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Electric Drive
Control of Synchronous Motors
Electric Vehicle Machines and Drives
Advanced Control of Electrical Drives and Power Electronic Converters
Neural and Fuzzy Logic Control of Drives and Power Systems
Electrical Drives and Controls
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Power Electronics and Motor Drives
Control of Electric Machine Drive Systems
Electrical Machines, Drives, and Power Systems
Practical Variable Speed Drives and Power Electronics
Advanced Microsystems for Automotive Applications 2014
Multiphysics Simulation by Design for Electrical Machines, Power Electronics and Drives
Engineering Applications for New Materials and Technologies
Proceedings of the 6th International Conference on Industrial Engineering (ICIE 2020)

Practical Electric Motor Handbook

*Electric Drives Lecture
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*OMB No.
8670189536250 edited
by*

BARRERA MAHONEY

Control of Synchronous Motors Springer
Science & Business Media

This book presents select proceedings of the Electric Power and Renewable Energy Conference 2020 (EPREC-2020). It provides rigorous discussions, case studies, and recent developments in the emerging areas of power electronics, especially, power inverter and converter, electrical drives, regulated power supplies, operation of FACTS & HVDC, etc. The readers would be benefited in enhancing their knowledge and skills in these domain areas. The book will be a valuable reference for beginners, researchers, and professionals interested in advancements in power electronics and drives.

ELECTRIC VEHICLE MACHINES AND DRIVES

Academic Press

A self-contained, comprehensive and

unified treatment of electrical machines, including consideration of their control characteristics in both conventional and semiconductor switched circuits. This new edition has been expanded and updated to include material which reflects current thinking and practice. All references have been updated to conform to the latest national (BS) and international (IEC) recommendations and a new appendix has been added which deals more fully with the theory of permanent-magnets, recognising the growing importance of permanent-magnet machines. The text is so arranged that selections can be made from it to give a short course for non-specialists, while the book as a whole will prepare students for more advanced studies in power systems, control systems, electrical machine design and general industrial applications. Includes numerous worked examples and tutorial problems with answers.

ADVANCED CONTROL OF ELECTRICAL DRIVES AND POWER ELECTRONIC

CONVERTERS

Newnes

Written for non-specialist users of electric motors and drives, this book explains how electric drives work and compares the performance of the main systems, with many examples of applications. The author's approach - using a minimum of mathematics - has made this book equally popular as an outline for professionals and an introductory student text. * First edition (1990) has sold over 6000 copies. Drives and Controls on the first edition: 'This book is very readable, up-to-date and should be extremely useful to both users and o.e.m. designers. I unhesitatingly recommend it to any busy engineer who needs to make informed judgements about selecting the right drive system.' New features of the second edition: * New section on the cycloconverter drive. * More on switched reluctance motor drives. * More on vector-controlled induction motor drives. * More on power switching devices. * New 'question and answer' sections on common problems and misconceptions. *

Updating throughout. *Electric Motors and Drives* is for non-specialist users of electric motors and drives. It fills the gap between specialist textbooks (which are pitched at a level which is too academic for the average user) and the more prosaic 'handbooks' which are filled with useful detail but provide little opportunity for the development of any real insight or understanding. The book explores most of the widely-used modern types of motor and drive, including conventional and brushless d.c., induction motors (mains and inverter-fed), stepping motors, synchronous motors (mains and converter-fed) and reluctance motors.

Neural and Fuzzy Logic Control of Drives and Power Systems New Age International

This book is devoted to students, PhD students, postgraduates of electrical engineering, researchers, and scientists dealing with the analysis, design, and optimization of electrical machine properties. The purpose is to present methods used for the analysis of transients and steady-state conditions. In three chapters the following methods are presented: (1) a method in which the parameters (resistances and inductances)

are calculated on the basis of geometrical dimensions and material properties made in the design process, (2) a method of general theory of electrical machines, in which the transients are investigated in two perpendicular axes, and (3) FEM, which is a mathematical method applied to electrical machines to investigate many of their properties.

Electrical Drives and Controls John Wiley & Sons

Experienced product designers are increasingly expected to be adept at incorporating a range of components into their designs. Students and experimenters too need to look beyond basic circuits and devices to achieve adequate design solutions. For those experienced in engineering design, this is the guide to electric motors. This book will allow engineers and designers to marry the technologies they know about with motor technology, and hence to incorporate motors into their products. Of the many good books on motors, such as *Electric Motors and Drives* by Hughes, none offer the engineering professional a tailored guide to motors taking into account their expertise. This book fills that gap. Irving

Gottlieb is a leading author of many books for practising engineers, technicians and students of electronic and electrical engineering. Practical approach with minimum theory Covers a core area ignored by many electronics texts Shows how to incorporate motors into electronic products

Electrical Machines & their Applications Springer Nature

Typical practical applications of VSDs in process control and materials handling, such as those for pumping, ventilation, conveyers, compressors and hoists are covered in detail. · Provides a fundamental understanding of the installation, operation and troubleshooting of Variable Speed Drives (VSDs) · Includes practical coverage of key topics such as troubleshooting, control wiring, operating modes, braking types, automatic restart, harmonics, electrostatic discharge and EMC/EMI issues · Essential reading for electrical engineers and those using VSDs for applications such as pumping, ventilation, conveyers and hoists in process control, materials handling and other industrial contexts
BoD – Books on Demand

Electrical Engineering 101 covers the basic theory and practice of electronics, starting by answering the question "What is electricity?" It goes on to explain the fundamental principles and components, relating them constantly to real-world examples. Sections on tools and troubleshooting give engineers deeper understanding and the know-how to create and maintain their own electronic design projects. Unlike other books that simply describe electronics and provide step-by-step build instructions, EE101 delves into how and why electricity and electronics work, giving the reader the tools to take their electronics education to the next level. It is written in a down-to-earth style and explains jargon, technical terms and schematics as they arise. The author builds a genuine understanding of the fundamentals and shows how they can be applied to a range of engineering problems. This third edition includes more real-world examples and a glossary of formulae. It contains new coverage of: Microcontrollers FPGAs Classes of components Memory (RAM, ROM, etc.) Surface mount High speed design Board layout Advanced digital electronics (e.g.

processors) Transistor circuits and circuit design Op-amp and logic circuits Use of test equipment Gives readers a simple explanation of complex concepts, in terms they can understand and relate to everyday life. Updated content throughout and new material on the latest technological advances. Provides readers with an invaluable set of tools and references that they can use in their everyday work.

Electric Drives: Concepts & Appl, 2/E
Tata McGraw-Hill Education

Thanks to advances in power electronics device design, digital signal processing technologies and energy efficient algorithms, ac motors have become the backbone of the power electronics industry. Variable frequency drives (VFD's) together with IE3 and IE4 induction motors, permanent magnet motors, and synchronous reluctance motors have emerged as a new generation of greener high-performance technologies, which offer improvements to process and speed control, product quality, energy consumption and diagnostics analytics. Primarily intended for professionals and advanced students who are working on

sensorless control, predictive control, direct torque control, speed control and power quality and optimisation techniques for electric drives, this edited book surveys state of the art novel control techniques for different types of ac machines. The book provides a framework of different modeling and control algorithms using MATLAB®/Simulink®, and presents design, simulation and experimental verification techniques for the design of lower cost and more reliable and performant systems.

Recent Advances in Power Electronics and Drives Prentice Hall

A unique approach to sensorless control and regulator design of electric drives Based on the author's vast industry experience and collaborative works with other industries, Control of Electric Machine Drive Systems is packed with tested, implemented, and verified ideas that engineers can apply to everyday problems in the field. Originally published in Korean as a textbook, this highly practical updated version features the latest information on the control of electric machines and apparatus, as well as a new chapter on sensorless control of AC

machines, a topic not covered in any other publication. The book begins by explaining the features of the electric drive system and trends of development in related technologies, as well as the basic structure and operation principles of the electric machine. It also addresses steady state characteristics and control of the machines and the transformation of physical variables of AC machines using reference frame theory in order to provide a proper foundation for the material. The heart of the book reviews several control algorithms of electric machines and power converters, explaining active damping and how to regulate current, speed, and position in a feedback manner. Seung-Ki Sul introduces tricks to enhance the control performance of the electric machines, and the algorithm to detect the phase angle of an AC source and to control DC link voltages of power converters. Topics also covered are: Vector control Control algorithms for position/speed sensorless drive of AC machines Methods for identifying the parameters of electric machines and power converters The matrix algebra to model a three-phase AC machine in d-q-n axes Every chapter

features exercise problems drawn from actual industry experience. The book also includes more than 300 figures and offers access to an FTP site, which provides MATLAB programs for selected problems. The book's practicality and realworld relatability make it an invaluable resource for professionals and engineers involved in the research and development of electric machine drive business, industrial drive designers, and senior undergraduate and graduate students. To obtain instructor materials please send an email to pressbooks@ieee.org To visit this book's FTP site to download MATLAB codes, please click on this link: ftp://ftp.wiley.com/public/sci_tech_med/electric_machine/ MATLAB codes are also downloadable from Wiley Booksupport Site at <http://booksupport.wiley.com> Principles of Electrical Machines John Wiley & Sons Despite two decades of massive strides in research and development on control strategies and their subsequent implementation, most books on permanent magnet motor drives still focus primarily on motor design, providing only elementary coverage of control and

converters. Addressing that gap with information that has largely been disseminated only in journals and at conferences, Permanent Magnet Synchronous and Brushless DC Motor Drives is a long-awaited comprehensive overview of power electronic converters for permanent magnet synchronous machines and control strategies for variable-speed operation. It introduces machines, power devices, inverters, and control, and addresses modeling, implementation, control strategies, and flux weakening operations, as well as parameter sensitivity, and rotor position sensorless control. Suitable for both industrial and academic audiences, this book also covers the simulation, low cost inverter topologies, and commutation torque ripple of PM brushless DC motor drives. Simulation of the motor drives system is illustrated with MATLAB® codes in the text. This book is divided into three parts—fundamentals of PM synchronous and brushless dc machines, power devices, inverters; PM synchronous motor drives, and brushless dc motor drives. With regard to the power electronics associated with these drive systems, the

author: Explores use of the standard three-phase bridge inverter for driving the machine, power factor correction, and inverter control Introduces space vector modulation step by step and contrasts with PWM Details dead time effects in the inverter, and its compensation Discusses new power converter topologies being considered for low-cost drive systems in PM brushless DC motor drives This reference is dedicated exclusively to PM ac machines, with a timely emphasis on control and standard, and low-cost converter topologies. Widely used for teaching at the doctoral level and for industrial audiences both in the U.S. and abroad, it will be a welcome addition to any engineer's library.

Advances in Automation Elsevier

The HVDC Light[trademark] method of transmitting electric power. Introduces students to an important new way of carrying power to remote locations. Revised, reformatted Instructor's Manual. Provides instructors with a tool that is much easier to read. Clear, practical approach.

Fundamentals of Electrical Drives
Springer

This book offers a comprehensive yet accessible snapshot of the latest consumer research on the adoption and use of electric vehicles. It discusses the importance of developing a better understanding of consumer behavior in relation to electric vehicles, and the advantages that can be gained from the growing number of electric vehicle users, who can now be studied directly. In turn, it systematically analyzes the leading markets for electric vehicles in North America, Europe and Asia. Bringing together the experience and expertise of authoritative researchers and practicing professionals, the book shares a wide range of empirical data obtained at the national level and summarizes the general lessons learned. The last part of the book discusses policy-relevant insights, forecasts the future evolution of the field in terms of methods and data availability, and addresses several key questions that policymakers and other stakeholders are currently facing.

Who's Driving Electric Cars CRC Press

A timely comprehensive reference consolidates the research and development of electric vehicle machines

and drives for electric and hybrid propulsions • Focuses on electric vehicle machines and drives • Covers the major technologies in the area including fundamental concepts and applications • Emphasis the design criteria, performance analyses and application examples or potentials of various motor drives and machine systems • Accompanying website includes the simulation models and outcomes as supplementary material
Electrical Engineering 101 John Wiley & Sons

Provides broad insights into problems of coding control algorithms on a DSP platform. - Includes a set of Simulink simulation files (source codes) which permits readers to envisage the effects of control solutions on the overall motion control system. -bridges the gap between control analysis and industrial practice.

Power Electronics and Motor Drives

Springer Nature

For over 15 years "Principles of Electrical Machines" is an ideal text for students who look to gain a current and clear understanding of the subject as all theories and concepts are explained with lucidity and clarity. Succinctly divided in

14 chapters, the book delves into important concepts of the subject which include Armature Reaction and Commutation, Single-phase Motors, Three-phase Induction motors, Synchronous Motors, Transformers and Alternators with the help of numerous figures and supporting chapter-end questions for retention.

Control of Electric Machine Drive Systems Fundamentals of Electrical Drives

This contributed volume is written by key specialists working in multidisciplinary fields in electrical engineering, linking control theory, power electronics, artificial neural networks, embedded controllers and signal processing. The authors of each chapter report the state of the art of the various topics addressed and present results of their own research, laboratory experiments and successful applications. The presented solutions concentrate on three main areas of interest: · motion control in complex electromechanical systems, including sensorless control; · fault diagnosis and fault tolerant control of electric drives; · new control algorithms for power electronics converters. The

chapters and the complete book possess strong monograph attributes. Important practical and theoretical problems are deeply and accurately presented on the background of an exhaustive state-of-the-art review. Many results are completely new and were never published before. Well-known control methods like field oriented control (FOC) or direct torque control (DTC) are referred as a starting point for modifications or are used for comparison. Among numerous control theories used to solve particular problems are: nonlinear control, robust control, adaptive control, Lyapunov techniques, observer design, model predictive control, neural control, sliding mode control, signal filtration and processing, fault diagnosis, and fault tolerant control.

Electrical Machines, Drives, and Power Systems PHI Learning Pvt. Ltd.

The first book of its kind, *Power Converters and AC Electrical Drives with Linear Neural Networks* systematically explores the application of neural networks in the field of power electronics, with particular emphasis on the sensorless control of AC drives. It presents the classical theory based on space-vectors in identification,

discusses control of electrical drives and power converters, and examines improvements that can be attained when using linear neural networks. The book integrates power electronics and electrical drives with artificial neural networks (ANN). Organized into four parts, it first deals with voltage source inverters and their control. It then covers AC electrical drive control, focusing on induction and permanent magnet synchronous motor drives. The third part examines theoretical aspects of linear neural networks, particularly the neural EXIN family. The fourth part highlights original applications in electrical drives and power quality, ranging from neural-based parameter estimation and sensorless control to distributed generation systems from renewable sources and active power filters. Simulation and experimental results are provided to validate the theories. Written by experts in the field, this state-of-the-art book requires basic knowledge of electrical machines and power electronics, as well as some familiarity with control systems, signal processing, linear algebra, and numerical analysis. Offering multiple paths through the

material, the text is suitable for undergraduate and postgraduate students, theoreticians, practicing engineers, and researchers involved in applications of ANNs.

[Practical Variable Speed Drives and Power Electronics](#) S. Chand Publishing

This book highlights recent findings in industrial, manufacturing and mechanical engineering, and provides an overview of the state of the art in these fields, mainly in Russia and Eastern Europe. A broad range of topics and issues in modern engineering are discussed, including the dynamics of machines and working processes, friction, wear and lubrication in machines, surface transport and technological machines, manufacturing engineering of industrial facilities, materials engineering, metallurgy, control

systems and their industrial applications, industrial mechatronics, automation and robotics. The book gathers selected papers presented at the 6th International Conference on Industrial Engineering (ICIE), held in Sochi, Russia in May 2020. The authors are experts in various fields of engineering, and all papers have been carefully reviewed. Given its scope, the book will be of interest to a wide readership, including mechanical and production engineers, lecturers in engineering disciplines, and engineering graduates.

Advanced Microsystems for Automotive Applications 2014 John Wiley & Sons
Fundamentals of Electrical DrivesCRC Press

Multiphysics Simulation by Design for Electrical Machines, Power Electronics and Drives Springer Nature

This original contributed volume combines the individual expertise of eleven world-renowned professionals to provide comprehensive, authoritative coverage of state-of-the-art power electronics and AC drive technology. Featuring an extensive introductory chapter by power-electronics expert Bimal K. Bose and more than 400 figures, POWER ELECTRONICS AND VARIABLE FREQUENCY DRIVES covers each of the field's component disciplines and drives--all in one complete resource. Broad in scope and unique in its presentation, this volume belongs on the bookshelf of every industry engineer, professor, graduate student, and researcher involved in this fast-growing multidisciplinary field. It is an essential for teaching, research, development, and design.

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