Design

14-18 September 1992, Berlin, FRG

## Computational Intelligence in Information Systems

Proceedings of the Fourth INNS Symposia Series on Computational Intelligence in Information Systems (INNS-CIIS 2014)

Springer This book constitutes the refereed proceedings of the Fourth International Neural Network Symposia series on Computational Intelligence in Information Systems, INNS-CIIS 2014, held in Bandar Seri Begawan, Brunei in November 2014. INNS-CIIS aims to provide a platform for researchers to exchange the latest ideas and present the most current research advances in general areas related to computational intelligence and its applications in various domains. The 34 revised full papers presented in this book have been carefully reviewed and selected from 72 submissions. They cover a wide range of topics and application areas in computational intelligence and informatics.

## Power Electronic Converter Configuration and Control for DC Microgrid Systems

MDPI The DC/AC microgrid system is a crucial empowering technology for the integration of various types of renewable energy sources (RES) accompanied by a smart control approach to enhance the system reliability and efficiency. This book presents cutting-edge technology developments and recent investigations performed with the help of power electronics. Large-scale renewable energy integration presents challenges and issues for power grids. In particular, these issues include microgrid adaption to RES, AC machines, the new configuration of AC/DC converters, and electrification of domestic needs with optimal cost expenses from domestic standalone microgrids. Furthermore, this book elaborates cutting-edge developments in electric vehicle fast charging configuration, battery management, and control schemes with renewable energies through hardware-in-loop testing and validation for performance durability in real-time application. Overall, the book covers the diverse field of microgrids, allowing readers to adopt new technologies and prepare for future power demands with sustainable green engineering.

## Processing of Multidimensional Signals

Springer Science & Business Media Multidimensional or spatio-temporal signals are important in image processing and television. This book presents the mathematical methods for processing multidimensional signals. It describes applications in system analysis, measurement and optimization and signal restoration, with varying examples of applications.

## Television Technology Today

IEEE

## Analog-Digital Converters for Industrial Applications Including an Introduction to Digital-Analog Converters

Springer This book offers students and those new to the topic of analog-to-digital converters (ADCs) a broad introduction, before going into details of the state-of-the-art design techniques for SAR and DS converters, including the latest research topics, which are valuable for IC design engineers as well as users of ADCs in applications. The book then addresses important topics, such as correct connectivity of ADCs in an application, the verification, characterization and testing of ADCs that ensure high-quality end products. Analog-to-digital converters are the central element in any data processing system and regulation loops such as modems or electrical motor drives. They significantly affect the performance and resolution of a system or end product. System development engineers need to be familiar with the performance parameters of the converters and understand the advantages and disadvantages of the various architectures. Integrated circuit development engineers have to overcome the problem of achieving high performance and resolution with the lowest possible power dissipation, while the digital circuitry generates distortion in supply, ground and substrate. This book explains the connections and gives suggestions for obtaining the highest possible resolution. Novel trends are illustrated in the design of analog-to-digital converters based on successive approximation and the difficulties in the development of continuous-time delta-sigma modulators are also discussed.

## Army Research Office, Fiscal Year 1961, Army Research Task Summary

## Proceedings of the 35th Midwest Symposium on Circuits and Systems The Capital Hilton, Washington, D.C., August 9-12

[Piscataway, NJ : Institute of Electrical and Electronics Engineers](#)

### Fusion of Neural Networks, Fuzzy Systems and Genetic Algorithms Industrial Applications

[CRC Press](#) Artificial neural networks can mimic the biological information-processing mechanism in - a very limited sense. Fuzzy logic provides a basis for representing uncertain and imprecise knowledge and forms a basis for human reasoning. Neural networks display genuine promise in solving problems, but a definitive theoretical basis does not yet exist for their design. Fusion of Neural Networks, Fuzzy Systems and Genetic Algorithms integrates neural net, fuzzy system, and evolutionary computing in system design that enables its readers to handle complexity - offsetting the demerits of one paradigm by the merits of another. This book presents specific projects where fusion techniques have been applied. The chapters start with the design of a new fuzzy-neural controller. Remaining chapters discuss the application of expert systems, neural networks, fuzzy control, and evolutionary computing techniques in modern engineering systems. These specific applications include: direct frequency converters electro-hydraulic systems motor control toaster control speech recognition vehicle routing fault diagnosis Asynchronous Transfer Mode (ATM) communications networks telephones for hard-of-hearing people control of gas turbine aero-engines telecommunications systems design Fusion of Neural Networks, Fuzzy Systems and Genetic Algorithms covers the spectrum of applications - comprehensively demonstrating the advantages of fusion techniques in industrial applications.

### IEE Journal on Computers and Digital Techniques

### Intelligent Renewable Energy Systems

### Integrating Artificial Intelligence Techniques and Optimization Algorithms

[John Wiley & Sons](#) INTELLIGENT RENEWABLE ENERGY SYSTEMS This collection of papers on artificial intelligence and other methods for improving renewable energy systems, written by industry experts, is a reflection of the state of the art, a must-have for engineers, maintenance personnel, students, and anyone else wanting to stay abreast with current energy systems concepts and technology. Renewable energy is one of the most important subjects being studied, researched, and advanced in today's world. From a macro level, like the stabilization of the entire world's economy, to the micro level, like how you are going to heat or cool your home tonight, energy, specifically renewable energy, is on the forefront of the discussion. This book illustrates modelling, simulation, design and control of renewable energy systems employed with recent artificial intelligence (AI) and optimization techniques for performance enhancement. Current renewable energy sources have less power conversion efficiency because of its intermittent and fluctuating behavior. Therefore, in this regard, the recent AI and optimization techniques are able to deal with data ambiguity, noise, imprecision, and nonlinear behavior of renewable energy sources more efficiently compared to classical soft computing techniques. This book provides an extensive analysis of recent state of the art AI and optimization techniques applied to green energy systems. Subsequently, researchers, industry persons, undergraduate and graduate students involved in green energy will greatly benefit from this comprehensive volume, a must-have for any library. Audience Engineers, scientists, managers, researchers, students, and other professionals working in the field of renewable energy.

### Nonlinear Dynamical Systems Analysis for the Behavioral Sciences Using Real Data

[CRC Press](#) Although its roots can be traced to the 19th century, progress in the study of nonlinear dynamical systems has taken off in the last 30 years. While pertinent source material exists, it is strewn about the literature in mathematics, physics, biology, economics, and psychology at varying levels of accessibility. A compendium research methods reflect

### International Conference on Intelligent Computing and Applications

### ICICA 2016

[Springer](#) The book is a collection of best papers presented in International Conference on Intelligent Computing and Applications (ICICA 2016) organized by Department of Computer Engineering, D.Y. Patil College of Engineering, Pune, India during 20-22 December 2016. The book presents original work, information, techniques and applications in the field of computational intelligence, power and computing technology. This volume also talks about image language processing, computer vision and pattern recognition, machine learning, data mining and computational life sciences, management of data including Big Data and analytics, distributed and mobile systems including grid and cloud infrastructure.

### Digital and Analog Fiber Optic Communications for CATV and FTTx Applications

[SPIE Press](#) This book is intended to provide a step-by-step guide to all design aspects and tradeoffs from theory to application for fiber-optics transceiver electronics. Presenting a compendium of information in a structured way, this book enables the engineer to develop a methodical design approach, a deep understanding of specifications parameters and the reasons behind them, as well as their effects and consequences on system performance, which are essential for proper component design. Further, a fundamental understanding of RF, digital circuit design, and linear and nonlinear phenomena is important in order to achieve the desired performance levels. Becoming familiar with solid-state devices and passives used to build optical receivers and transmitters is also important so one can effectively overcome design limitations. The book is organized into six main sections covering the following subjects: a top level overview; optics, semiconductors, and passives; RF concepts; an introduction to CATV modems and transmitters; digital transceivers' performance, evaluation, and concepts; and integration and testing. Copublished with Wiley Interscience.

### Imaging Optics

[Cambridge University Press](#) This comprehensive and self-contained text for researchers and professionals presents a detailed account of optical imaging from the viewpoint of both ray and wave optics.