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Modeling, Simulation and Optimization - Biplab Das 2021-03-17
This book includes selected peer-reviewed papers presented at the International Conference on Modeling, Simulation and Optimization, organized by National Institute of Technology, Silchar, Assam, India, during 3–5 August 2020. The book covers topics of modeling, simulation and optimization, including computational modeling and simulation, system modeling and simulation, device/VLSI modeling and simulation, control theory and applications, modeling and simulation of energy system and optimization. The book disseminates various models of diverse systems and includes solutions of emerging challenges of diverse scientific fields.

Energy Storage Systems and Power Conversion Electronics for E-Transportation and Smart Grid - Sergio Saponara 2020-12-02
This is a reprint in book form of the Energies MDPI Journal Special Issue , entitled "Energy Storage Systems and Power Conversion Electronics for E-Transportation and Smart Grid". The Special Issue was managed by two Guest Editors from Italy and Norway: Professor Sergio Saponara from the University of Pisa and Professor Lucian MIHET-POPA from Østfold University College, in close cooperation with the Editors from Energies. The papers published in this SI are related to the emerging trends in energy storage and power conversion electronic circuits and systems, with a specific focus on transportation electrification, and on the evolution from the electric grid to a smart grid. An extensive exploitation of renewable energy sources is foreseen for the smart grid, as well as a close integration with the energy storage and recharging systems of the electrified transportation era. Innovations at the levels of both algorithmic and hardware (i.e., power converters, electric drives, electronic control units (ECU), energy storage modules and charging stations) are proposed. Research and technology transfer activities in energy storage systems, such as batteries and super/ultra-capacitors, are essential for the success of electric transportation, and to foster the use of renewable energy sources. Energy storage systems are the key technology to solve these issues, and to increase the adoption of renewable energy sources in the smart grid.

Alternative Energy in Power Electronics - Muhammad H. Rashid 2014-10-28
This new resource is a practical overview of designing, testing and troubleshooting power electronics in alternative energy systems, providing you with the most important information on how power electronics components such as inverters, controllers and batteries can play a pivotal role in the successful implementation of green energy solutions for both stand-alone and grid-connected applications. You will learn how to choose the right components for diverse systems, from utility-scale wind farms to photovoltaic panels on single residences, how to get the most out of existing systems, and how to solve the tough challenges particular to alternative energy applications. Whether you are a renewables professional who needs to understand more about how power electronics impact energy output, or a power engineer who is interested in learning what new avenues the alternative energy revolution is opening for your work, start here with advice and explanations from the experts, including equations, diagrams and tables designed to help you understand and succeed. Provides a thorough overview of the key technologies, methods and challenges for implementing power electronics in alternative energy systems for optimal power generation Includes hard-to-find information on how to apply converters, inverters, batteries, controllers and more for stand-alone and grid-connected systems Covers wind and solar applications, as well as ocean and geothermal energy, hybrid systems and fuel cells

Artificial Neural Networks – ICANN 2009 - Cesare Alippi 2009-10-01
This volume is part of the two-volume proceedings of the 19th International Conf- ence on Artificial Neural Networks (ICANN 2009), which was held in Cyprus during September 14–17, 2009. The ICANN conference is an annual meeting sp- sored by the European Neural Network Society (ENNS), in cooperation with the - ternational Neural Network Society (INNS) and the Japanese Neural Network Society (JNNS). ICANN 2009 was technically sponsored by the IEEE Computational Intel- gence Society. This series of conferences has been held annually since 1991 in various European countries and covers the field of neurocomputing, learning systems and related areas. Artificial neural networks provide an information-processing structure inspired by biological nervous systems. They consist of a large number of highly interconnected processing elements, with the capability of learning by example. The field of artificial neural networks has evolved significantly in the last two decades, with active partici- tion from diverse fields, such as engineering, computer science, mathematics, artificial intelligence, system theory, biology, operations research, and neuroscience. Artificial neural networks have been widely applied for pattern recognition, control, optimization, image processing, classification, signal processing, etc.

Intelligent Engineering Informatics - Vikrant Bhateja 2018-04-10
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.

Optimization of Photovoltaic Power Systems - Djamila Rekioua 2012-01-03
Photovoltaic generation is one of the cleanest forms of energy conversion available. One of the advantages offered by solar energy is its potential to provide sustainable electricity in areas not served by the conventional power grid. Optimisation of Photovoltaic Power Systems details explicit modelling, control and optimisation of the most popular stand-alone applications such as pumping, power supply, and desalination. Each section is concluded by an example using the MATLAB® and Simulink® packages to help the reader understand and evaluate the performance of different photovoltaic systems. Optimisation of Photovoltaic Power Systems provides engineers, graduate and postgraduate students with the means to understand, assess and develop their own photovoltaic systems. As such, it is an essential tool for all those wishing to specialise in stand-alone photovoltaic systems. Optimisation of Photovoltaic Power Systems aims to enable all researchers in the field of electrical engineering to thoroughly understand the concepts of photovoltaic systems; find solutions to their problems; and choose the appropriate mathematical model for optimising photovoltaic energy.

Intelligent Computing Systems - Anabel Martin-Gonzalez 2016-03-05
This book contains the reviewed, accepted contributions of the First International Symposium on Intelligent Computing Systems (ISICS) that was held in Merida (Mexico) from 16-18 March 2016. We received 25 submissions from 13 countries. Each submission had been evaluated by at least three members of the Program Committee and external reviewers. Based on these reviews, 12 papers were selected for long oral presentation. In addition to the contributed papers, four keynote speaker presentations were included in the conference program.
ITJEMAST 10(15) 2019 -

International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies publishes a wide spectrum of research and technical articles as well as reviews, experiments, experiences, modelings, simulations, designs, and innovations from engineering, sciences, life sciences, and related disciplines as well as interdisciplinary/cross-disciplinary/multidisciplinary subjects. Original work is required. Article submitted must not be under consideration of other publishers for publications.

Innovation in Information Systems and Technologies to Support Learning Research - Mohammed Serrhini 2019-11-30
This book provides glimpses into contemporary research in information systems & technology, learning, artificial intelligence (AI), machine learning, and security and how it applies to the real world, but the ideas presented also span the domains of telehealth, computer vision, the role and use of mobile devices, brain–computer interfaces, virtual reality, language and image processing and big data analytics and applications. Great research arises from asking pertinent research questions. This book reveals some of the authors' "beautiful questions" and how they develop the subsequent "what if" and "how" questions, offering readers food for thought and whetting their appetite for further research by the same authors.

Smart Technologies for Energy, Environment and Sustainable Development - Mohan Lal Kolhe 2019-07-02
This book comprises select proceedings of the International Conference on Smart Technologies for Energy, Environment, and Sustainable Development (ICSTEESD 2018). The chapters are broadly divided into three focus areas, viz. energy, environment, and sustainable development, and discusses the relevance and applications of smart technologies in these fields. A wide variety of topics such as renewable energy, energy conservation and management, energy policy and planning, environmental management, marine environment, green building, smart cities, smart transportation are covered in this book. Researchers and professionals from varied engineering backgrounds contribute chapters with an aim to provide economically viable solutions to sustainable development challenges. The book will prove useful for academics, professionals, and policy makers interested in sustainable development.

Energy Harvesting - Alireza Khaligh 2017-12-19
Also called energy scavenging, energy harvesting captures, stores, and uses "clean" energy sources by employing interfaces, storage devices, and other units. Unlike conventional electric power generation systems, renewable energy harvesting does not use fossil fuels and the generation units can be decentralized, thereby significantly reducing transmission and distribution losses. But advanced technical methods must be developed to increase the efficiency of devices in harvesting energy from environmentally friendly, "green" resources and converting them into electrical energy. Recognizing this need, Energy Harvesting: Solar, Wind, and Ocean Energy Conversion Systems describes various energy harvesting technologies, different topologies, and many types of power electronic interfaces for stand-alone utilization or grid connection of energy harvesting applications. Along with providing all the necessary concepts and theoretical background, the authors develop simulation models throughout the text to build a practical understanding of system analysis and modeling. With a focus on solar energy, the first chapter discusses the I−V characteristics of photovoltaic (PV) systems, PV models and equivalent circuits, sun tracking systems, maximum power point tracking systems, shading effects, and power electronic interfaces for grid-connected and stand-alone PV systems. It also presents sizing criteria for applications and modern solar energy applications, including residential, vehicular, naval, and space applications. The next chapter reviews different types of wind turbines and electrical machines as well as various power electronic interfaces. After explaining the energy generation technologies, optimal operation principles, and possible utilization techniques of ocean tidal energy harvesting, the book explores near- and offshore approaches for harvesting the kinetic and potential energy of ocean waves. It also describes the required absorber, turbine, and generator types, along with the power electronic interfaces for grid connection and commercialized ocean wave energy conversion applications. The final chapter deals with closed, open, and hybrid-cycle ocean thermal energy conversion systems.

Introduction to AI Techniques for Renewable Energy System - Suman Lata Tripathi 2021-11-24
Introduction to AI techniques for Renewable Energy System Artificial Intelligence (AI) techniques play an essential role in modeling, analysis, and prediction of the performance and control of renewable energy. The algorithms used to model, control, or predict performances of the energy systems are complicated, involving differential equations, enormous computing power, and time requirements. Instead of complex rules and mathematical routines, AI techniques can learn critical information patterns within a multidimensional information domain. Design, control, and operation of renewable energy systems require a long-term series of meteorological data such as solar radiation, temperature, or wind data. Such long-term measurements are often non-existent for most of the interest locations or, wherever they are available, they suffer from several shortcomings, like inferior quality of data, and in-sufficient long series. The book focuses on AI techniques to overcome these problems. It summarizes commonly used AI methodologies in renewal energy, with a particular emphasis on neural networks, fuzzy logic, and genetic algorithms. It outlines selected AI applications for renewable energy. In particular, it discusses methods using the AI approach for prediction and modeling of solar radiation, seizing, performances, and controls of the solar photovoltaic (PV) systems. Features Focuses on a significant area of concern to develop a foundation for the implementation of renewable energy system with intelligent techniques Showcases how researchers working on renewable energy systems can correlate their work with intelligent and machine learning approaches Highlights international standards for intelligent renewable energy systems design, reliability, and maintenance Provides insights on solar cell, biofuels, wind, and other renewable energy systems design and characterization, including the equipment for smart energy systems This book, which includes real-life examples, is aimed at undergraduate and graduate students and academicians studying AI techniques used in renewal energy systems.

AI and Machine Learning Paradigms for Health Monitoring System - Hasmat Malik 2021-02-14
This book embodies principles and applications of advanced soft computing approaches in engineering, healthcare and allied domains directed toward the researchers aspiring to learn and apply intelligent data analytics techniques. The first part covers AI, machine learning and data analytics tools and techniques and their applications to the class of several hospital and health real-life problems. In the later part, the applications of AI, ML and data analytics shall be covered over the wide variety of applications in hospital, health, engineering and/or applied sciences such as the clinical services, medical image analysis, management support, quality analysis, bioinformatics, device analysis and operations. The book presents knowledge of experts in the form of chapters with the objective to introduce the theme of intelligent data analytics and discusses associated theoretical applications. At last, it presents simulation codes for the problems included in the book for better understanding for beginners.

Advances in Soft Computing - Félix Castro 2018-12-31
The two-volume set LNAI 10632 and 10633 constitutes the proceedings of the 16th Mexican International Conference on Artificial Intelligence, MICAI 2017, held in Enseneda, Mexico, in October 2017. The total of 60 papers presented in these two volumes was carefully reviewed and selected from 203 submissions. The contributions were organized in the following topical sections: Part I: neural networks; evolutionary algorithms and optimization; hybrid intelligent systems and fuzzy logic; and machine learning and data mining. Part II: natural language processing and social networks; intelligent tutoring systems and educational applications; and image processing and pattern recognition.

Advances in Communication, Devices and Networking - Rabindranath Bera 2018-05-23
The book provides insights of International Conference in Communication, Devices and Networking (ICCDN 2017) organized by the Department of Electronics and Communication Engineering, Sikkim Manipal Institute of Technology, Sikkim, India during 3 – 4 June, 2017. The book discusses latest research papers presented by researchers, engineers, academicians and industry professionals. It also assists both novice and experienced scientists and developers, to explore newer scopes, collect new ideas and establish new cooperation between research groups and exchange ideas, information, techniques and applications in the field of electronics, communication, devices and networking.

INCREaSE 2019 - Janio Monteiro 2019-09-19
This book contains the proceedings of the INternational CongRess on Engineering and Sustainability in the XXI cEntury – INCREaSE 2019, which was held in Faro, Portugal, from October 09 to 11, 2019. The book promotes a multidisciplinary approach to sustainable development, exploring a number of transversal challenges. Among other topics it discusses Climate Changes and Environmental Protection; Renewable

Energy; Energy Efficiency in Buildings; Green Governance and Mobility; Water for Ecosystem and Society; Healthy Food; Sustainable Construction; and Sustainable Tourism, offering perspectives from civil, electronics, mechanical, and food engineering.

Advances in Energy Technology - Ramesh C. Bansal 2021-07-27
This book presents select proceedings of International Conference on Energy, Material Sciences and Mechanical Engineering (EMSME) 2020, held at National Institute of Technology Delhi. Various topics covered in this book include clean materials, solar energy systems, wind energy systems, power optimization, grid integration of renewable energy, smart energy storage technologies, artificial intelligence in solar and wind system, analysis of clean energy material in environment, converter topology, modelling and simulation. This book will be useful for researchers and professionals working in the areas of solar material science, electrical engineering, and energy technologies.

Fractional Order Systems - Ahmad Taher Azar 2018-08-16
Fractional Order Systems: Optimization, Control, Circuit Realizations and Applications consists of 21 contributed chapters by subject experts. Chapters offer practical solutions and novel methods for recent research problems in the multidisciplinary applications of fractional order systems, such as FPGA, circuits, memristors, control algorithms, photovoltaic systems, robot manipulators, oscillators, etc. This book is ideal for researchers working in the modeling and applications of both continuous-time and discrete-time dynamics and chaotic systems. Researchers from academia and industry who are working in research areas such as control engineering, electrical engineering, mechanical engineering, computer science, and information technology will find the book most informative. Discusses multi-disciplinary applications with new fundamentals, modeling, analysis, design, realization and experimental results Includes new circuits and systems based on the new nonlinear elements Covers most of the linear and nonlinear fractional-order theorems that will solve many scientific issues for researchers Closes the gap between theoretical approaches and real-world applications Provides MATLAB® and Simulink code for many of the applications in the book

Sustainable Technology and Advanced Computing in Electrical Engineering - Vasundhara Mahajan 2022-12-04
The book includes peer-reviewed papers of the International Conference on Sustainable Technology and Advanced Computing in Electrical Engineering (ICSTACE 2021). The main focus of the book is electrical engineering. The conference aims to provide a global platform to the researchers for sharing and showcasing their discoveries/findings/innovations. The book focuses on the areas related to sustainable development and includes research works from academicians and industry experts. The book discusses new challenges and provides solutions at the interface of technology, information, complex systems, and future research directions.

Modern Maximum Power Point Tracking Techniques for Photovoltaic Energy Systems - Ali M. Eltamaly 2019-08-01
This book introduces and analyses the latest maximum power point tracking (MPPT) techniques, which can effectively reduce the cost of power generated from photovoltaic energy systems. It also presents a detailed description, analysis, and comparison of various MPPT techniques applied to stand-alone systems and those interfaced with electric utilities, examining their performance under normal and abnormal operating conditions. These techniques, which and can be conventional or smart, are a current hot topic, and this book is a valuable reference resource for academic researchers and industry professionals who are interested in exploring and implementing advanced MPPT for photovoltaic systems. It is also useful for graduate students who are looking to expand their knowledge of MPPT techniques.

Intelligent Computing Techniques for Smart Energy Systems - Anshuman Tripathi 2022-06-13
This book compiles the best selected research papers presented during the 2nd International Conference on Intelligent Computing Techniques for Smart Energy Systems (ICTSES 2021), held at Manipal University, Jaipur, Rajasthan, India. It presents the diligent work of the research community where intelligent computing techniques are applied in allied fields of engineering ranging from engineering materials to electrical engineering to electronics and communication engineering- to computer-related fields. The theoretical research concepts are supported with extensive reviews highlighting the trends in the possible and real-life applications of computational intelligence. The high-quality content with broad range of the topics is thoroughly peer-reviewed and published on suitable recommendations.

Smart Energy Empowerment in Smart and Resilient Cities - Mustapha Hatti 2019-12-24
International Conference on Artificial Intelligence in Renewable Energetic Systems, IC-AIRES2019, 26-28 November 2019, Taghit-Bechar, Algeria. The challenges of the energy transition in the medium term lead to numerous technological breakthroughs in the areas of production, optimal distribution and the rational use of energy and renewable energy (energy efficiency and optimization of consumption, massive electrification, monitoring and control energy systems, cogeneration and energy recovery processes, new and renewable energies, etc.). The fall in the cost of renewable energies and the desire for a local control of energy production are today calling for a profound change in the electricity system. Local authorities are at the center of energy developments by taking into account the local nature of certain energy systems, heat networks, geothermal energy, waste heat recovery, and electricity generation from household waste. On the other side, digital sciences are at the heart of connected objects and intelligent products that combine information processing and communication capabilities with their environment. Digital technology is at the center of new systems engineering approaches (3D modeling, virtualization, simulation, digital prototyping, etc.) for the design and development of intelligent systems. The book deals with various topics ranging from the design, development and maintenance of energy production systems, transport, distribution or storage of energy, optimization of energy efficiency, especially in the use of energy. innovation in the fields of energy production from renewable energies, management of energy networks: electricity, fluids, gas, district heating, energy storage modes: battery, super-capacitors , overseeing energy supply through supervision, control and diagnosis, risk management, as well as the design and management of smart grids: microgrid, smartgrid. This imposes the model of energy empowerment in the advent of smart cities. Empower the world's most vulnerable energy-poor citizens and establish growing and vibrant socioeconomic communities, by academics, students in engineering and data computing from around the world who have chosen an academic path leading to an electric power and energy engineering and artificial intelligence to advancing technology for the advantage of humanity.

Grid Integration of Solar Photovoltaic Systems - Majid Jamil 2017-11-22
This book covers the various aspects of solar photovoltaic systems including measurement of solar irradiance, solar photovoltaic modules, arrays with MATLAB implementation, recent MPPT techniques, latest literature of converter design (with MATLAB Simulink models), energy storage for PV applications, balance of systems, grid integration of PV systems, PV system protection, economics of grid connected PV system and system yield performance using PV system. Challenges, issues and solutions related to grid integration of solar photovoltaic systems are also be dealt with.

Smart Grids and Green Energy Systems - A. Chitra 2022-09-28
SMART GRIDS AND GREN ENERGY SYSTEMS Green energy and smart grids are two of the most important topics in the constantly emerging and changing energy and power industry. Books like this one keep the veteran engineer and student, alike, up to date on current trends in the technology and offer a reference for the industry for its practical applications. Smart grids and green energy systems are promising research fields which need to be commercialized for many reasons, including more efficient energy systems and environmental concerns. Performance and cost are tradeoffs which need to be researched to arrive at optimal solutions. This book focuses on the convergence of various technologies involved in smart grids and green energy systems. Areas of expertise, such as computer science, electronics, electrical engineering, and mechanical engineering are all covered. In the future, there is no doubt that all countries will gradually shift from conventional energy sources to green energy systems. Thus, it is extremely important for any engineer, scientist, or other professional in this area to keep up with evolving technologies, techniques, and processes covered in this important new volume. This book brings together the research that has been carrying out in the field of smart grids and green energy systems, across a variety of industries and scientific subject-areas. Written and edited by a team of experts, this groundbreaking collection of papers serves as a point of convergence wherein all these domains need to be addressed. The various chapters are configured in order to address the challenges faced in smart grid and green energy systems from various fields and possible solutions. Valuable as a learning tool for beginners in this area as well as a daily reference for engineers and scientists working

in these areas, this is a must-have for any library.

INCREaSE - António Mortal 2018-01-04
This book presents the proceedings of the INternational CongRess on Engineering and Sustainability in the XXI cEntury – INCREaSE 2017, which was held in Faro, Portugal, from October 11 to 13, 2017. The book promotes a multidisciplinary approach to sustainable development, exploring a number of transversal challenges. It discusses natural and anthropogenic risks; tourism and sustainability; healthy food; water and society; sustainable mobility; renewable energy; and energy efficiency, offering perspectives from civil, electronics, mechanical and food engineering.

Energy Harvesting and Energy Efficiency - Nicu Bizon 2017-03-09
This book presents basic and advanced concepts for energy harvesting and energy efficiency, as well as related technologies, methods, and their applications. The book provides up-to-date knowledge and discusses the state-of-the-art equipment and methods used for energy harvesting and energy efficiency, combining theory and practical applications. Containing over 200 illustrations and problems and solutions, the book begins with overview chapters on the status quo in this field. Subsequent chapters introduce readers to advanced concepts and methods. In turn, the final part of the book is dedicated to technical strategies, efficient methods and applications in the field of energy efficiency, which also makes it of interest to technicians in industry. The book tackles problems commonly encountered using basic methods of energy harvesting and energy efficiency, and proposes advanced methods to resolve these issues. All the methods proposed have been validated through simulation and experimental results. These "hot topics" will continue to be of interest to scientists and engineers in future decades and will provide challenges to researchers around the globe as issues of climate change and changing energy policies become more pressing. Here, readers will find all the basic and advanced concepts they need. As such, it offers a valuable, comprehensive guide for all students and practicing engineers who wishing to learn about and work in these fields.

Advances in Renewable Hydrogen and Other Sustainable Energy Carriers - Abdallah Khellaf 2020-08-19
This book examines a broad range of advances in hydrogen energy and alternative fuel developments and their role in the energy transition. The respective contributions were presented at the International Symposium on Sustainable Hydrogen, held in Algiers, Algeria on November 27-28, 2019. The transition from non-renewable polluting energy to sustainable green energy requires not only new energy sources but also new storage techniques and smart energy management. This situation has sparked renewed interest in hydrogen and alternative fuels, as they could help meet these needs. Indeed, hydrogen can not only be used as a clean energy vector or as an alternative fuel, but also as a storage medium or as an intermediary that enables improved energy management. This text offers a valuable reference guide for those working in the professional energy sector, as well as for students and instructors in academia who want to learn about the state of the art and future directions in the fields of hydrogen energy, alternative fuels and sustainable energy development.

Recent Advances in Mechanical Engineering - Anil Kumar 2021-05-25
This book presents the select proceedings of the second International Conference on Recent Advances in Mechanical Engineering (RAME 2020). The topics covered include aerodynamics and fluid mechanics, automation, automotive engineering, composites, ceramics and polymers processing, computational mechanics, failure and fracture mechanics, friction, tribology and surface engineering, heating and ventilation, air conditioning system, industrial engineering, IC engines, turbomachinery and alternative fuels, machinability and formability of materials, mechanisms and machines, metrology and computer-aided inspection, micro- and nano-mechanics, modelling, simulation and optimization, product design and development, rapid manufacturing technologies and prototyping, solid mechanics and structural mechanics, thermodynamics and heat transfer, traditional and non-traditional machining processes, vibration and acoustics. The book also discusses various energy-efficient renewable and non-renewable resources and technologies, strategies and technologies for sustainable development and energy & environmental interaction. The book is a valuable reference for beginners, researchers, and professionals interested in sustainable construction and allied fields.

Metaheuristics in Machine Learning: Theory and Applications - Diego Oliva
This book is a collection of the most recent approaches that combine metaheuristics and machine learning. Some of the methods considered in this book are evolutionary, swarm, machine learning, and deep learning.

The chapters were classified based on the content; then, the sections are thematic. Different applications and implementations are included; in this sense, the book provides theory and practical content with novel machine learning and metaheuristic algorithms. The chapters were compiled using a scientific perspective. Accordingly, the book is primarily intended for undergraduate and postgraduate students of Science, Engineering, and Computational Mathematics and is useful in courses on Artificial Intelligence, Advanced Machine Learning, among others. Likewise, the book is useful for research from the evolutionary computation, artificial intelligence, and image processing communities.

Design and Control of Power Converters 2019 - Manuel Arias 2021-07-02
In this book, 20 papers focused on different fields of power electronics are gathered. Approximately half of the papers are focused on different control issues and techniques, ranging from the computer-aided design of digital compensators to more specific approaches such as fuzzy or sliding control techniques. The rest of the papers are focused on the design of novel topologies. The fields in which these controls and topologies are applied are varied: MMCs, photovoltaic systems, supercapacitors and traction systems, LEDs, wireless power transfer, etc.

Proceedings of the 1st International Conference on Electronic Engineering and Renewable Energy - Bekkay Hajji 2018-08-01
The proceedings present a selection of refereed papers presented at the 1st International Conference on Electronic Engineering and Renewable Energy (ICEERE 2018) held during 15-17 April 2018, Saidi, Morocco. The contributions from electrical engineers and experts highlight key issues and developments essential to the multifaceted field of electrical engineering systems and seek to address multidisciplinary challenges in Information and Communication Technologies. The book has a special focus on energy challenges for developing the Euro-Mediterranean regions through new renewable energy technologies in the agricultural and rural areas. The book is intended for academia, including graduate students, experienced researchers and industrial practitioners working in the fields of Electronic Engineering and Renewable Energy.

McEvoy's Handbook of Photovoltaics - Soteris Kalogirou 2017-08-24
Practical Handbook of Photovoltaics, Third Edition, is a 'benchmark' publication for those involved in the design, manufacture and use of these devices. This fully revised handbook includes brand new sections on smart grids, net metering and the modeling of photovoltaic systems, as well as fully revised content on developments in photovoltaic applications, the economics of PV manufacturing and updated chapters on solar cell function, raw materials, photovoltaic standards, calibration and testing, all with new examples and case studies. The editor has assembled internationally-respected contributors from industry and academia around the world to make this a truly global reference. It is essential reading for electrical engineers, designers of systems, installers, architects, policymakers and physicists working with photovoltaics. Presents a cast of international experts from industry and academia to ensure the highest quality information from multiple stakeholder perspectives Covers all things photovoltaics, from the principles of solar cell function and their raw materials, to the installation and design of full photovoltaic systems Includes case studies, practical examples, and reports on the latest advances and worldwide applications

Intelligent Learning for Computer Vision - Harish Sharma 2021-05-19
This book is a collection of selected papers presented at the First Congress on Intelligent Systems (CIS 2020), held in New Delhi, India, during September 5–6, 2020. It includes novel and innovative work from experts, practitioners, scientists, and decision-makers from academia and industry. It covers selected papers in the area of computer vision. This book covers new tools and technologies in some of the important areas of medical science like histopathological image analysis, cancer taxonomy, use of deep learning architecture in dental care, and many more. Furthermore, this book reviews and discusses the use of intelligent learning-based algorithms for increasing the productivity in agricultural domain.

Advanced Technologies for Solar Photovoltaics Energy Systems - Saad Motahhir 2021-04-26
This book presents a detailed description, analysis, comparison of the latest research and developments in photovoltaic energy. Discussing everything from semiconductors to system integration, and applying various advanced technologies to stand alone and electric utility interfaced in normal and abnormal operating conditions of PV systems,

this book provides a thorough introduction to the topic. This book brings together research from around the world, covering the use of technologies such as embedded systems, the Internet of things and blockchain technologies for PV systems for different applications including controllers, solar trackers and cooling systems. The book is of interest to electronic and mechanical engineers, researchers and students in the field of photovoltaics.

Fuzzy Cognitive Maps - Michael Glykas 2010-07-07
This important edited volume is the first such book ever published on fuzzy cognitive maps (FCMs). Professor Michael Glykas has done an exceptional job in bringing together and editing its seventeen chapters. The volume appears nearly a quarter century after my original article "Fuzzy Cognitive Maps" appeared in the International Journal of Man-Machine Studies in 1986. The volume accordingly reflects many years of research effort in the development of FCM theory and applications—and portends many more decades of FCM research and applications to come. FCMs are fuzzy feedback models of causality. They combine aspects of fuzzy logic, neural networks, semantic networks, expert systems, and nonlinear dynamical systems. That rich structure endows FCMs with their own complexity and lets them apply to a wide range of problems in engineering and in the soft and hard sciences. Their partial edge connections allow a user to directly represent causality as a matter of degree and to learn new edge strengths from training data. Their directed graph structure allows forward or what-if inferencing. FCM cycles or feedback paths allow for complex nonlinear dynamics. Control of FCM nonlinear dynamics can in many cases let the user encode and decode concept patterns as fixed-point attractors or limit cycles or perhaps as more exotic dynamical equilibria. These global equilibrium patterns are often "hidden" in the nonlinear dynamics. The user will not likely see these global patterns by simply inspecting the local causal edges or nodes of large FCMs.

Advances in Communication and Computational Technology - Gurdeep Singh Hura 2020-08-13
This book presents high-quality peer-reviewed papers from the International Conference on Advanced Communication and Computational Technology (ICACCT) 2019 held at the National Institute of Technology, Kurukshetra, India. The contents are broadly divided into four parts: (i) Advanced Computing, (ii) Communication and Networking, (iii) VLSI and Embedded Systems, and (iv) Optimization Techniques.The major focus is on emerging computing technologies and their applications in the domain of communication and networking. The book will prove useful for engineers and researchers working on physical, data link and transport layers of communication protocols. Also, this will be useful for industry professionals interested in manufacturing of communication devices, modems, routers etc. with enhanced computational and data handling capacities.

Proceedings of the 4th International Conference on Electrical Engineering and Control Applications - Sofiane Bououden 2020-09-29
This book gathers papers presented during the 4th International Conference on Electrical Engineering and Control Applications. It covers new control system models, troubleshooting tips and complex system requirements, such as increased speed, precision and remote capabilities. Additionally, the papers discuss not only the engineering aspects of signal processing and various practical issues in the broad field of information transmission, but also novel technologies for communication networks and modern antenna design. This book is intended for researchers, engineers and advanced postgraduate students

in the fields of control and electrical engineering, computer science and signal processing, as well as mechanical and chemical engineering.
Proceedings of International Conference on Scientific and Natural Computing - Dipti Singh 2021-05-31
This book includes high-quality papers presented at International Conference on Scientific and Natural Computing (SNC 2021), organized by Department of Applied Mathematics, Gautam Buddha University, Greater Noida in collaboration with IIT Roorkee and Technical University of Ostrava (VSB-TU) and technically sponsored by Soft Computing Research Society of India, held online during 5 – 6 February 2021. The topics include self-organizing migrating algorithm, genetic algorithms, swarm intelligence based techniques, evolutionary computing, fuzzy computing, probabilistic computing, genetic programming, particle swarm optimization, neuro computing, hybrid methods, deep learning, including convolutional neural networks, generative adversarial networks and auto-encoders, bio-inspired systems, data mining, data visualization, intelligent agents, engineering design optimization, multi-objective optimization, fault diagnosis, decision support, robotics, signal or image processing, system identification and modelling, systems integration, time series prediction, virtual reality, vision or pattern recognition, intelligent information retrieval, motion control and power electronics, Internet of Everything (IoE), control systems, and supply chain management.

Power Electronics Handbook - Muhammad H. Rashid 2017-09-09
Power Electronics Handbook, Fourth Edition, brings together over 100 years of combined experience in the specialist areas of power engineering to offer a fully revised and updated expert guide to total power solutions. Designed to provide the best technical and most commercially viable solutions available, this handbook undertakes any or all aspects of a project requiring specialist design, installation, commissioning and maintenance services. Comprising a complete revision throughout and enhanced chapters on semiconductor diodes and transistors and thyristors, this volume includes renewable resource content useful for the new generation of engineering professionals. This market leading reference has new chapters covering electric traction theory and motors and wide band gap (WBG) materials and devices. With this book in hand, engineers will be able to execute design, analysis and evaluation of assigned projects using sound engineering principles and adhering to the business policies and product/program requirements. Includes a list of leading international academic and professional contributors Offers practical concepts and developments for laboratory test plans Includes new technical chapters on electric vehicle charging and traction theory and motors Includes renewable resource content useful for the new generation of engineering professionals
Neural Nets and Surroundings - Bruno Apolloni 2012-12-25
This volume collects a selection of contributions which has been presented at the 22nd Italian Workshop on Neural Networks, the yearly meeting of the Italian Society for Neural Networks (SIREN). The conference was held in Italy, Vietri sul Mare (Salerno), during May 17-19, 2012. The annual meeting of SIREN is sponsored by International Neural Network Society (INNS), European Neural Network Society (ENNS) and IEEE Computational Intelligence Society (CIS). The book – as well as the workshop- is organized in three main components, two special sessions and a group of regular sessions featuring different aspects and point of views of artificial neural networks and natural intelligence, also including applications of present compelling interest.