

An Improved Flux Observer For Sensorless Permanent Magnet

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2022-01-18

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Advances in Control Techniques for Smart Grid Applications
Springer Nature

Proceedings of the 3rd International Conference on Electrical and Information Technologies for Rail Transportation (EITRT) 2017
Electrical Traction Springer

Power Electronics and Electric Drives for Traction Applications
CRC Press

The edited volume contains original papers contributed to 1st International Conference on Smart System, Innovations and Computing (SSIC 2017) by researchers from different countries. The contributions focuses on two main areas, i.e. Smart Systems Innovations which includes applications for smart cities, smart grid, social computing and privacy challenges with their theory, specification, design, performance, and system building. And second Computing of Complex Solutions which includes algorithms, security solutions, communication and networking approaches. The volume provides a snapshot of current progress in related areas and a glimpse of future possibilities. This volume is useful for researchers, Ph.D. students, and professionals working in the core areas of smart systems, innovations and computing.

Advances in Control Technologies for Brushless Doubly-fed Induction Generators Springer Nature

This proceedings volume gathers outstanding papers submitted to the 2016 SAE-China Congress, the majority of which are from China, the biggest car maker as well as most dynamic car market in the world. The book includes insights into the current challenges that the whole industry is currently facing, and it offers possible solutions to problems such as emission controls, environmental pollution, the energy shortage, traffic congestion and sustainable development. It also presents the latest technical achievements in the automotive industry. Many of the approaches it presents can help technicians to solve the practical problems that most affect their daily work.

Proceedings of ISSETA 2021 Springer Nature

On the basis of instrument electrical and automatic control system, the 5th International Conference on Electrical Engineering and Automatic Control (CEEAC) was established at the crossroads of information technology and control technology, and seeks to effectively apply information technology to a sweeping trend that views control as the core of intelligent manufacturing and life. This book takes a look forward into advanced manufacturing development, an area shaped by intelligent manufacturing. It highlights the application and promotion of process control represented by traditional industries, such as the steel industry and petrochemical industry; the technical equipment and system cooperative control represented by robot technology and multi-axis CNC; and the control and support of emerging process technologies represented by laser melting and stacking, as well as the emerging industry represented by sustainable and intelligent life. The book places particular emphasis on the micro-segments field, such as intelligent micro-grids, new energy vehicles, and the Internet of Things.

Proceedings of the 4th International Conference on Electrical and Information Technologies for Rail Transportation (EITRT) 2019
Springer

The current literature on dynamic systems is quite comprehensive, and system theory's mathematical jargon can remain quite complicated. Thus, there is a need for a compendium of accessible research that involves the broad range of fields that dynamic systems can cover, including engineering, life sciences, and the environment, and which can connect researchers in these fields. The Handbook of Research on Modeling, Analysis, and Control of Complex Systems is a comprehensive reference book that describes the recent developments in a wide range of areas including the modeling, analysis, and control of dynamic systems, as well as explores related applications. The book acts as a forum for researchers seeking to understand the latest theory findings and software problem experiments. Covering topics that include chaotic maps, predictive modeling, random bit generation, and software bug prediction, this book is ideal for professionals, academicians, researchers, and students in the fields of electrical engineering, computer science, control engineering, robotics, power systems, and biomedical engineering.

IGI Global

As future generation electrical, information engineering and

mechatronics become specialized and fragmented, it is easy to lose sight of the fact that many topics in these areas have common threads and, because of this, advances in one discipline may be transmitted to others. The 2011 International Conference on Electrical, Information Engineering and Mechatronics (EIEM 2011) is the first conference that attempts to follow the above idea of hybridization in electrical, information engineering, mechatronics and applications. This Proceedings of the 2011 International Conference on Electrical, Information Engineering and Mechatronics provides a forum for engineers and scientists to address the most innovative research and development including technical challenges and social, legal, political, and economic issues, and to present and discuss their ideas, results, works in progress and experience on all aspects of electrical, information engineering, mechatronics and applications. Engineers and scientists in academia, industry, and government will find a insights into the solutions that combine ideas from multiple disciplines in order to achieve something more significant than the sum of the individual parts in all aspects of electrical, information engineering, mechatronics and applications.

Proceedings of SAE-China Congress 2016: Selected Papers
CRC Press

Like most industries around the world, the energy industry has also made, and continues to make, a long march toward "green" energy. The science has come a long way since the 1970s, and renewable energy and other green technologies are becoming more and more common, replacing fossil fuels. It is, however, still a struggle, both in terms of energy sources keeping up with demand, and the development of useful technologies in this area. To maintain the supply for electrical energy, researchers, engineers and other professionals in industry are continuously exploring new eco-friendly energy technologies and power electronics, such as solar, wind, tidal, wave, bioenergy, and fuel cells. These technologies have changed the concepts of thermal, hydro and nuclear energy resources by the adaption of power electronics advancement and revolutionary development in lower manufacturing cost for semiconductors with long time reliability. The latest developments in renewable resources have proved their potential to boost the economy of any country. Green energy technology has not only proved the concept of clean energy but also reduces the dependencies on fossil fuel for electricity generation through smart power electronics integration. Also, endless resources have more potential to cope with the requirements of smart building and smart city concepts. A valuable reference for engineers, scientists, chemists, and students, this volume is applicable to many different fields, across many different industries, at all levels. It is a must-have for any library.

Selected Problems MDPI

This book reflects the latest research trends, methods and experimental results in the field of electrical and information technologies for rail transportation, which covers abundant state-of-the-art research theories and ideas. As a vital field of research that is highly relevant to current developments in a number of technological domains, the subjects it covered include intelligent computing, information processing, Communication Technology, Automatic Control, etc. The objective of the proceedings is to provide a major interdisciplinary forum for researchers, engineers, academicians as well as industrial professionals to present the most innovative research and development in the field of rail transportation electrical and information technologies. Engineers and researchers in academia, industry, and the government will also explore an insight view of the solutions that combine ideas from multiple disciplines in this field. The volumes serve as an excellent reference work for researchers and graduate students working on rail transportation, electrical and information technologies.

The Industrial Electronics Handbook - Five Volume Set Springer

Presenting current issues in electric motor design, installation, application, and performance, this second edition serves as the most authoritative and reliable guide to electric motor utilization and assessment in the commercial and industrial sectors.

Covering topics ranging from motor energy and efficiency to computer-aided design and equipment selection, this reference assists professionals in all aspects of electric motor maintenance, repair, and optimization. It has been expanded by more than 40 percent to explore the most influential technologies in the field including electronic controls, superconducting generators, recent analytical tools, new computing capabilities, and special purpose motors.

Control in Power Electronics Elsevier

New perspectives on using induction generators in alternative

energy technologies Durable and cost-effective, induction power generators have undergone numerous improvements that make them an increasingly attractive option for renewable energy applications, particularly for wind and hydropower generation systems. From fundamental concepts to the latest technologies, *Alternative Energy Systems: Design and Analysis with Induction Generators*, Second Edition provides detailed and accurate coverage of all aspects related to the design, operation, and overall analysis of such systems. Placing a greater emphasis on providing clear, precise, and succinct explanations, this second edition features new, revised, and updated content as well as figures, tables, equations, and examples. Each chapter introduces a multi-step, chapter-length problem relating the material to a real application. The solution appears at the end of the chapter, along with additional practice problems and references. **New Material in This Edition:** Updated definitions for generated power and efficiency Technological advances, such as new applications using doubly-fed induction generators New methodologies, such as the magnetization curve representation for induction generators Additional focus on renewable energy applications such as sea, wind, and hydropower systems Totally re-written and updated chapter covering doubly-fed induction generators *Alternative Energy Systems* provides the tools and expertise for advanced students and professionals in electrical, mechanical, civil, and environmental engineering involved in the development of power plants. ";

Advanced Linear Machines and Drive Systems Trans Tech Publications Ltd

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 most up-to-date information available is presented in the text Written by a world renowned leader in the field

Novel Traction Drive Technologies of Rail Transportation Springer Now in its Third Edition, *Alternative Energy Systems: Design and Analysis with Induction Generators* has been renamed *Modeling and Analysis with Induction Generators* to convey the book's primary objective—to present the fundamentals of and latest advances in the modeling and analysis of induction generators. New to the Third Edition Revised equations and mathematical modeling Addition of solved problems as well as suggested problems at the end of each chapter New modeling and simulation cases Mathematical modeling of the Magnus turbine to be used with induction generators Detailed comparison between the induction generators and their competitors *Modeling and Analysis with Induction Generators*, Third Edition aids in understanding the process of self-excitation, numerical analysis of stand-alone and multiple induction generators, requirements for optimized laboratory experimentation, application of modern vector control, optimization of power transference, use of doubly fed induction generators, computer-based simulations, and social and economic impacts.

Solar Energy, Photovoltaics, and Smart Cities Springer Nature 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.

The Integration of State Estimation, Control, and Design for Induction Machines CRC Press

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.

Permanent Magnet Synchronous Machines Springer Nature
Intelligent engineering systems try to replicate fundamental abilities of humans and nature in order to achieve sufficient progress in solving complex problems. In an ideal case multi-disciplinary applications of different modern engineering fields can result in synergistic effects. Information technology and computer modeling are the underlying tools that play a major role at any stages of developing intelligent systems. Chapters in the present volume have been written by eminent scientists from different parts of the world, dealing with challenging problems for efficient modeling of intelligent systems. The reader can find different characteristics and methodologies of computational intelligence with real life applications. Various facets of intelligent engineering and information technology are addressed. Starting with theoretical issues from pseudo-analysis to parametric classes of digital fuzzy conjunctions for hardware implementation of fuzzy systems, diverse aspects of control including quantum as well as fuzzy control and hybrid approaches, intelligent robotics dealing with mobile and autonomous robots and new trends, approaches and results on information technology, machines, materials and manufacturing, and issues of intelligent systems and complex processes are covered.

High Performance Drives Test Bed Development Springer
Proceedings of the European Control Conference 1991, July 2-5, 1991, Grenoble, France

Advanced Control Systems for Electric Drives CRC Press
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.

Proceedings of the 2011 International Conference on Electrical, Information Engineering and Mechatronics (EIEM 2011) Springer

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.

Volume II John Wiley & Sons

This book provides extensive information about advanced control techniques in electric drives. Multiple control and estimation methods are studied for position and speed tracking in different drives. Artificial intelligence tools, such as fuzzy logic and neural networks, are used for specific applications using electric drives. *Proceedings of the Power Conversion Conference* Proceedings of the 3rd International Conference on Electrical and Information Technologies for Rail Transportation (EITRT) 2017 Electrical Traction

The Industrial Electronics Handbook, Second Edition combines traditional and newer, more specialized knowledge that will help industrial electronics engineers develop practical solutions for the design and implementation of high-power applications. Embracing the broad technological scope of the field, this collection explores fundamental areas, including analog and digital circuits, electronics, electromagnetic machines, signal processing, and industrial control and communications systems. It also facilitates the use of intelligent systems—such as neural networks, fuzzy systems, and evolutionary methods—in terms of a hierarchical structure that makes factory control and supervision more efficient by addressing the needs of all production components. Enhancing its value, this fully updated collection presents research and global trends as published in the IEEE Transactions on Industrial Electronics Journal, one of the largest and most respected publications in the field. Control and Mechatronics presents concepts of control theory in a way that makes them easily understandable and practically useful for engineers or students working with control system applications. Focusing more on practical applications than on mathematics, this book avoids typical theorems and proofs and instead uses plain language and useful examples to: Concentrate on control system analysis and design, comparing various techniques Cover estimation, observation, and identification of the objects to be controlled—to ensure accurate system models before production Explore the various aspects of robotics and mechatronics Other volumes in the set: Fundamentals of Industrial Electronics Power Electronics and Motor Drives Industrial Communication Systems Intelligent Systems