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Principles of Intelligent Automobiles

- Xiubin Zhang 2018-09-12

This book discusses the principle of automotive intelligent technology from the point of view of modern sensing and intelligent control. Based on the latest research in the field, it explores safe driving with intelligent vision; intelligent monitoring of dangerous driving; intelligent detection of automobile power and transmission systems; intelligent vehicle navigation and transportation systems; and vehicle-assisted intelligent technology. It draws on the author's research in the field of automotive intelligent technology to explain the fundamentals of vehicle intelligent technology, from the information sensing principle to mathematical models and the algorithm basis,

enabling readers to grasp the concepts of automotive intelligent technology. Opening up new scientific horizons and fostering innovative thinking, the book is a valuable resource for researchers as well as undergraduate and graduate students.

The Proceedings of the 9th Frontier Academic Forum of Electrical Engineering - Weiming Ma 2021-04-21

This book includes the original, peer-reviewed research papers from the 9th Frontier Academic Forum of Electrical Engineering (FAFEE 2020), held in Xi'an, China, in August 2020. It gathers the latest research, innovations, and applications in the fields of Electrical Engineering. The topics it covers including electrical materials and equipment, electrical energy storage and device, power electronics and drives, new energy

electric power system equipment, IntelliSense and intelligent equipment, biological electromagnetism and its applications, and insulation and discharge computation for power equipment. Given its scope, the book benefits all researchers, engineers, and graduate students who want to learn about cutting-edge advances in Electrical Engineering.

Engineering Properties of Superconducting Materials - Tim Coombs 2021-06-09

Plastic (and microplastic) pollution has been described as one of the greatest environmental challenges of our time, and a hallmark of the human-driven epoch known as the Anthropocene. It has gained the attention of the general public, governments, and environmental

scientists worldwide. To date, the main focus has been on plastics in the marine environment, but interest in the presence and effects of plastics in freshwaters has increased in the recent years. The occurrence of plastics within inland lakes and rivers, as well as their biota, has been demonstrated. Experiments with freshwater organisms have started to explore the direct and indirect effects resulting from plastic exposure. There is a clear need for further research, and a dedicated space for its dissemination. This book is devoted to highlighting current research from around the world on the prevalence, fate, and effects of plastic in freshwater environments.

Instantaneous Power Theory and Applications to Power Conditioning -

Hirofumi Akagi 2017-03-06

This book covers instantaneous power theory as well as the importance of design of shunt, series, and combined shunt-series power active filters and hybrid passive-active power filters. Illustrates pioneering applications of the p-q theory to power conditioning, which highlights distinct differences from conventional theories. Explores p-q-r theory to give a new method of analyzing the different powers in a three-phase circuit. Provides exercises at the end of many chapters that are unique to the second edition.

Digest of Technical Papers - 2003

Proceedings of the 2nd International Conference on Green Energy, Environment and Sustainable Development (GEESD2021) - D. Dobrotă

2021-12-21

The need for green technologies and solutions which will deliver the energy requirements of both the developed and developing world to support sustainability and protect the environment worldwide has never been more urgent. This book contains the proceedings of the 2nd International Conference on Green Energy, Environment and Sustainable Development (GEESD2021) which, due to the COVID-19 pandemic around the world and with the strict travel restrictions in China, was held as a hybrid conference (both physically and online via Zoom) in Shanghai, China on 26 and 27 June 2021. It provided an opportunity to bring together an international community of leading scientists, researchers, engineers and academics, as well as

industrial professionals, to exchange and share their experiences and research results in the energy, environment and sustainable development sector. In total, 80 participants were able to exchange knowledge and discuss the latest developments in the field. GEESD2021 attracted more than 250 submissions, 88 of which were accepted after an extensive period of peer review by more than 100 reviewers and members of the program committee. These are included here, grouped into 3 sections, with 28 papers on sustainable energy; 34 on ecology; and 26 papers covering environmental pollution and protection. Offering an overview of the most up-to-date findings and technologies in the field of sustainable energy and environmental protection, the book

will be of interest to all those working in this field.

Advances in Power and Energy Engineering - Yuanzhang Sun
2016-04-05

Energy and power are playing pivotal roles in social and economic developments of the modern world. Energy and power engineers and technologists have made our lives much more comfortable and affordable. However, due to the demands of the global population on resources and the environment, innovations of more reliable and sustainable energy res
Resilient and Responsible Smart Cities - Eduardo L. Krüger 2023-03-30
This book is a compilation of diverse, yet homogenic, research papers that discuss current advances in Earth Observation and Geospatial Information Technologies to tackle

new horizons concerning the digitization and information management in smart cities' infrastructures. The book also tackles the challenges faced by urban planners by the new mega-cities and proposes a series of solutions to resolve complex urban issues. It suggests enhancing the integration of disciplines, thus, bringing together architects, urban planners, civil engineers, landscape designers and computer scientists to address the problems that our cities are facing. This book is a culmination of selected research papers from IEREK's fourth edition of the International Conference on Future Smart Cities (FSC) and the fourth edition of the International Conference on Resilient and Responsible Architecture and Urbanism (RRAU) held online in

collaboration with the XMUM, Selangor, Malaysia (2021).
Investigations on Parallel Operation and Thermal Analysis of Switching Power Semiconductor Devices - Jody J. Nelson 2002

Conference Record of the ... International Power Modulator Symposium and ... High-Voltage Workshop - 2004

Wireless Power Transfer for Electric Vehicles and Mobile Devices - Chun T. Rim 2017-05-25

From mobile, cable-free re-charging of electric vehicles, smart phones and laptops to collecting solar electricity from orbiting solar farms, wireless power transfer (WPT) technologies offer consumers and society enormous benefits. Written by

innovators in the field, this comprehensive resource explains the fundamental principles and latest advances in WPT and illustrates key applications of this emergent technology. Key features and coverage include: The fundamental principles of WPT to practical applications on dynamic charging and static charging of EVs and smartphones. Theories for inductive power transfer (IPT) such as the coupled inductor model, gyrator circuit model, and magnetic mirror model. IPTs for road powered EVs, including controller, compensation circuit, electro-magnetic field cancel, large tolerance, power rail segmentation, and foreign object detection. IPTs for static charging for EVs and large tolerance and capacitive charging issues, as well as IPT mobile

applications such as free space omnidirectional IPT by dipole coils and 2D IPT for robots. Principle and applications of capacitive power transfer. Synthesized magnetic field focusing, wireless nuclear instrumentation, and future WPT. A technical asset for engineers in the power electronics, internet of things and automotive sectors, *Wireless Power Transfer for Electric Vehicles and Mobile Devices* is an essential design and analysis guide and an important reference for graduate and higher undergraduate students preparing for careers in these industries.

Proceedings of the ... International Symposium on Power Semiconductor Devices and ICs - 2003

Control of Power Electronic

Converters and Systems - Frede
Blaabjerg 2018-04-27
Control of Power Electronic
Converters, Volume Two gives the
theory behind power electronic
converter control and discusses the
operation, modelling and control of
basic converters. The main components
of power electronics systems that
produce a desired effect (energy
conversion, robot motion, etc.) by
controlling system variables
(voltages and currents) are
thoroughly covered. Both small
(mobile phones, computer power
supplies) and very large systems
(trains, wind turbines, high voltage
power lines) and their power ranges,
from the Watt to the Gigawatt, are
presented and explored. Users will
find a focused resource on how to
apply innovative control techniques

for power converters and drives.
Discusses different applications and
their control Explains the most
important controller design methods,
both in analog and digital Describes
different, but important,
applications that can be used in
future industrial products Covers
voltage source converters in
significant detail Demonstrates
applications across a much broader
context

An Update on Power Quality - Dylan Lu
2013-03-27

Power quality is an important measure
of fitness of electricity networks.
With increasing renewable energy
generations and usage of power
electronics converters, it is
important to investigate how these
developments will have an impact to
existing and future electricity

networks. This book hence provides readers with an update of power quality issues in all sections of the network, namely, generation, transmission, distribution and end user, and discusses some practical solutions.

IEEE Africon - 2002

Torque Control - Moulay Tahar Lamchich 2011-02-10

This book is the result of inspirations and contributions from many researchers, a collection of 9 works, which are, in majority, focalised around the Direct Torque Control and may be comprised of three sections: different techniques for the control of asynchronous motors and double feed or double star induction machines, oriented approach of recent developments relating to

the control of the Permanent Magnet Synchronous Motors, and special controller design and torque control of switched reluctance machine.

Power Electronics - S. C. Tripathy 2008

"Power Electronics is intended as an introduction to the basic theory and practice of modern power electronics and in particular with the application of power electronics theory for d.c and a.c motor control." "This book not only contains teaching material on physical principles of electronic devices, but also the circuit applications of controlled rectifiers, inverters, d.c. choppers, cycloconverters, switch-mode power supply along with practical aspects relating to application of power electronics to d.c motor and a.c

motor speed control." "This text is suitable for UG and postgraduate programmes in power electronics and drives in the disciplines of Electrical Engineering, Electronics and Communication Engineering and Instrumentation and Control Engineering."--BOOK JACKET.

Insulated Gate Bipolar Transistor IGBT Theory and Design - Vinod Kumar Khanna 2003

Table of contents

Power Electronics in Transportation - 1992-12

Basic Electrical Engineering | AICTE Prescribed Textbook (English) - S.K. Sahdev 2021-08-27

This textbook "Basic Electrical Engineering" is based on the latest syllabus of the Universities, AICTE and Educational Institutes. In this

edition, some material of the book has been rewritten to make the presentation easily comprehensible. More illustrative examples mainly from IAS, IES and GATE and other competitive examinations have been added. Various problems with answers have been added to support the text. For quick revision, summary/highlights are given at the end of each chapter. Salient Features: · DC Circuits · AC Circuits · Transformers · Electrical Machines · Power converters · Electrical Installations

Electron Devices and Circuits - Atul. P. Godse 2020-11-01

The book covers all the aspects of theory, analysis, and design of Electron Devices and Circuits for the undergraduate course. The concepts of p-n junction devices, BJT, JFET,

MOSFET, electronic devices including UJT, thyristors, IGBT, Amplifier circuits-BJT, JFET and MOSFET amplifiers, multistage and differential amplifiers, feedback amplifiers, and oscillators are explained comprehensively. The book explains various p-n junction devices, including diode, LED, laser diode, Zener diode, and Zener diode regulator. The different types of rectifiers are explained in support. The book covers the construction, operation, and characteristics of BJT, JFET, MOSFET, UJT, Thyristors - SCR, Diac and Triac, and IGBT. It explains the biasing of BJT, JFET, and MOSFET amplifiers, basic BJT, JFET, and MOSFET amplifiers with h-parameters and r-parameters equivalent circuits, multistage amplifiers, differential amplifiers,

BiCMOS amplifier, single tuned amplifiers, neutralization methods, power amplifiers, and frequency response. Finally, the book incorporates a detailed discussion of the analysis of the current series, voltage series, current shunt, and voltage shunt feedback amplifiers. The book also includes the discussion of the Barkhausen criterion for oscillations and the detailed analysis of various oscillator circuits, including RC phase shift, Wien bridge, Hartley, Colpitt's, Clapp, and crystal oscillators. The book uses straightforward and lucid language to explain each topic. The book provides the logical method of describing the various complicated issues and stepwise methods to make understanding easy. The variety of solved examples is the feature of

this book. The book explains the subject's philosophy, which makes understanding the concepts evident and makes the subject more interesting.

Power Electronic Converter Configuration and Control for DC Microgrid Systems - Jens Bo Holm-Nielsen 2020-11-13

The DC/AC microgrid system is a crucial empowering technology for the integration of various types of renewable energy sources (RES) accompanied by a smart control approach to enhance the system reliability and efficiency. This book presents cutting-edge technology developments and recent investigations performed with the help of power electronics. Large-scale renewable energy integration presents challenges and issues for

power grids. In particular, these issues include microgrid adaption to RES, AC machines, the new configuration of AC/DC converters, and electrification of domestic needs with optimal cost expenses from domestic standalone microgrids. Furthermore, this book elaborates cutting-edge developments in electric vehicle fast charging configuration, battery management, and control schemes with renewable energies through hardware-in-loop testing and validation for performance durability in real-time application. Overall, the book covers the diverse field of microgrids, allowing readers to adopt new technologies and prepare for future power demands with sustainable green engineering.

Modelling, Simulation and Optimization - Gregorio Romero

2010-02-01

Computer-Aided Design and system analysis aim to find mathematical models that allow emulating the behaviour of components and facilities. The high competitiveness in industry, the little time available for product development and the high cost in terms of time and money of producing the initial prototypes means that the computer-aided design and analysis of products are taking on major importance. On the other hand, in most areas of engineering the components of a system are interconnected and belong to different domains of physics (mechanics, electrics, hydraulics, thermal...). When developing a complete multidisciplinary system, it needs to integrate a design procedure to ensure that it will be

successfully achieved. Engineering systems require an analysis of their dynamic behaviour (evolution over time or path of their different variables). The purpose of modelling and simulating dynamic systems is to generate a set of algebraic and differential equations or a mathematical model. In order to perform rapid product optimisation iterations, the models must be formulated and evaluated in the most efficient way. Automated environments contribute to this. One of the pioneers of simulation technology in medicine defines simulation as a technique, not a technology, that replaces real experiences with guided experiences reproducing important aspects of the real world in a fully interactive fashion [iii]. In the following chapters the reader will be

introduced to the world of simulation in topics of current interest such as medicine, military purposes and their use in industry for diverse applications that range from the use of networks to combining thermal, chemical or electrical aspects, among others. We hope that after reading the different sections of this book we will have succeeded in bringing across what the scientific community is doing in the field of simulation and that it will be to your interest and liking. Lastly, we would like to thank all the authors for their excellent contributions in the different areas of simulation.

Machine Tool Technology, Mechatronics and Information Engineering - Zhong

Min Wang 2014-09-22

Collection of selected, peer reviewed papers from the 2014 International

Conference on Machine Tool Technology and Mechatronics Engineering (ICMTTME 2014), June 22-23, 2014, Guilin, Guangxi, China. The 1440 papers are grouped as follows: Chapter 1: Applied Mechanics, Chapter 2: Measurement and Instrumentation, Monitoring, Testing and Detection Technologies, Chapter 3: Numerical Methods, Computation Methods and Algorithms for Modeling, Simulation and Optimization, Data Mining and Data Processing, Chapter 4: Information Technologies, WEB and Networks Engineering, Information Security, Software Application and Development, Chapter 5: Electronics and Microelectronics, Embedded and Integrated Systems, Power and Energy, Electric and Magnetic Systems, Chapter 6: Communication, Signal and Image Processing, Data Acquisition,

Identification and Recognition Technologies, Chapter 7: Materials Processing and Manufacturing Technology, Industry Applications, Chapter 8: Civil and Structure Engineering, Architecture Science, Chapter 9: Bio- and Medical Applications, Chemistry Engineering, Resources and Environmental Engineering, Chapter 10: Advanced Information and Innovative Technologies for Management, Logistics, Economics, Marketing, Education, Assessment
Applications of Computational Intelligence in Management & Mathematics - Madhusudhan Mishra
2023-07-01

Computational intelligence consists of those techniques that imitate the human brain and nature to adopt the decision-making approach. This book

contains selected papers from the 8th International Conference on Computers, Management and Mathematical Sciences (ICCM) 2022 about fuzzy systems, neural networks and evolutionary computation that can address stochastic environments where reasoning is a significant attribute to derive potential solutions and focus on the business domain's computational aspects. This is a conference proceedings for scholars/students who are using the powerful algorithms, concepts and principles of computational intelligence in a wide spectrum of research cases.

Electronics - Nassir H. Sabah
2017-12-19

Electronics: Basic, Analog, and Digital with PSpice does more than just make unsubstantiated assertions

about electronics. Compared to most current textbooks on the subject, it pays significantly more attention to essential basic electronics and the underlying theory of semiconductors. In discussing electrical conduction in semiconductors, the author addresses the important but often ignored fundamental and unifying concept of electrochemical potential of current carriers, which is also an instructive link between semiconductor and ionic systems at a time when electrical engineering students are increasingly being exposed to biological systems. The text presents the background and tools necessary for at least a qualitative understanding of new and projected advances in microelectronics. The author provides helpful PSpice simulations and

associated procedures (based on schematic capture, and using OrCAD® 16.0 Demo software), which are available for download. These simulations are explained in considerable detail and integrated throughout the book. The book also includes practical, real-world examples, problems, and other supplementary material, which helps to demystify concepts and relations that many books usually state as facts without offering at least some plausible explanation. With its focus on fundamental physical concepts and thorough exploration of the behavior of semiconductors, this book enables readers to better understand how electronic devices function and how they are used. The book's foreword briefly reviews the history of electronics and its impact in today's

world. ***Classroom Presentations are provided on the CRC Press website. Their inclusion eliminates the need for instructors to prepare lecture notes. The files can be modified as may be desired, projected in the classroom or lecture hall, and used as a basis for discussing the course material.***

Fuel Cell Systems Explained - Andrew L. Dicks 2018-03-14

Since publication of the first edition of Fuel Cell Systems Explained, three compelling drivers have supported the continuing development of fuel cell technology. These are: the need to maintain energy security in an energy-hungry world, the desire to move towards zero-emission vehicles and power plants, and the mitigation of climate change by lowering of CO₂ emissions.

New fuel cell materials, enhanced stack performance and increased lifetimes are leading to the emergence of the first truly commercial systems in applications that range from fork-lift trucks to power sources for mobile phone towers. Leading vehicle manufacturers have embraced the use of electric drive-trains and now see hydrogen fuel cells complementing advanced battery technology in zero-emission vehicles. After many decades of laboratory development, a global but fragile fuel cell industry is bringing the first commercial products to market. This thoroughly revised edition includes several new sections devoted to, for example, fuel cell characterisation, improved materials for low-temperature hydrogen and liquid-fuelled systems,

and real-world technology implementation. Assuming no prior knowledge of fuel cell technology, the third edition comprehensively brings together all of the key topics encompassed in this diverse field. Practitioners, researchers and students in electrical, power, chemical and automotive engineering will continue to benefit from this essential guide to the principles, design and implementation of fuel cell systems.

ESD Design for Analog Circuits -

Vladislav A. Vashchenko 2010-07-27

This Book and Simulation Software Bundle Project Dear Reader, this book project brings to you a unique study tool for ESD protection solutions used in analog-integrated circuit (IC) design. Quick-start learning is combined with in-depth understanding

for the whole spectrum of cross-disciplinary knowledge required to excel in the ESD field. The chapters cover technical material from elementary semiconductor structure and device levels up to complex analog circuit design examples and case studies. The book project provides two different options for learning the material. The printed material can be studied as any regular technical textbook. At the same time, another option adds parallel exercise using the trial version of a complementary commercial simulation tool with prepared simulation examples. Combination of the textbook material with numerical simulation experience presents a unique opportunity to gain a level of expertise that is hard to achieve otherwise. The book is bundled with

simplified trial version of commercial mixed-mode simulation software from Angstrom Design Automation. The DECIMM (Device Circuit Mixed-Mode) simulator tool and complementary to the book simulation examples can be downloaded from www.analogesd.com. The simulation examples prepared by the authors support the specific examples discussed across the book chapters. A key idea behind this project is to provide an opportunity to not only study the book material but also gain a much deeper understanding of the subject by direct experience through practical simulation examples.

Industrial Electronics and Control -
BISWANATH PAUL 2014-06-30

The third edition of the book on Industrial Electronics and Control including Programmable Logic

Controller is aimed at providing an explicit explanation of the mode of operation of different electronic power devices in circuits and systems that are in wide use today in modern industry for the control and conversion of electric power. The book strives to fulfil this need for a fundamental treatment that allows students to understand all aspects of circuit functions through its neatly-drawn illustrations and wave diagrams. Several colour diagrams are included to explain difficult circuits and waveforms. This approach will help students in assimilating the operation of power electronics circuits with more clarity. Same as in previous editions, the book commences with a discussion on rectifiers, differential amplifiers, operational amplifiers,

multivibrators, timers and goes on to provide in-depth coverage of power devices and power electronics circuits such as silicon controlled rectifiers (SCRs), inverters, dual converters, choppers, cycloconverters and their applications in the control of ac/dc motors, and heating and welding processes. The book also presents an overview of the modern developments in the field of optoelectronics and fibre optics. Finally, the book ends with a discussion on Programmable Logic Controller (PLC). The book has an added advantage of multiple-choice questions, true/false statements, review questions and numerical problems at the end of each chapter, designed to reinforce the student's understanding of the concepts and mathematical derivations introduced

in the text. The book is intended as a textbook for polytechnic students pursuing courses in electrical engineering, electronics and communication engineering, and electronics and instrumentation engineering. This tailor-made book with its exhaustive explanations of circuit operations and its student-friendly approach should prove to be a boon to the students and teachers alike. AUDIENCE: Polytechnic Students - pursuing courses in Electrical Engineering, Electronics and Communication Engineering, and Electronics and Instrumentation Engineering

Manufacturing Science and Technology, ICMST2011 - Wu Fan 2011-11-22

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.

The Development of Matrix Converters with Reduced Number of Switches -

Lixiang Wei 2003

ISPSD '98 - 1998

Gasoline Engine Management - Konrad Reif 2014-07-22

The call for environmentally compatible and economical vehicles

necessitates immense efforts to develop innovative engine concepts. Technical concepts such as gasoline direct injection helped to save fuel up to 20 % and reduce CO₂-emissions. Descriptions of the cylinder-charge control, fuel injection, ignition and catalytic emission-control systems provides comprehensive overview of today's gasoline engines. This book also describes emission-control systems and explains the diagnostic systems. The publication provides information on engine-management-systems and emission-control regulations.

Proceedings of Symposium on Power Electronic and Renewable Energy Systems Control - Sankarsan Mohapatro 2021-07-09

This book includes high-quality research papers presented at

Symposium on Power Electronic and Renewable Energy Systems Control (PERESC 2020), which is held at the School of Electrical Sciences, IIT Bhubaneswar, Odisha, India, during 4–5 December 2020. The book covers original work in power electronics which has greatly enabled integration of renewable and distributed energy systems, control of electric machine drives, high voltage system control and operation. The book is highly useful for academicians, engineers, researchers and students to be familiar with the latest state of the art in power electronics technology and its applications.

WESCON ... Conference Record - 1994

Conference Record - 1994

POWER ELECTRONICS - M. S. JAMIL

ASGHAR 2004-01-01

This textbook, designed for undergraduate students of electrical engineering, offers a comprehensive and accessible introduction to state-of-the-art power semiconductor devices and power electronic converters with an emphasis on design, analysis and realization of numerous types of systems. Each topic is discussed in sufficient depth to expose the fundamental principles, concepts, techniques, methods and circuits, necessary to thoroughly understand power electronic systems.

Integration of Large Scale Wind Energy with Electrical Power Systems in China - Zongxiang Lu 2018-07-18

An in-depth examination of large scale wind projects and electricity production in China Presents the challenges of electrical power system

planning, design, operation and control carried out by large scale wind power, from the Chinese perspective Focuses on the integration issue of large scale wind power to the bulk power system, probing the interaction between wind power and bulk power systems Wind power development is a burgeoning area of study in developing countries, with much interest in offshore wind farms and several big projects under development English translation of the Chinese language original which won the "Fourth China Outstanding Publication Award nomination" in March 2013
Fundamentals of Automotive and Engine Technology - Konrad Reif 2014-06-16 Hybrid drives and the operation of hybrid vehicles are characteristic of contemporary automotive technology.

Together with the electronic driver assistant systems, hybrid technology is of the greatest importance and both cannot be ignored by today's car drivers. This technical reference book provides the reader with a firsthand comprehensive description of significant components of automotive technology. All texts are complemented by numerous detailed illustrations.

Intelligent Techniques and Applications in Science and Technology - Subhojit Dawn 2020-03-02 This book provides innovative ideas on achieving sustainable development and using green technologies to conserve our ecosystem. Innovation is the successful exploitation of a new idea. Through innovation, we can achieve MORE while using LESS. Innovations in science & technology

will not only help mankind as a whole, but also contribute to the economic growth of individual countries. It is essential that the global problem of environmental degradation be addressed immediately, and thus, we need to rethink the concept of sustainable development. Indeed, new environmentally friendly technologies are fundamental to attaining sustainable development. The book shares a wealth of innovative green technological ideas on how to preserve and improve the quality of the environment, and how to establish a more resource-efficient and sustainable society. The book provides an

interdisciplinary approach to addressing various technical issues and capitalizing on advances in computing & optimization for scientific & technological development, smart information, communication, bio-monitoring, smart cities, food quality assessment, waste management, environmental aspects, alternative energies, sustainable infrastructure development, etc. In short, it offers valuable information and insights for budding engineers, researchers, upcoming young minds and industry professionals, promoting awareness for recent advances in the various fields mentioned above.