

An Improved Flux Observer For Sensorless Permanent Magnet

Advanced Direct Thrust Force Control of Linear Permanent Magnet Synchronous Motor *Electrical Power Systems and Computers*
Development of Adaptive Speed Observers for Induction Machine System Stabilization *European Control Conference 1993 Practical*
Control of Electric Machines *Electric Drives Variable Speed AC Drives with Inverter Output Filters An Adaptive Airgap Torque Observer for*
Induction Machine Drives Electric Drives, Second Edition **Sliding Mode Control in Electro-Mechanical Systems Nonlinear Control of Electric**
Machinery *AC Motor Control and Electrical Vehicle Applications* **Measuring Technology and Mechatronics Automation IV Power Electronics**
and Electric Drives for Traction Applications *Proceedings of the First International Conference on Intelligent Computing and Communication*
The Field Orientation Principle in Control of Induction Motors *The Electric Generators Handbook - 2 Volume Set* **Memoirs of the Faculty of**
Engineering, Osaka City University Nonlinear Observers and Applications Manufacturing Science and Technology, ICMST2011
Sensorless Vector and Direct Torque Control AETA 2016: Recent Advances in Electrical Engineering and Related Sciences Neural
Networks and Soft Computing Control in Power Electronics *Application of Closed Loop Non-linear Observers for Position Detection on*
Induction Motors Using the Induced Spatial Harmonic Emf in the Machine Voltages and Currents *Mechatronics and Applied Mechanics III* *Passivity-*
based Control of Euler-Lagrange Systems *Linear Electric Machines, Drives, and MAGLEVs Handbook* *Electrical Actuators The Industrial Electronics*
Handbook - Five Volume Set **Proceedings of the 3rd International Conference on Electrical and Information Technologies for Rail**
Transportation (EITRT) 2017 Proceedings IECON. IECON '94, 20th International Conference on Industrial Electronics, Control, and
Instrumentation: Special sessions. Signal processing and control **Electrical Engineering in Japan Official Gazette of the United States Patent**
and Trademark Office Vector Control of Induction Machines Model Predictive Control of High Power Converters and Industrial Drives
Electrical Information and Mechatronics and Applications Intelligent Engineering Informatics The Observer's Guide to Astronomy:
Volume 2

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Electrical Power Systems and Computers Sep 27 2022 This volume includes extended and revised versions of a set of selected papers from the International Conference on Electric and Electronics (EEIC 2011), held on June 20-22, 2011, which is jointly organized by Nanchang University, Springer, and IEEE IAS Nanchang Chapter. The objective of EEIC 2011 Volume 3 is to provide a major interdisciplinary forum for the presentation of new approaches from Electrical Power Systems and Computers, to foster integration of the latest developments in scientific research. 133 related topic papers were selected into this volume. All the papers were reviewed by 2 program committee members and selected by the volume editor Prof. Xiaofeng Wan. We hope every participant can have a good opportunity to exchange their research ideas and results and to discuss the state of the art in the areas of the Electrical Power Systems and Computers.

Mechatronics and Applied Mechanics III Sep 03 2020 Collection of selected, peer reviewed papers from the 2013 the 3rd International Conference on Mechatronics and Applied Mechanics (ICMAM2013), December 27-28, 2013, Paris, France. The 126 papers are grouped as follows: Chapter 1: Mechatronics, Chapter 2: Sensors and Measurements, Chapter 3: Processing of Signal and Data, Chapter 4: Robotics, Automation and Control, Chapter 5: Applied Information Technologies and Algorithms, Chapter 6: Design of Machines and Mechanisms, Chapter 7: Materials and Processing Technologies of Materials in Mechanical Engineering, Chapter 8: Engineering Solutions in the Power Industry, Chapter 9: Engineering Management
An Adaptive Airgap Torque Observer for Induction Machine Drives Mar 21 2022

Linear Electric Machines, Drives, and MAGLEVs Handbook Jul 01 2020 Based on author Ion Boldea's 40 years of experience and the latest research, *Linear Electric Machines, Drives, and Maglevs Handbook* provides a practical and comprehensive resource on the steady improvement in this field. The book presents in-depth reviews of basic concepts and detailed explorations of complex subjects, including classifications and practical topologies, with sample results based on an up-to-date survey of the field. Packed with case studies, this state-of-the-art handbook covers topics such as modeling, steady state, and transients as well as control, design, and testing of linear machines and drives. It includes discussion of types and applications—from small compressors for refrigerators to MAGLEV transportation—of linear electric machines. Additional topics include low and high speed linear induction or synchronous motors, with and without PMs, with progressive or oscillatory linear motion, from topologies through modeling, design, dynamics, and control. With a breadth and depth of coverage not found in currently available references, this book includes formulas and methods that make it an authoritative and comprehensive resource for use in R&D and testing of innovative solutions to new industrial challenges in linear electric motion/energy automatic control.

The Industrial Electronics Handbook - Five Volume Set Apr 29 2020 Industrial electronics systems govern so many different functions that vary in complexity—from the operation of relatively simple applications, such as electric motors, to that of more complicated machines and systems, including robots and entire fabrication processes. The *Industrial Electronics Handbook, Second Edition* combines traditional and new

Advanced Direct Thrust Force Control of Linear Permanent Magnet Synchronous Motor Oct 28 2022 This book explores the direct thrust force control (DTFC) of tubular surface-mount linear permanent magnet synchronous motors (linear PMSMs). It presents a detailed account and analysis of several advanced nonlinear control schemes, based on the direct thrust control principle, to achieve a reduction in steady-state ripple in thrust force with faster transient response, and describes their experimental validation. It also provides rigorous details of the dynamic modelling of linear PMSMs from a control system perspective, and demonstrates the superior control performance of the proposed techniques compared to the current state-of-the-art techniques. Lastly, the book proposes and validates a stator flux observer for sensorless speed estimation comprising a linear state observer and an improved sliding mode component.

Sliding Mode Control in Electro-Mechanical Systems Jan 19 2022 Apply Sliding Mode Theory to Solve Control Problems Interest in SMC has grown rapidly since the first edition of this book was published. This second edition includes new results that have been achieved in SMC throughout the past decade relating to both control design methodology and applications. In that time, Sliding Mode Control (SMC) has continued to gain increasing importance as a universal design tool for the robust control of linear and nonlinear electro-mechanical systems. Its strengths result from its simple, flexible, and highly cost-effective approach to design and implementation. Most importantly, SMC promotes inherent order reduction and allows for the direct incorporation of robustness against system uncertainties and disturbances. These qualities lead to dramatic improvements in stability and help enable the design of high-performance control systems at low cost. Written by three of the most respected experts in the field, including one of its originators, this updated edition of *Sliding Mode Control in Electro-Mechanical Systems* reflects developments in the field over the past decade. It builds on the solid fundamentals presented in the first edition to promote a deeper understanding of the conventional SMC methodology, and it examines new design principles in order to broaden the application potential of SMC. SMC is particularly useful for the design of

electromechanical systems because of its discontinuous structure. In fact, where the hardware of many electromechanical systems (such as electric motors) prescribes discontinuous inputs, SMC becomes the natural choice for direct implementation. This book provides a unique combination of theory, implementation issues, and examples of real-life applications reflective of the authors' own industry-leading work in the development of robotics, automobiles, and other technological breakthroughs.

Control in Power Electronics Nov 05 2020 Control in Power Electronics explores all aspects of the study and use of electronic integrated circuits for the control and conversion of electrical energy. This technology is a critical part of our energy infrastructure, and supports almost all important electrical applications and devices. Improvements in devices and advances in control concepts have led to steady improvements in power electronic applications. This is driving a tremendous expansion of their applications. Control in Power Electronics brings together a team of leading experts as contributors. This is the first book to thoroughly combine control methods and techniques for power electronic systems. The development of new semiconductor power components, new topologies of converters from one side coupled with advances in modern control theory and digital signal processors has made this book possible and presents the applications necessary for modern design engineers. The authors were originally brought together to share research and applications through the international Danfoss Professor Programme at Aalborg University in Denmark. Personal computers would be unwieldy and inefficient without power electronic dc supplies. Portable communication devices and computers would also be impractical. High-performance lighting systems, motor controls, and a wide range of industrial controls depend on power electronics. In the near future we can expect strong growth in automotive applications, dc power supplies for communication systems, portable applications, and high-end converters. We are approaching a time when all electrical energy will be processed and controlled through power electronics somewhere in the path from generation to end use.

The Field Orientation Principle in Control of Induction Motors Jul 13 2021 The Field Orientation Principle was first formulated by Haase, in 1968, and Blaschke, in 1970. At that time, their ideas seemed impractical because of the insufficient means of implementation. However, in the early eighties, technological advances in static power converters and microprocessor-based control systems made the high-performance a. c. drive systems fully feasible. Since then, hundreds of papers dealing with various aspects of the Field Orientation Principle have appeared every year in the technical literature, and numerous commercial high-performance a. c. drives based on this principle have been developed. The term "vector control" is often used with regard to these systems. Today, it seems certain that almost all d. c. industrial drives will be ousted in the foreseeable future, to be, in major part, superseded by a. c. drive systems with vector controlled induction motors. This transition has already been taking place in industries of developed countries. Vector controlled a. c. drives have been proven capable of even better dynamic performance than d. c. drive systems, because of higher allowable speeds and shorter time constants of a. c. motors. It should be mentioned that the Field Orientation Principle can be used in control not only of induction (asynchronous) motors, but of all kinds of synchronous motors as well. Vector controlled drive systems with the so called brushless d. c. motors have found many applications in high performance drive systems, such as machine tools and industrial robots.

AETA 2016: Recent Advances in Electrical Engineering and Related Sciences Jan 07 2021 These lecture notes present selected topics concerning a wide range of electrical and electronics applications, highlighting innovative approaches and offering state-of-the-art overviews. The book is divided into 14 topical areas, including e.g. telecommunication, power systems, robotics, control systems, renewable energy, mechanical engineering, computer science and more. Readers will find revealing papers on the design and implementation of control algorithms for automobiles and electrohydraulic systems, efficient protocols for vehicular ad hoc networks and motor control, and energy-saving methods that can be applied in various fields of electrical engineering. The book offers a valuable resource for all practitioners who want to apply the topics discussed to solve real-world problems in their challenging applications. Offering insights into common and related subjects in the research fields of modern electrical, electronic and related technologies, it will also benefit all scientists and engineers working in the above-mentioned fields.

Official Gazette of the United States Patent and Trademark Office Nov 24 2019

Neural Networks and Soft Computing Dec 06 2020 This volume presents new trends and developments in soft computing techniques. Topics include: neural networks, fuzzy systems, evolutionary computation, knowledge discovery, rough sets, and hybrid methods. It also covers various applications of soft computing techniques in economics, mechanics, medicine, automatics and image processing. The book contains contributions from internationally recognized scientists, such as Zadeh, Bubnicki, Pawlak, Amari, Batyrshin, Hirota, Koczy, Kosinski, Novák, S.-Y. Lee, Pedrycz, Raudys, Setiono, Sincak, Strumillo, Takagi, Usui, Wilamowski and Zurada. An excellent overview of soft computing methods and their applications.

Proceedings of the First International Conference on Intelligent Computing and Communication Aug 14 2021 The book covers a wide range of topics in Computer Science and Information Technology including swarm intelligence, artificial intelligence, evolutionary algorithms, and bio-inspired algorithms. It is a collection of papers presented at the First International Conference on Intelligent Computing and Communication (ICIC2) 2016. The prime areas of the conference are Intelligent Computing, Intelligent Communication, Bio-informatics, Geo-informatics, Algorithm, Graphics and Image Processing, Graph Labeling, Web Security, Privacy and e-Commerce, Computational Geometry, Service Orient Architecture, and Data Engineering.

Nonlinear Control of Electric Machinery Dec 18 2021 This work presents nonlinear control algorithms for a benchmark mechanical system actuated by different types of electric machinery, emphasizing system stability and robustness - pivotal in the development of optimal position trajectory controllers for common motors.; College or university bookstores may order five or more copies at a special student price, available on request from Marcel Dekker.

Proceedings of the 3rd International Conference on Electrical and Information Technologies for Rail Transportation (EITRT) 2017 Mar 29 2020 The proceedings collect the latest research trends, methods and experimental results in the field of electrical and information technologies for rail transportation. The topics cover novel traction drive technologies of rail transportation, safety technology of rail transportation system, rail transportation information technology, rail transportation operational management technology, rail transportation cutting-edge theory and technology etc. The proceedings can be a valuable reference work for researchers and graduate students working in rail transportation, electrical engineering and information technologies.

Electrical Information and Mechatronics and Applications Aug 22 2019 These are the proceedings of the International Conference on Electrical Information and Mechatronics (ICEIM2011), held on the 23-25 December 2011 in Jiaozuo (China), which served as a platform for the exchange of related expertise. ICEIM 2011 drew together researchers from various disciplines, such as Sustainable Electrical Information and Mechatronics. The 177 papers are grouped into the chapters: Mechanical Power Engineering, Automatic and Mechanics Engineering, Optical Electrical Magnetic and Composite Materials, Mechatronic Systems Modeling and Identification, Mechatronics Engineering and Applications, Mechanical Design and Manufacturing Technology, Sensors and Detection, Fault Diagnosis and Signal Processing, Image Processing in Engineering Design, Computer-Aided Design and Simulation, and Systems Analysis and Decision. The work serves as a briefing on the current state-of-the-art of this important topic.

Electrical Actuators May 31 2020 This helpful resource covers a large range of information regarding electrical actuators. In particular, robustness, a very problematic issue, is fully explored in a dedicated chapter. The text also deals with the estimate of non-measurable mechanical variables by examining the estimate of load moment, then observation of the positioning of a command without mechanical sensor. Finally, it examines the conditions needed to measure variables and real implementation of numerical algorithms. This is a key working resource for electrical engineers.

Application of Closed Loop Non-linear Observers for Position Detection on Induction Motors Using the Induced Spatial Harmonic Emf in the Machine Voltages and Currents Oct 04 2020

Nonlinear Observers and Applications Apr 10 2021 The purpose of this fantastically useful book is to lay out an overview on possible tools for state reconstruction in nonlinear systems. Here, basic observability notions and observer structures are recalled, together with ingredients for advanced designs on this basis. The problem of state reconstruction in dynamical systems, known as observer problem, is crucial for controlling or even merely monitoring processes. For linear systems, the theory has been well established for several years, so this book attempts to tackle the

problem for non-linear systems.

Memoirs of the Faculty of Engineering, Osaka City University May 11 2021

Passivity-based Control of Euler-Lagrange Systems Aug 02 2020 The essence of this work is the control of electromechanical systems, such as manipulators, electric machines, and power converters. The common thread that links together the results presented here is the passivity property, which is at present in numerous electrical and mechanical systems, and which has great relevance in control engineering at this time. Amongst other topics, the authors cover: Euler-Lagrange Systems, Mechanical Systems, Generalised AC Motors, Induction Motor Control, Robots with AC Drives, and Perspectives and Open Problems. The authors have extensive experience of research and application in the field of control of electromechanical systems, which they have summarised here in this self-contained volume. While written in a strictly mathematical way, it is also elementary, and will be accessible to a wide-ranging audience, including graduate students as well as practitioners and researchers in this field.

IECON '94, 20th International Conference on Industrial Electronics, Control, and Instrumentation: Special sessions. Signal processing and control Jan 27 2020

The Electric Generators Handbook - 2 Volume Set Jun 12 2021 The modern world hungers for electricity. Traditionally, this hunger was sated with predominantly constant-speed-regulated, synchronous generators. However, new demands require the stable, quick, and efficient delivery and control offered by variable-speed generators. Surveying all of the technologies used to satisfy the world's demand for o

The Observer's Guide to Astronomy: Volume 2 Jun 19 2019 An authoritative guide, first published in 1994, packed with practical tips for all types and levels of observations in amateur astronomy.

Electric Drives, Second Edition Feb 20 2022 Electric drives are everywhere, and with the looming promise of electric vehicles and renewable energy, they will become more complex and the demands on their capabilities will continue to increase. To keep up with these trends, students require hands-on knowledge and a keen understanding of the subtleties involved in the operation of modern electric drives. The best-selling first edition of *Electric Drives* provided such an understanding, and this Second Edition offers the same approach with up-to-date coverage of all major types of electric drives, both constant and variable speed. This book provides a self-contained treatment of low-, medium-, and large-power drives illustrated by numerous application examples, problems, digital simulation results, and test results for both steady state and dynamic operation. This edition features updated material in every chapter, including references; new material on AC brush series motors, capacitor-split inductor motors, single-phase PMSMs and switched reluctance motors, and tooth-wound PMSMs, all with numerical examples; new case studies on AC synchronous and induction motors; and a new chapter on control of electric generators. The companion CD-ROM features the full text, class slides for instructors, and MATLAB® simulations of 10 closed-loop drives, two of which are new to this edition. With a practical, hands-on approach, *Electric Drives, Second Edition* is the ideal textbook to help students design, simulate, build, and test modern electric drives, from simple to complex.

AC Motor Control and Electrical Vehicle Applications Nov 17 2021 AC Motor Control and Electrical Vehicle Applications provides a guide to the control of AC motors with a focus on its application to electric vehicles (EV). It describes the rotating magnetic flux, based on which dynamic equations are derived. The text not only deals with the induction motor, but covers the permanent magnet synchronous motors (PMSM). Additionally, the control issues are discussed by taking into account the limitations of voltage and current. The latest edition includes more experimental data and expands upon the topics of inverter, pulse width modulation methods, loss minimizing control, and vehicle dynamics. Various EV motor design issues are also reviewed, while comparing typical types of PMSMs. Features Considers complete dynamic modeling of induction and PMSM in the rotating frame. Provides various field-oriented controls, while covering advanced topics in PMSM high speed control, loss minimizing control, and sensorless control. Covers inverter, sensors, vehicle dynamics, driving cycles, etc., not just motor control itself. Offers a comparison between BLDC, surface PMSM, and interior PMSM. Discusses how the motor produces torque and is controlled based on consistent mathematical treatments.

Model Predictive Control of High Power Converters and Industrial Drives Sep 22 2019 In this original book on model predictive control (MPC) for power electronics, the focus is put on high-power applications with multilevel converters operating at switching frequencies well below 1 kHz, such as medium-voltage drives and modular multi-level converters. Consisting of two main parts, the first offers a detailed review of three-phase power electronics, electrical machines, carrier-based pulse width modulation, optimized pulse patterns, state-of-the art converter control methods and the principle of MPC. The second part is an in-depth treatment of MPC methods that fully exploit the performance potential of high-power converters. These control methods combine the fast control responses of deadbeat control with the optimal steady-state performance of optimized pulse patterns by resolving the antagonism between the two. MPC is expected to evolve into the control method of choice for power electronic systems operating at low pulse numbers with multiple coupled variables and tight operating constraints it. *Model Predictive Control of High Power Converters and Industrial Drives* will enable to reader to learn how to increase the power capability of the converter, lower the current distortions, reduce the filter size, achieve very fast transient responses and ensure the reliable operation within safe operating area constraints. Targeted at power electronic practitioners working on control-related aspects as well as control engineers, the material is intuitively accessible, and the mathematical formulations are augmented by illustrations, simple examples and a book companion website featuring animations. Readers benefit from a concise and comprehensive treatment of MPC for industrial power electronics, enabling them to understand, implement and advance the field of high-performance MPC schemes.

Vector Control of Induction Machines Oct 24 2019 After a brief introduction to the main law of physics and fundamental concepts inherent in electromechanical conversion, *Vector Control of Induction Machines* introduces the standard mathematical models for induction machines - whichever rotor technology is used - as well as several squirrel-cage induction machine vector-control strategies. The use of causal ordering graphs allows systematization of the design stage, as well as standardization of the structure of control devices. *Vector Control of Induction Machines* suggests a unique approach aimed at reducing parameter sensitivity for vector controls based on a theoretical analysis of this sensitivity. This analysis naturally leads to the introduction of control strategies that are based on the combination of different controls with different robustness properties, through the use of fuzzy logic supervisors. Numerous applications and experiments confirm the validity of this simple solution, which is both reproducible and applicable to other complex systems. *Vector Control of Induction Machines* is written for researchers and postgraduate students in electrical engineering and motor drive design.

Sensorless Vector and Direct Torque Control Feb 08 2021 In recent years, vector-controlled a.c. drives have taken over from more conventional d.c. drives. Vas examines the sensorless vector-controlled drives and direct torque-controlled drives, and looks at their applications.

Electric Drives May 23 2022 *Electric Drives* provides a practical understanding of the subtleties involved in the operation of modern electric drives. The Third Edition of this bestselling textbook has been fully updated and greatly expanded to incorporate the latest technologies used to save energy and increase productivity, stability, and reliability. Every phrase, equation, number, and reference in the text has been revisited, with the necessary changes made throughout. In addition, new references to key research and development activities have been included to accurately reflect the current state of the art. Nearly 120 new pages covering recent advances, such as those made in the sensorless control of A.C. motor drives, have been added; as have two new chapters on advanced scalar control and multiphase electric machine drives. All solved numerical examples have been retained, and the 10 MATLAB®-Simulink® programs remain online. Thus, *Electric Drives, Third Edition* offers an up-to-date synthesis of the basic and advanced control of electric drives, with ample material for a two-semester course at the university level.

Intelligent Engineering Informatics Jul 21 2019 This book presents the proceedings of the 6th International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA 2017), held in Bhubaneswar, Odisha. The event brought together researchers, scientists, engineers, and practitioners to exchange their new ideas and experiences in the domain of intelligent computing theories with prospective applications to various engineering disciplines. The book is divided into two volumes: Information and Decision Sciences, and Intelligent Engineering Informatics. This volume covers broad areas of Intelligent Engineering Informatics, with papers exploring both the theoretical and practical aspects of various areas like ANN and genetic algorithms, human-computer interaction, intelligent control optimisation, intelligent e-learning systems,

machine learning, mobile computing, multi-agent systems, etc. The book also offers a valuable resource for students at the post-graduate level in various engineering disciplines.

Variable Speed AC Drives with Inverter Output Filters Apr 22 2022 The advance of variable speed drives systems (VSDs) engineering highlights the need of specific technical guidance provision by electrical machines and drives manufacturers, so that such applications can be properly designed to present advantages in terms of both energy efficiency and expenditure. This book presents problems and solutions related to inverter-fed electrical motors. Practically orientated, the book describes the reasons, theory and analysis of those problems. Various solutions for individual problems are presented together with the complete design process, modelling and simulation examples with MATLAB/Simulink on the companion website. A key focus of Variable Speed AC Drives with Inverter Output Filters is to examine the state variables estimation and motor control structures which have to be modified according to the used solution (filter). In most control systems the structure and parameters are taken into account to make it possible for precise control of the motor. This methodology is able to include modifications and extensions depending on specific control and estimation structures. Highly accessible, this is an invaluable resource for practising R&D engineers in drive companies, power electronics & control engineers and manufacturers of electrical drives. Senior undergraduate and postgraduate students in electronics and control engineering will also find it of value.

Measuring Technology and Mechatronics Automation IV Oct 16 2021 Volume is indexed by Thomson Reuters CPCI-S (WoS). This two-volume set contains 317 peer-reviewed papers from the Fourth International Conference on Measuring Technology and Mechatronics Automation (ICMTMA). The latter aimed to provide a high-level international forum where scientists, engineers and educators could present the state-of-the-art of measurement technology and mechatronics automation research and their applications in diverse fields.

Practical Control of Electric Machines Jun 24 2022 This book presents deep analysis of machine control for different applications, focusing on its implementation in embedded systems. Necessary peripherals for various microcontroller families are analysed for machine control and software architecture patterns for high-quality software development processes in motor control units are described. Abundant figures help the reader to understand the theoretical, simulation and practical implementation stages of machine control. Model-based design, used as a mathematical and visual approach to construction of complex control algorithms, code generation that eliminates hand-coding errors, and co-simulation tools such as Simulink, PSIM and finite element analysis are discussed. The simulation and verification tools refine, and retest the models without having to resort to prototype construction. The book shows how a voltage source inverter can be designed with tricks, protection elements, and space vector modulation. Practical Control of Electric Machines: Model-Based Design and Simulation is based on the author's experience of a wide variety of systems in domestic, automotive and industrial environments, and most examples have implemented and verified controls. The text is ideal for readers looking for an insight into how electric machines play an important role in most real-life applications of control. Practitioners and students preparing for a career in control design applied in electric machines will benefit from the book's easily understood theoretical approach to complex machine control. The book contains mathematics appropriate to various levels of experience, from the student to the academic and the experienced professional. Advances in Industrial Control reports and encourages the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.

European Control Conference 1993 Jul 25 2022 Proceedings of the European Control Conference 1993, Groningen, Netherlands, June 28 - July 1, 1993

Power Electronics and Electric Drives for Traction Applications Sep 15 2021 Power Electronics and Electric Drives for Traction Applications offers a practical approach to understanding power electronics applications in transportation systems ranging from railways to electric vehicles and ships. It is an application-oriented book for the design and development of traction systems accompanied by a description of the core technology. The first four introductory chapters describe the common knowledge and background required to understand the preceding chapters. After that, each application-specific chapter: highlights the significant manufacturers involved; provides a historical account of the technological evolution experienced; distinguishes the physics and mechanics; and where possible, analyses a real life example and provides the necessary models and simulation tools, block diagrams and simulation based validations. Key features: Surveys power electronics state-of-the-art in all aspects of traction applications. Presents vital design and development knowledge that is extremely important for the professional community in an original, simple, clear and complete manner. Offers design guidelines for power electronics traction systems in high-speed rail, ships, electric/hybrid vehicles, elevators and more applications. Application-specific chapters co-authored by traction industry expert. Learning supplemented by tutorial sections, case studies and MATLAB/Simulink-based simulations with data from practical systems. A valuable reference for application engineers in traction industry responsible for design and development of products as well as traction industry researchers, developers and graduate students on power electronics and motor drives needing a reference to the application examples.

Electrical Engineering in Japan Dec 26 2019

Development of Adaptive Speed Observers for Induction Machine System Stabilization Aug 26 2022 This book describes the development of an adaptive state observer using a mathematical model to achieve high performance for sensorless induction motor drives. This involves first deriving an expression for a modified gain rotor flux observer with a parameter adaptive scheme to estimate the motor speed accurately and improve the stability and performance of sensorless vector-controlled induction motor drives. This scheme is then applied to the controls of a photovoltaic-motor water-pumping system, which results in improved dynamic performance under different operating conditions. The book also presents a robust speed controller design for a sensorless vector-controlled induction motor drive system based on H_∞ theory, which overcomes the problems of the classical controller.

Manufacturing Science and Technology, ICMST2011 Mar 09 2021 Volume is indexed by Thomson Reuters CPCI-S (WoS). The objective of ICMST 2011 was to provide a platform where researchers, engineers, academics and industrial professionals from all over the world could present their research results and discuss developments in Manufacturing Science and Technology. This conference provided opportunities for delegates to exchange new ideas and applications face-to-face, to establish business or research contacts and to find global partners for future collaboration.

Proceedings IECON. Feb 26 2020