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Information Technologies, and Embedded Systems, the respective papers will encourage and inspire researchers, industry professionals, and policymakers to put these methods into practice.

This book includes novel and state-of-the-art research discussions that articulate and report all research aspects, including theoretical and experimental prototypes and applications that incorporate sustainability into emerging applications. In recent years, sustainability and information and communication technologies (ICT) are highly intertwined, where sustainability resources and its management has attracted various researchers, stakeholders, and industrialists. The energy-efficient communication technologies have revolutionized the various smart applications like smart cities, healthcare, entertainment, and business. The book discusses and articulates emerging challenges in significantly reducing the energy consumption of communication systems and also explains development of a sustainable and energy-efficient mobile and wireless communication network. It includes best selected high-quality conference papers in different fields such as internet of things, cloud computing, data mining, artificial intelligence, machine learning, autonomous systems, deep learning, neural networks, renewable energy sources, sustainable wireless communication networks, QoS, network sustainability, and many other related areas.

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Advances in Computing, Communication, Automation and Biomedical Technology aims to bring together leading academic, scientists, researchers, industry representatives, postdoctoral fellows and research scholars around the world to share their knowledge and research expertise, to advances in the areas of Computing, Communication, Electrical, Civil, Mechanical and Biomedical Systems as well as to create a prospective collaboration and networking on various areas. It also provides a premier interdisciplinary platform for researchers, practitioners, and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered, and solutions adopted in the fields of innovation.

This book constitutes the thoroughly refereed proceedings of the 9th International Congress on Telematics and Computing, WITCOM 2020, held in Puerto Vallarta, Mexico, in November 2020. Due to the COVID-19 pandemic the conference was held online. The 28 full papers and 3 short papers in this volume were carefully reviewed and selected from 79 submissions. The papers are focused on the topics of deep and machine learning, cybersecurity, wireless networks, computer vision, communications, and education applied to different sceneries of study and COVID-19.

Artificial intelligence has been applied to many areas of science and technology,

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including the power and energy sector. Renewable energy in particular has experienced the tremendous positive impact of these developments. With the recent evolution of smart energy technologies, engineers and scientists working in this sector need an exhaustive source of current knowledge to effectively cater to the energy needs of citizens of developing countries. Computational Methodologies for Electrical and Electronics Engineers is a collection of innovative research that provides a complete insight and overview of the application of intelligent computational techniques in power and energy. Featuring research on a wide range of topics such as artificial neural networks, smart grids, and soft computing, this book is ideally designed for programmers, engineers, technicians, ecologists, entrepreneurs, researchers, academicians, and students.

This book gathers high-quality research papers presented at the Global AI Congress 2019, which was organized by the Institute of Engineering and Management, Kolkata, India, on 12–14 September 2019. Sharing contributions prepared by researchers, practitioners, developers and experts in the areas of artificial intelligence, the book covers the areas of AI for E-commerce and web applications, AI and sensors, augmented reality, big data, brain computing interfaces, computer vision, cognitive radio networks, data mining, deep learning,

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expert systems, fuzzy sets and systems, image processing, knowledge representation, nature-inspired computing, quantum machine learning, reasoning, robotics and autonomous systems, robotics and the IoT, social network analysis, speech processing, video processing, and virtual reality. In this DIY guide, you will learn how to use Arduino – the open-source hardware board for makers, hobbyists, and inventors. You will learn how to develop your own projects, create prototypes, and produce professional-quality embedded systems. A simple step-by-step demonstration system accompanies you from vision to reality – and just like riding a bike, you'll get better at it, the more you do it. Featuring a wealth of detailed diagrams and more than 50 fully functional examples, this book will help you get the most out of this versatile tool and bring your electronic inventions to life.

Wireless localization techniques are an area that has attracted interest from both industry and academia, with self-localization capability providing a highly desirable characteristic of wireless sensor networks. Localization Algorithms and Strategies for Wireless Sensor Networks encompasses the significant and fast growing area of wireless localization techniques. This book provides comprehensive and up-to-date coverage of topics and fundamental theories underpinning measurement techniques and localization algorithms. A useful

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compilation for academicians, researchers, and practitioners, this Premier Reference Source contains relevant references and the latest studies emerging out of the wireless sensor network field.

This volume presents a collection of peer-reviewed, scientific articles from the 14th International Conference on Information Technology – New Generations, held at the University of Nevada at Las Vegas on April 10–12, at Tuscany Suites Hotel in Las Vegas. The Book of Chapters addresses critical areas of information technology including web technology, communications, computing architectures, software engineering, security, and data mining.

This book presents the select proceedings of the International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2020). It provides a comprehensive overview of the various technical challenges faced, their systematic investigation, contemporary developments, and future perspectives in the domain of mechanical engineering. The book covers a wide array of topics including fluid flow techniques, compressible flows, waste management and waste disposal, bio-fuels, renewable energy, cryogenic applications, computing in applied mechanics, product design, dynamics and control of structures, fracture and failure mechanics, solid mechanics, finite element analysis, tribology, nano-mechanics and MEMS, robotics, supply chain management and logistics,

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intelligent manufacturing system, rapid prototyping and reverse engineering, quality control and reliability, conventional and non-conventional machining, and ergonomics. This book can be useful for students and researchers interested in mechanical engineering and its allied fields.

This book provides an analysis of the role of fog computing, cloud computing, and Internet of Things in providing uninterrupted context-aware services as they relate to Healthcare 4.0. The book considers a three-layer patient-driven healthcare architecture for real-time data collection, processing, and transmission. It gives insight to the readers for the applicability of fog devices and gateways in Healthcare 4.0 environments for current and future applications. It also considers aspects required to manage the complexity of fog computing for Healthcare 4.0 and also develops a comprehensive taxonomy.

This book consists of papers presented at Automation 2017, an international conference held in Warsaw from March 15 to 17, 2017. It discusses research findings associated with the concepts behind INDUSTRY 4.0, with a focus on offering a better understanding of and promoting participation in the Fourth Industrial Revolution. Each chapter presents a detailed analysis of a specific technical problem, in most cases followed by a numerical analysis, simulation and description of the results of implementing the solution in a real-world context.

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The theoretical results, practical solutions and guidelines presented are valuable for both researchers working in the area of engineering sciences and practitioners looking for solutions to industrial problems.

Vivemos em um mundo em que cada vez mais encontramos sistemas de automatização ao nosso redor. Já nos acostumamos com controles remotos em televisões, sistemas de home theaters, aparelhos de ar-condicionados, entre outras comodidades. Em casas mais modernas, vemos sistemas de climatização, controle de iluminação personalizado e diferentes sistemas de monitoramento. Mas somente isso não basta; queremos mais. Estamos vivendo um período de Internet das Coisas (IoT) e desejamos ter comunicação e informações nos mais diferentes lugares. Queremos nos comunicar com o que é nosso e não apenas automatizar, mas inserir conforto e inteligência à nossa volta. Diante deste cenário, este livro tenta fazer com que o leitor compreenda a necessidade de utilizar vários sensores e equipamentos para que uma casa automatizada e inteligente seja viável, abordando os requisitos para personalização de ambientes, com requisito de baixo custo, inseridos nos conceitos da IoT.

Internet of Things: Challenges, Advances, and Applications provides a comprehensive introduction to IoT, related technologies, and common issues in

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the adoption of IoT on a large scale. It surveys recent technological advances and novel solutions for challenges in the IoT environment. Moreover, it provides detailed discussion of the utilization of IoT and its underlying technologies in critical application areas, such as smart grids, healthcare, insurance, and the automotive industry. The chapters of this book are authored by several international researchers and industry experts. This book is composed of 18 self-contained chapters that can be read, based on interest. Features: Introduces IoT, including its history, common definitions, underlying technologies, and challenges Discusses technological advances in IoT and implementation considerations Proposes novel solutions for common implementation issues Explores critical application domains, including large-scale electric power distribution networks, smart water and gas grids, healthcare and e-Health applications, and the insurance and automotive industries The book is an excellent reference for researchers and post-graduate students working in the area of IoT, or related areas. It also targets IT professionals interested in gaining deeper knowledge of IoT, its challenges, and application areas.

Health and Biomedical Informatics is a rapidly evolving multidisciplinary field; one in which new developments may prove crucial in meeting the challenge of providing cost-effective, patient-centered healthcare worldwide. This book

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presents the proceedings of MEDINFO 2015, held in São Paulo, Brazil, in August 2015. The theme of this conference is 'eHealth-enabled Health', and the broad spectrum of topics covered ranges from emerging methodologies to successful implementations of innovative applications, integration and evaluation of eHealth systems and solutions. Included here are 178 full papers and 248 poster abstracts, selected after a rigorous review process from nearly 800 submissions by 2,500 authors from 59 countries. The conference brings together researchers, clinicians, technologists and managers from all over the world to share their experiences on the use of information methods, systems and technologies to promote patient-centered care, improving patient safety, enhancing care outcomes, facilitating translational research and enabling precision medicine, as well as advancing education and skills in Health and Biomedical Informatics. This comprehensive overview of Health and Biomedical Informatics will be of interest to all those involved in designing, commissioning and providing healthcare, wherever they may be.

With Bluetooth Low Energy (BLE), smart devices are about to become even smarter. This practical guide demonstrates how this exciting wireless technology helps developers build mobile apps that share data with external hardware, and how hardware engineers can gain easy and reliable access to mobile operating systems.

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This book provides a solid, high-level overview of how devices use BLE to communicate with each other. You'll learn useful low-cost tools for developing and testing BLE-enabled mobile apps and embedded firmware and get examples using various development platforms—including iOS and Android for app developers and embedded platforms for product designers and hardware engineers. Understand how data is organized and transferred by BLE devices Explore BLE's concepts, key limitations, and network topology Dig into the protocol stack to grasp how and why BLE operates Learn how BLE devices discover each other and establish secure connections Set up the tools and infrastructure for BLE application development Get examples for connecting BLE to iPhones, iPads, Android devices, and sensors Develop code for a simple device that transmits heart rate data to a mobile device

This book provides readers with a 360-degree perspective on the Internet of Things (IoT) design and M2M communication process. It is intended to be used as a design guide for the development of IoT solutions, covering architecture, design, and development methods. This book examines applications such as industry automation for Industry 4.0, Internet of Medical Things (IoMT), and Internet of Services (IoS) as it is unfolding. Discussions on engineering fundamentals are limited to what is required for the realization of IoT solutions. Internet of Things and M2M Communication Technologies: Architecture and Practical Design Approach to IoT in Industry 4.0 is written by an industry veteran with more than 30 years of hands-on experience. It is an

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invaluable guide for electrical, electronic, computer science, and information science engineers who aspire to be IoT designers and an authoritative reference for practicing designers working on IoT device development. Provides complete design approach to develop IoT solutions; Includes reference designs and guidance on relevant standards compliance; Addresses design for manufacturability and business models.

This book includes high impact papers presented at the International Conference on Communication, Computing and Electronics Systems 2019, held at the PPG Institute of Technology, Coimbatore, India, on 15-16 November, 2019. Discussing recent trends in cloud computing, mobile computing, and advancements of electronics systems, the book covers topics such as automation, VLSI, embedded systems, integrated device technology, satellite communication, optical communication, RF communication, microwave engineering, artificial intelligence, deep learning, pattern recognition, Internet of Things, precision models, bioinformatics, and healthcare informatics.

This book provides a thorough overview of cutting-edge research on electronics applications relevant to industry, the environment, and society at large. It covers a broad spectrum of application domains, from automotive to space and from health to security, while devoting special attention to the use of embedded devices and sensors for imaging, communication and control. The book is based on the 2018 ApplePies Conference, held in Pisa, Italy in September 2018, which brought together researchers and stakeholders to consider the most significant current trends in the field of applied

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electronics and to debate visions for the future. Areas addressed by the conference included information communication technology; biotechnology and biomedical imaging; space; secure, clean and efficient energy; the environment; and smart, green and integrated transport. As electronics technology continues to develop apace, constantly meeting previously unthinkable targets, further attention needs to be directed toward the electronics applications and the development of systems that facilitate human activities. This book, written by industrial and academic professionals, represents a valuable contribution in this endeavor.

This book's objective is to explore the concepts and applications related to Internet of Things with the vision to identify and address existing challenges. Additionally, the book provides future research directions in this domain, and explores the different applications of IoT and its associated technologies. Studies investigate applications for crowd sensing and sourcing, as well as smart applications to healthcare solutions, agriculture and intelligent disaster management. This book will appeal to students, practitioners, industry professionals and researchers working in the field of IoT and its integration with other technologies to develop comprehensive solutions to real-life problems.

Through expanded intelligence, the use of robotics has fundamentally transformed a variety of fields, including manufacturing, aerospace, medicine, social services, and agriculture. Continued research on robotic design is critical to solving various dynamic

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obstacles individuals, enterprises, and humanity at large face on a daily basis. *Robotic Systems: Concepts, Methodologies, Tools, and Applications* is a vital reference source that delves into the current issues, methodologies, and trends relating to advanced robotic technology in the modern world. Highlighting a range of topics such as mechatronics, cybernetics, and human-computer interaction, this multi-volume book is ideally designed for robotics engineers, mechanical engineers, robotics technicians, operators, software engineers, designers, programmers, industry professionals, researchers, students, academicians, and computer practitioners seeking current research on developing innovative ideas for intelligent and autonomous robotics systems.

This volume contains selected papers which had been presented during CISCON 2018. The papers cover the latest trends in the fields of instrumentation, sensors and systems, industrial automation & control, image and signal processing, robotics, renewable energy, power systems and power drives, with focus on solving the current challenges faced in the field of instrumentation and control engineering. This volume will be of use to academic and industry researchers and students working in this field. This book constitutes the refereed proceedings of the 12th Latin American Robotics Symposium and Third Brazilian Symposium on Robotics, LARS 2015 / SBR 2015, held in Uberlândia, Brazil, in October/November 2015. The 17 revised full papers presented were carefully reviewed and selected from 80 submissions. The selected papers

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present a complete and solid reference of the state-of-the-art of intelligent robotics and automation research, covering the following areas: autonomous mobile robots, tele-operated and telepresence robots, human-robot interaction, trajectory control for mobile robots, autonomous vehicles, service-oriented robotic systems, semantic mapping, environment mapping, visual odometry, applications of RGB-D sensors, humanoid and biped robots, Robocup soccer robots, robot control, path planning, multiple vehicles and teams of robots. /div

This book constitutes the refereed post-conference proceedings of the Third EAI International Conference on Innovations and Interdisciplinary Solutions for Underserved Areas, InterSol 2019, and the 8th Conference on Research in Computer Science and its Applications, CNRIA 2019, held in Saint-Louis, Senegal, in April 2019. The 16 papers presented were selected from 34 submissions and issue different problems in underserved and unserved areas. They face problems in almost all sectors such as energy, water, communication, climate, food, education, transportation, social development, and economic growth.

"This multiple-volume publications exhibits the most up-to-date collection of research results and recent discoveries in the transfer of knowledge access across the globe"--Provided by publisher.

Add Bluetooth to your Robotic Projects! Michael Wright has done it again! This book takes the mystery out of using Bluetooth for your robotic projects. Learn how to use the

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Arduino to program the HC-05 and ZS-040 Bluetooth modules. Includes: Support website at [www.y2kLeader.com](http://www.y2kLeader.com) AT Programming Codes. Instructions for the HC-05 Bluetooth Module. Instructions for the ZS-040 Bluetooth Module. Wiring and Arduino Sketches. How to make voltage dividers. How to pair with other modules. How to pair with Android!

The book covers recent trends in the field of devices, wireless communication and networking. It presents the outcomes of the International Conference in Communication, Devices and Networking (ICCDN 2018), which was organized by the Department of Electronics and Communication Engineering, Sikkim Manipal Institute of Technology, Sikkim, India on 2–3 June, 2018. Gathering cutting-edge research papers prepared by researchers, engineers and industry professionals, it will help young and experienced scientists and developers alike to explore new perspectives, and offer them inspirations on addressing real-world problems in the field of electronics, communication, devices and networking.

This book constitutes the proceedings of the 5th International Conference on Technologies and Innovation, CITI 2019, held in Guayaquil, Ecuador, in December 2019. The 14 full papers presented in this volume were carefully reviewed and selected from 32 submissions. They are organized in topical sections named: ICT in agronomy; knowledge-based systems and pattern recognition; internet of things and computer architecture.

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The three-volume set CCIS 1032, CCIS 1033, and CCIS 1034 contains the extended abstracts of the posters presented during the 21st International Conference on Human-Computer Interaction, HCII 2019, which took place in Orlando, Florida, in July 2019. The total of 1274 papers and 209 posters included in the 35 HCII 2019 proceedings volumes was carefully reviewed and selected from 5029 submissions. The 208 papers presented in these three volumes are organized in topical sections as follows: Part I: design, development and evaluation methods and technique; multimodal Interaction; security and trust; accessibility and universal access; design and user experience case studies. Part II: interacting with games; human robot interaction; AI and machine learning in HCI; physiological measuring; object, motion and activity recognition; virtual and augmented reality; intelligent interactive environments. Part III: new trends in social media; HCI in business; learning technologies; HCI in transport and autonomous driving; HCI for health and well-being.

This book discusses data communication and computer networking, communication technologies and the applications of IoT (Internet of Things), big data, cloud computing and healthcare informatics. It explores, examines and critiques intelligent data communications and presents inventive methodologies in communication technologies and IoT. Aimed at researchers and academicians who need to understand the importance of data communication and advanced technologies in IoT, it offers different perspectives to help readers increase their knowledge and motivates them to conduct

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research in the area, highlighting various innovative ideas for future research. This book gathers papers addressing state-of-the-art research in all areas of information and communication technologies and their applications in intelligent computing, cloud storage, data mining and software analysis. It presents the outcomes of the Fourth International Conference on Information and Communication Technology for Intelligent Systems, which was held in Ahmedabad, India. Divided into two volumes, the book discusses the fundamentals of various data analysis techniques and algorithms, making it a valuable resource for researchers and practitioners alike. This book includes selected papers from the International Conference on Data Science and Intelligent Applications (ICDSIA 2020), hosted by Gandhinagar Institute of Technology (GIT), Gujarat, India, on January 24–25, 2020. The proceedings present original and high-quality contributions on theory and practice concerning emerging technologies in the areas of data science and intelligent applications. The conference provides a forum for researchers from academia and industry to present and share their ideas, views and results, while also helping them approach the challenges of technological advancements from different viewpoints. The contributions cover a broad range of topics, including: collective intelligence, intelligent systems, IoT, fuzzy systems, Bayesian networks, ant colony optimization, data privacy and security, data mining, data warehousing, big data analytics, cloud computing, natural language processing, swarm intelligence, speech processing, machine learning and deep

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learning, and intelligent applications and systems. Helping strengthen the links between academia and industry, the book offers a valuable resource for instructors, students, industry practitioners, engineers, managers, researchers, and scientists alike.

Practical Signals Theory with MATLAB Applications is organized around applications, first introducing the actual behavior of specific signals and then using them to motivate the presentation of mathematical concepts. Tervo sequences the presentation of the major transforms by their complexity: first Fourier, then Laplace, and finally the z-transform. The goal is to help students who can't visualize phenomena from an equation to develop their intuition and learn to analyze signals by inspection. Finally, most examples and problems are designed to use MATLAB, making the presentation more in line with modern engineering practice.

Proceedings of the 2013 Chinese Intelligent Automation Conference presents selected research papers from the CIAC'13, held in Yangzhou, China. The topics include e.g. adaptive control, fuzzy control, neural network based control, knowledge based control, hybrid intelligent control, learning control, evolutionary mechanism based control, multi-sensor integration, failure diagnosis, and reconfigurable control. Engineers and researchers from academia, industry, and government can gain an inside view of new solutions combining ideas from multiple disciplines in the field of intelligent automation. Zengqi Sun and Zhidong Deng are professors at the Department of Computer Science, Tsinghua University, China.

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With the intriguing development of technologies in several industries, along with the advent of ubiquitous computational resources, there are now ample opportunities to develop innovative computational technologies in order to solve a wide range of issues concerning uncertainty, imprecision, and vagueness in various real-life problems. The challenge of blending modern computational techniques with traditional computing methods has inspired researchers and academics alike to focus on developing innovative computational techniques. In the near future, computational techniques may provide vital solutions by effectively using evolving technologies such as computer vision, natural language processing, deep learning, machine learning, scientific computing, and computational vision. A vast number of intelligent computational algorithms are emerging, along with increasing computational power, which has significantly expanded the potential for developing intelligent applications. These proceedings of the International Conference on Inventive Computation Technologies [ICICT 2019] cover innovative computing applications in the areas of data mining, big data processing, information management, and security.

Modern devices, from phones and cars to houses and the appliances within them, are being designed with formidable computational power and expanded functionality. To be truly effective, these smart devices must effectively process data from their environment and experiences and make decisions based on that information. Recent Advances in Ambient Intelligence and Context-Aware Computing investigates the functionality of

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ubiquitous computational systems and how they may adapt to their environment to improve the quality of interaction for the end-user. This reference book will be of value to under- and post-graduate students, professionals, and researchers in networking, computer science, communications, and other information technology disciplines.

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