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Digital Technologies and Applications Saad Motahhir 2021-06-26 This book gathers selected research papers presented at the First International Conference on Digital Technologies and Applications (ICDTA 21), held at Sidi Mohamed Ben Abdellah University, Fez, Morocco, on 29–30 January 2021. highlighting the latest innovations in digital technologies as: artificial intelligence, Internet of things, embedded systems, network technology, information processing, and their applications in several areas such as hybrid vehicles, renewable energy, robotic, and COVID-19. The respective papers encourage and inspire researchers, industry professionals, and policymakers to put these methods into practice.

Computational Intelligence in Wireless Sensor Networks Ajith Abraham 2017-01-11 This book emphasizes the increasingly important role that Computational Intelligence (CI) methods are playing in solving a myriad of entangled Wireless Sensor Networks (WSN) related problems. The book serves as a guide for surveying several state-of-the-art WSN scenarios in which CI approaches have been employed. The reader finds in this book how CI has contributed to solve a wide range of challenging problems, ranging from balancing the cost and accuracy of heterogeneous sensor deployments to recovering from real-time sensor failures to detecting attacks launched by malicious sensor nodes and enacting CI-based security schemes. Network managers, industry experts, academicians and practitioners alike (mostly in computer engineering, computer science or applied mathematics) benefit from th e spectrum of successful applications reported in this book. Senior undergraduate or graduate students may discover in this book some problems well suited for their own research endeavors.

Wireless Sensor Systems for Extreme Environments Habib F. Rashvand 2017-08-14 Provides unique coverage of wireless sensor system applications in space, underwater, underground, and extreme industrial environments in one volume This book covers the challenging aspects of wireless sensor systems and the problems and conditions encountered when applying them in outer space, under the water, below the ground, and in extreme industrial environments. It explores the unique aspects of designs and solutions that address those problems and challenges, and illuminates the connections, similarities, and differences between the challenges and solutions in those various environments. The creation of Wireless Sensor Systems for Extreme Environments is a response to the spread of wireless sensor technology into fields of health, safety, manufacturing, space, environmental, smart cities, advanced robotics, surveillance, and agriculture. It is the first of its kind to present, in a single reference, the unique aspects of wireless sensor system design, development, and deployment in such extreme environments—and to explore the similarities and possible synergies between them. The application of wireless sensor systems in these varied environments has been lagging dramatically behind their application in more conventional environments, making this an especially relevant book for investigators

and practitioners in all of these areas. *Wireless Sensor Systems for Extreme Environments* is presented in five parts that cover: *Wireless Sensor Systems for Extreme Environments—Generic Solutions* *Space WSS Solutions and Applications Underwater and Submerged WSS Solutions Underground and Confined Environments WSS Solutions Industrial and Other WSS Solutions* This book is a welcome guide for researchers, post-graduate students, engineers and scientists who design and build operational and environmental control systems, emergency response systems, and situational awareness systems for unconventional environments.

Proceedings of International Conference on Recent Trends in Machine Learning, IoT, Smart Cities and Applications Vinit Kumar Gunjan 2020-10-17 This book gathers selected research papers presented at the International Conference on Recent Trends in Machine Learning, IOT, Smart Cities & Applications (ICMISC 2020), held on 29–30 March 2020 at CMR Institute of Technology, Hyderabad, Telangana, India. Discussing current trends in machine learning, Internet of things, and smart cities applications, with a focus on multi-disciplinary research in the area of artificial intelligence and cyber-physical systems, this book is a valuable resource for scientists, research scholars and PG students wanting formulate their research ideas and find the future directions in these areas. Further, it serves as a reference work anyone wishing to understand the latest technologies used by practicing engineers around the globe.

Computer and Computing Technologies in Agriculture IV Daoliang Li 2011-02-11 This book constitutes Part I of the refereed four-volume post-conference proceedings of the 4th IFIP TC 12 International Conference on Computer and Computing Technologies in Agriculture, CCTA 2010, held in Nanchang, China, in October 2010. The 352 revised papers presented were carefully selected from numerous submissions. They cover a wide range of interesting theories and applications of information technology in agriculture, including simulation models and decision-support systems for agricultural production, agricultural product quality testing, traceability and e-commerce technology, the application of information and communication technology in agriculture, and universal information service technology and service systems development in rural areas.

Real-Life Applications of the Internet of Things Monika Mangla 2022-08-01 This new volume provides an overview of the Internet of Things along with its architectures, its vital technologies, and their uses in our daily life. The book explores the integration of IoT with other emerging technologies, such as blockchain and cloud. Topics in the volume cover the many powerful features and applications of IoT, such as for weather forecasting, in agriculture, in medical science, in surveillance systems, and much more. The first section of the book covers many of the issues and challenges that arise from the Internet of Things (IoT), exploring security challenges, such as attack detection and prevention systems, as well as energy efficiency and resource management in IoT. The volume also introduces the use of IoT and smart technology in agricultural management, in healthcare diagnosis and monitoring, and in the financial industry. Chapters also focus on surveillance network technology, the technology shift from television to video streaming apps, using IoT-fog computing for smart healthcare, detection of anomalies in climate conditions, and even detection of illegal wood logging activity.

Computational Intelligence in Sensor Networks Bijan Bihari Mishra 2018-05-22 This book discusses applications of computational intelligence in sensor networks. Consisting of twenty chapters, it addresses topics ranging from small-scale data processing to big data processing realized through sensor nodes with the help of computational approaches. Advances in sensor technology and computer networks have enabled sensor networks to evolve from small systems of large sensors to large nets of miniature sensors, from wired communications to wireless communications, and from static to dynamic network topology. In spite of these technological advances, sensor networks still face the challenges of

communicating and processing large amounts of imprecise and partial data in resource-constrained environments. Further, optimal deployment of sensors in an environment is also seen as an intractable problem. On the other hand, computational intelligence techniques like neural networks, evolutionary computation, swarm intelligence, and fuzzy systems are gaining popularity in solving intractable problems in various disciplines including sensor networks. The contributions combine the best attributes of these two distinct fields, offering readers a comprehensive overview of the emerging research areas and presenting first-hand experience of a variety of computational intelligence approaches in sensor networks.

Recent Innovations in Computing Pradeep Kumar Singh

Futuristic Sustainable Energy & Technology Rajesh Singh 2022-05-01 Futuristic Sustainable Energy and Technology provides a structured overview of the concept of Futuristic Sustainable Energy and Technology. It also explores the promotion of the sustainable development of renewable energy from the perspectives of technology, modelling, application, sustainability and policy. This book is dedicated to the advancement of energy efficiency to mitigate consumption, ensure and replenish, expand and reuse elective energy supplies, and to replicate the damage caused by previous energy initiatives. This book has offered a large stage of experimentation for practitioners, experts, researchers and teachers to incorporate and analyze their latest developments, as well as the trends and difficulties encountered and the ongoing evolution of the stage in these areas.

Technological Development and Impact on Economic and Environmental Sustainability Bayar, Yilmaz 2022-03-25 The globalized world has experienced significant improvements in production and consumption in a heterogeneous way since the industrial revolution. However, the considerable environmental degradation and energy wars resulting from the limited fossil energy sources brought the issue of sustainable development to the world agenda. Sustainable development has become one of the most discussed issues at country and international levels and requires further investigation to fully understand how we can move towards a more sustainable future. Technological Development and Impact on Economic and Environmental Sustainability explores the determinants of economic, social, and environmental sustainability from a multidisciplinary perspective in the globalized world, analyzes the impacts of applied sustainable policies, and considers the improvements in the Sustainable Development Goals. Covering topics such as economic growth and climate change, this reference work is ideal for researchers, academicians, scholars, practitioners, industry professionals, instructors, and students.

Applied Computer Sciences in Engineering Juan Carlos Figueroa-García 2021-09-29 This volume constitutes the refereed proceedings of the 8th Workshop on Engineering Applications, WEA 2021, held in Medellín, Colombia, in October 2021. Due to the COVID-19 pandemic the conference was held in a hybrid mode. The 33 revised full papers and 11 short papers presented in this volume were carefully reviewed and selected from 127 submissions. The papers are organized in the following topical sections: computational intelligence; bioengineering; Internet of Things (IoT); optimization and operations research; engineering applications.

Proceedings of the International Conference on Paradigms of Computing, Communication and Data Sciences Mayank Dave 2021-02-19 This book presents best selected papers presented at the International Conference on Paradigms of Computing, Communication and Data Sciences (PCCDS 2020), organized by National Institute of Technology, Kurukshetra, India, during 1–3 May 2020. It discusses high-quality and cutting-edge research in the areas of advanced computing, communications and data science techniques. The book is a collection of latest research articles in computation algorithm, communication

and data sciences, intertwined with each other for efficiency.

Proceedings of the 3rd International Conference on Communication, Devices and Computing

Biplab Sikdar 2022 This book provides insights into the 3rd International Conference on Communication, Devices and Computing (ICCDC 2021), which was held in Haldia, India, on August 16-18, 2021. It covers new ideas, applications, and the experiences of research engineers, scientists, industrialists, scholars, and students from around the globe. The proceedings highlight cutting-edge research on communication, electronic devices, and computing and address diverse areas such as 5G communication, spread spectrum systems, wireless sensor networks, and signal processing for secure communication, error control coding, printed antennas, analysis of wireless networks, antenna array systems, analog and digital signal processing for communication systems, frequency selective surfaces, radar communication, and substrate integrated waveguide and microwave passive components, which are key to state-of-the-art innovations in communication technologies. .

Advances in Micro-Electronics, Embedded Systems and IoT

V. V. S. S. Chakravarthy This book discusses the latest developments and outlines future trends in the fields of microelectronics, electromagnetics and telecommunication. It contains original research works presented at the International Conference on Microelectronics, Electromagnetics and Telecommunication (ICMEET 2021), held in Bhubaneswar, Odisha, India during 27 - 28 August 2021. The papers were written by scientists, research scholars and practitioners from leading universities, engineering colleges and R&D institutes from all over the world and share the latest breakthroughs in and promising solutions to the most important issues facing today's society.

Cloud Computing and Security

Xingming Sun 2018-09-25 This six volume set LNCS 11063 - 11068 constitutes the thoroughly refereed conference proceedings of the 4th International Conference on Cloud Computing and Security, ICCCS 2018, held in Haikou, China, in June 2018. The 386 full papers of these six volumes were carefully reviewed and selected from 1743 submissions. The papers cover ideas and achievements in the theory and practice of all areas of inventive systems which includes control, artificial intelligence, automation systems, computing systems, electrical and informative systems. The six volumes are arranged according to the subject areas as follows: cloud computing, cloud security, encryption, information hiding, IoT security, multimedia forensics

Software Engineering and Knowledge Engineering: Theory and Practice **Yanwen Wu 2012-01-16** The volume includes a set of selected papers extended and revised from the I2009 Pacific-Asia Conference on Knowledge Engineering and Software Engineering (KESE 2009) was held on December 19~ 20, 2009, Shenzhen, China. Volume 1 is to provide a forum for researchers, educators, engineers, and government officials involved in the general areas of Computer and Software Engineering to disseminate their latest research results and exchange views on the future research directions of these fields. 140 high-quality papers are included in the volume. Each paper has been peer-reviewed by at least 2 program committee members and selected by the volume editor Prof. Yanwen Wu. On behalf of this volume, we would like to express our sincere appreciation to all of authors and referees for their efforts reviewing the papers. Hoping you can find lots of profound research ideas and results on the related fields of Computer and Software Engineering.

Advances in Information and Communication Technologies for Adapting Agriculture to Climate Change II

Juan Carlos Corrales 2018-11-20 This book presents novel communication technology solutions to address the effects of climate change and climate variability on agriculture, with a particular focus on those that increase agricultural production. It discusses decision support and early warning systems for

agriculture; information technology (IT) supporting sustainable water management and land cover dynamics; predictive of crop production models; and software applications for reducing the effects of diseases and pests on crops. Further topics include the real-time monitoring of weather conditions and water quality, as well as food security issues. Featuring the proceedings of the International Conference of ICT for Adapting Agriculture to Climate Change (AACC'18), held on November 21–23, 2018, in Cali, Colombia, the book represents a timely report and a source of new ideas and solutions for both researchers and practitioners active in the agricultural sector around the globe.

Advances in Data Science Leman Akoglu 2018-11-28 This book constitutes the thoroughly refereed post-conference proceedings of the Third International Conference on Advances in Data Science, ICIIT 2018, held in Chennai, India, in December 2018. The 11 full papers along with 4 short papers presented were carefully reviewed and selected from 74 submissions. The papers are organized in topical sections on data science foundations, data management and processing technologies, data analytics and its applications.

Advanced Manufacturing and Automation Xi Yi Wang

Advanced Energy and Control Systems Chandan Kumar Chanda 2022 This book gathers selected research papers presented at the Third International Conference on Energy Systems, Drives, and Automations (ESDA 2020). It covers a broad range of topics in the fields of renewable energy, power management, drive systems for electrical machines, and automation. In a span of about a few interesting articles, effort had gone in to critically discuss about the control system, energy management and distribution in a unified approach common to electrical, Control and mechanical engineering. This book also comprehensively discusses a variety of related tools and techniques and will be a valuable resource for researchers, professionals, and students in electrical and mechanical engineering disciplines.

The Proceedings of the Third International Conference on Communications, Signal Processing, and Systems Jiasong Mu 2015-06-12 The Proceedings of The Third International Conference on Communications, Signal Processing and Systems provides the state-of-art developments of Communications, Signal Processing and Systems. The conference covered such topics as wireless communications, networks, systems, signal processing for communications. This book is a collection of contributions coming out of Third International Conference on Communications, Signal Processing and Systems held on July 2014 in Hohhot, Inner Mongolia, China.

Advances in Human Factors and Ergonomics in Healthcare and Medical Devices Vincent Duffy 2017-06-17 This book discusses the latest advances in human factors and ergonomics, focusing on methods for improving quality, safety, efficiency, and effectiveness in patient care. By emphasizing the physical, cognitive, and organizational aspects of human factors and ergonomics applications, it presents various perspectives, including those of clinicians, patients, health organizations, and insurance providers. The book describes cutting-edge applications, highlighting best practices for staff interactions with patients, as well as interactions with computers and medical devices. It also presents new findings related to improved organizational outcomes in healthcare settings, and approaches to modeling and analysis specifically targeting those work aspects unique to healthcare. Based on the AHFE 2017 International Conference on Human Factors and Ergonomics in Healthcare and Medical Devices, held on July 17–21, 2017, in Los Angeles, California, USA, the book is intended as a timely reference guide for both researchers involved in the design of healthcare systems and devices and for healthcare professionals working to deliver safe and effective health service. Moreover, by providing a useful survey of cutting-

edge methods for improving organizational outcomes in healthcare settings, the book also represents a source of inspiration for healthcare counselors and international health organizations.

Electric, Electronic and Control Engineering Fun Shao 2015-07-03 Electric, Electronic and Control Engineering contains the contributions presented at the 2015 International Conference on Electric, Electronic and Control Engineering (ICEECE 2015, Phuket Island, Thailand, 5-6 March 2015). The book is divided into four main topics: - Electric and Electronic Engineering - Mechanic and Control Engineering - Informati

Proceedings of International Joint Conference on Computational Intelligence Mohammad Shorif Uddin 2019-07-03 This book gathers outstanding research papers presented at the International Joint Conference on Computational Intelligence (IJCCI 2018), which was held at Daffodil International University on 14-15 December 2018. The topics covered include: collective intelligence, soft computing, optimization, cloud computing, machine learning, intelligent software, robotics, data science, data security, big data analytics, and signal and natural language processing.

ZigBee Wireless Networks and Transceivers Shahin Farahani 2011-04-08 ZigBee is a short-range wireless networking standard backed by such industry leaders as Motorola, Texas Instruments, Philips, Samsung, Siemens, Freescale, etc. It supports mesh networking, each node can transmit and receive data, offers high security and robustness, and is being rapidly adopted in industrial, control/monitoring, and medical applications. This book will explain the ZigBee protocol, discuss the design of ZigBee hardware, and describe how to design and implement ZigBee networks. The book has a dedicated website for the latest technical updates, ZigBee networking calculators, and additional materials. Dr. Farahani is a ZigBee system engineer for Freescale semiconductors Inc. The book comes with a dedicated website that contains additional resources and calculators: <http://www.learnZigBee.com> Provides a comprehensive overview of ZigBee technology and networking, from RF/physical layer considerations to application layer development Discusses ZigBee security features such as encryption Describes how ZigBee can be used in location detection applications Explores techniques for ZigBee co-existence with other wireless technologies such as 802.11 and Bluetooth The book comes with a dedicated website that contains additional resources and calculators: <http://www.learnZigBee.com>

Proceeding of the International Conference on Computer Networks, Big Data and IoT (ICCBI - 2019) A. Pasumpon Pandian 2020-03-04 This book presents the proceedings of the International Conference on Computing Networks, Big Data and IoT [ICCBI 2019], held on December 19-20, 2019 at the Vaigai College of Engineering, Madurai, India. Recent years have witnessed the intertwining development of the Internet of Things and big data, which are increasingly deployed in computer network architecture. As society becomes smarter, it is critical to replace the traditional technologies with modern ICT architectures. In this context, the Internet of Things connects smart objects through the Internet and as a result generates big data. This has led to new computing facilities being developed to derive intelligent decisions in the big data environment. The book covers a variety of topics, including information management, mobile computing and applications, emerging IoT applications, distributed communication networks, cloud computing, and healthcare big data. It also discusses security and privacy issues, network intrusion detection, cryptography, 5G/6G networks, social network analysis, artificial intelligence, human-machine interaction, smart home and smart city applications.

Wireless Technology, Intelligent Network Technologies, Smart Services and Applications Lakhmi C. Jain

Intelligent Communication Technologies and Virtual Mobile Networks S. Balaji 2019-08-12 This

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book presents the outcomes of the Intelligent Communication Technologies and Virtual Mobile Networks Conference (ICICV 2019) held in Tirunelveli, India, on February 14-15, 2019. It presents the state of the art in the field, identifying emerging research topics and communication technologies and defining the future of intelligent communication approaches and virtual computing. In light of the tremendous growth ICT, it examines the rapid developments in virtual reality in communication technology and high-quality services in mobile networks, including the integration of virtual mobile computing and communication technologies, which permits new technologies based on the resources and services of computational intelligence, big data analytics, Internet of Things (IoT), 5G technology, automation systems, sensor networks, augmented reality, data mining, and vehicular ad hoc networks with massive cloud-based backend. These services have a significant impact on all areas of daily life, like transportation, e-commerce, health care, secure communication, location detection, smart home, smart city, social networks and many more.

Safety, Security, and Reliability of Robotic Systems Brij B. Gupta 2020-12-30 With the increasing demand of robots for industrial and domestic use, it becomes indispensable to ensure their safety, security, and reliability. *Safety, Security and Reliability of Robotic Systems: Algorithms, Applications, and Technologies* provides a broad and comprehensive coverage of the evolution of robotic systems, as well as industrial statistics and future forecasts. First, it analyzes the safety-related parameters of these systems. Then, it covers security attacks and related countermeasures, and how to establish reliability in these systems. The later sections of the book then discuss various applications of these systems in modern industrial and domestic settings. By the end of this book, you will be familiarized with the theoretical frameworks, algorithms, applications, technologies, and empirical research findings on the safety, security, and reliability of robotic systems, while the book's modular structure and comprehensive material will keep you interested and involved throughout. This book is an essential resource for students, professionals, and entrepreneurs who wish to understand the safe, secure, and reliable use of robotics in real-world applications. It is edited by two specialists in the field, with chapter contributions from an array of experts on robotics systems and applications.

Application of Machine Learning in Agriculture Mohammad Ayoub Khan 2022-05-27 *Application of Machine Learning in Smart Agriculture* is the first book to present a multidisciplinary look at how technology can not only improve agricultural output, but the economic efficiency of that output as well. Through a global lens, the book approaches the subject from a technical perspective, providing important knowledge and insights for effective and efficient implementation and utilization of machine learning. As artificial intelligence techniques are being used to increase yield through optimal planting, fertilizing, irrigation, and harvesting, these are only part of the complex picture which must also take into account the economic investment and its optimized return. The performance of machine learning models improves over time as the various mathematical and statistical models are proven. Presented in three parts, *Application of Machine Learning in Smart Agriculture* looks at the fundamentals of smart agriculture; the economics of the technology in the agricultural marketplace; and a diverse representation of the tools and techniques currently available, and in development. This book is an important resource for advanced level students and professionals working with artificial intelligence, internet of things, technology and agricultural economics. Addresses the technology of smart agriculture from a technical perspective Reveals opportunities for technology to improve and enhance not only yield and quality, but the economic value of a food crop Discusses physical instruments, simulations, sensors, and markets for machine learning in agriculture

The Smart Cyber Ecosystem for Sustainable Development Pardeep Kumar 2021-09-08 The Cyber Ecosystem can be a replica of our natural ecosystem where different living and non-living things interact

with each other to perform specific tasks. Similarly, the different entities of the cyber ecosystem collaborate digitally with each other to revolutionize our lifestyle by creating smart, intelligent, and automated systems/processes. The main actors of the cyber ecosystem, among others, are the Internet of Things (IoT), Artificial Intelligence (AI), and the mechanisms providing cybersecurity. This book documents how this blend of technologies is powering a digital sustainable socio-economic infrastructure which improves our life quality. It offers advanced automation methods fitted with amended business and audits models, universal authentication schemes, transparent governance, and inventive prediction analysis.

Advances in Big Data and Cloud Computing J. Dinesh Peter 2018-12-12 This book is a compendium of the proceedings of the International Conference on Big Data and Cloud Computing. It includes recent advances in the areas of big data analytics, cloud computing, internet of nano things, cloud security, data analytics in the cloud, smart cities and grids, etc. This volume primarily focuses on the application of the knowledge that promotes ideas for solving the problems of the society through cutting-edge technologies. The articles featured in this proceeding provide novel ideas that contribute to the growth of world class research and development. The contents of this volume will be of interest to researchers and professionals alike.

AI, Edge and IoT-based Smart Agriculture Ajith Abraham 2021-11-10 AI, Edge, and IoT Smart Agriculture integrates applications of IoT, edge computing, and data analytics for sustainable agricultural development and introduces Edge of Thing-based data analytics and IoT for predictability of crop, soil, and plant disease occurrence for improved sustainability and increased profitability. The book also addresses precision irrigation, precision horticulture, greenhouse IoT, livestock monitoring, IoT ecosystem for agriculture, mobile robot for precision agriculture, energy monitoring, storage management, and smart farming. The book provides an overarching focus on sustainable environment and sustainable economic development through smart and e-agriculture. Providing a medium for the exchange of expertise and inspiration, contributions from both smart agriculture and data mining researchers around the world provide foundational insights. The book provides practical application opportunities for the resolution of real-world problems, including contributions from the data mining, data analytics, Edge of Things, and cloud research communities working in the farming production sector. The book offers broad coverage of the concepts, themes, and instruments of this important and evolving area of IOT-based agriculture, Edge of Things and cloud-based farming, Greenhouse IOT, mobile agriculture, sustainable agriculture, and big data analytics in agriculture toward smart farming. Integrates sustainable agriculture, Greenhouse IOT, precision agriculture, crops monitoring, crops controlling to prediction, livestock monitoring, and farm management Presents data mining techniques for precision agriculture, including weather prediction, plant disease prediction, and decision support for crop and soil selection Promotes the importance and uses in managing the agro ecosystem for food security Emphasizes low energy usage options for low cost and environmental sustainability

Automation in Agriculture Stephan Hussmann 2018-03-14 According to Prof. D. Despommier, by the year 2050, nearly 80% of the earth's population will reside in urban centers. Furthermore, the human population will increase by about 3 billion people during the interim. New land will be needed to grow enough food to feed them. At present, throughout the world, over 80% of the land that is suitable for raising crops is in use. What can be done to avoid this impending disaster? One possible solution is indoor farming. However, not all crops can easily be moved in an indoor environment. Nevertheless, to secure the food supply, it is necessary to increase the automation level in agriculture significantly. This book intends to provide the reader with a comprehensive overview of the impact of the Fourth Industrial Revolution and automation examples in agriculture.

Computational Intelligence in Robotics and Automation S.S Nandhini 2022-09-29 This book will help readers to understand the concepts of computational intelligence in automation industries, industrial IoT (IIOT), cognitive systems, data science, and Ecommerce real time applications. The book: Covers computational intelligence in automation industries, industrial IoT (IIOT) , cognitive systems and medical Imaging Discusses intelligent robotics applications with the integration of automation and artificial intelligence Covers foundations of the mathematical concepts applied in robotics and industry automation applications Provides application of artificial intelligence (AI) in the area of computational intelligence The text covers important topics including computational intelligence mathematical modeling, cognitive manufacturing in industry 4.0, artificial intelligence algorithms in robot development, collaborative robots and industrial IoT (IIOT), medical imaging, and multi-robot systems. The text will be useful for graduate students, professional and academic researchers in the fields of electrical engineering, electronics and communication engineering, and computer science. Discussing the advantages of the integrated platform of industry automation, robotics and computational intelligence, this text will be useful for graduate students, professional and academic researchers in the fields of electrical engineering, electronics and communication engineering, and computer science. It enlightens the foundations of the mathematical concepts applied in robotics and industry automation applications.

Cloud IoT Systems for Smart Agricultural Engineering Saravanan Krishnan 2022-02-14 Agriculture plays a vital role in a country's growth. Modern-day technologies drive every domain toward smart systems. The use of traditional agricultural procedures to satisfy modern-day requirements is a challenging task. Cloud IoT Systems for Smart Agricultural Engineering provides substantial coverage of various challenges of the agriculture domain through modern technologies such as the Internet of Things (IoT), cloud computing, and many more. This book offers various state-of-the-art procedures to be deployed in a wide range of agricultural activities. The concepts are discussed with the necessary implementations and clear examples. Necessary illustrations are depicted in the chapters to ensure the effective delivery of the proposed concepts. It presents the rapid advancement of the technologies in the existing agricultural model by applying the cloud IoT techniques. A wide variety of novel architectural solutions are discussed in various chapters of this book. This book provides comprehensive coverage of the most essential topics, including: New approaches on urban and vertical farming Smart crop management for Indian farmers Smart livestock management Precision agriculture using geographical information systems Machine learning techniques combined with IoT for smart agriculture Effective use of drones in smart agriculture This book provides solutions for the diverse domain of problems in agricultural engineering. It can be used at the basic and intermediary levels for agricultural science and engineering graduate students, researchers, and practitioners.

Advances in Automation, Signal Processing, Instrumentation, and Control Venkata Lakshmi Narayana Komanapalli 2021-03-04 This book presents the select proceedings of the International Conference on Automation, Signal Processing, Instrumentation and Control (i-CASIC) 2020. The book mainly focuses on emerging technologies in electrical systems, IoT-based instrumentation, advanced industrial automation, and advanced image and signal processing. It also includes studies on the analysis, design and implementation of instrumentation systems, and high-accuracy and energy-efficient controllers. The contents of this book will be useful for beginners, researchers as well as professionals interested in instrumentation and control, and other allied fields.

Nanosensors for Smart Agriculture Adil Denizli 2021-11-26 Nanosensors for Smart Agriculture covers new breakthroughs in smart agriculture, highlighting new technologies, such as the internet of things, big data and artificial intelligence. In addition, the book provides the many advantages of nanosensors over their micro counterparts, such as lower power consumption, higher sensitivity, lower concentration of

analytes, and smaller interaction distances between the object and sensor. Sections provide information on fundamental design concepts and emerging applications of nanosensors in smart agriculture. The book highlights how, when cultivating soil, nanosensors and their wireless networks can be used for soil quality monitoring (moisture/herbicides/organic compound/trace metals monitoring in soil, etc. Other applications cover how smart nanosensors can be used for virus detection and hygiene/pathogen controls in livestock, their use as active transport tracking devices for smart tracking and tracing, and other various applications, such as (i) nanochips for identity (radio frequency identification), (ii) food inspection, (iii) intelligent food packaging, and (iv) smart storage. This is an important reference source for materials scientists and agricultural engineers who are looking to understand more about how nanosensor technology can be used to create more efficient and sustainable agricultural systems. Outlines the fabrication and fundamental design concepts of nanosensors for agricultural applications Explains how nanosensors are being used throughout the agricultural cycle - from crop growth to food manufacturing Assesses major challenges surrounding the application of nanosensors to agricultural applications in mass scale

Advances in Agronomy Donald L. Sparks 2021-05-01 *Advances in Agronomy*, Volume 167, the latest release in this leading reference on agronomy, contains a variety of updates and highlights new advances in the field. Each chapter is written by an international board of authors. Includes numerous, timely, state-of-the-art reviews on the latest advancements in agronomy Features distinguished, well recognized authors from around the world Builds upon this venerable and iconic review series Covers the extensive variety and breadth of subject matter in the crop and soil sciences

Intelligent Data Sensing and Processing for Health and Well-being Applications Miguel Antonio Wister Ovando 2018-07-26 *Intelligent Data Sensing and Processing for Health and Well-being Applications* uniquely combines full exploration of the latest technologies for sensor-collected intelligence with detailed coverage of real-case applications for healthcare and well-being at home and in the workplace. Forward-thinking in its approach, the book presents concepts and technologies needed for the implementation of today's mobile, pervasive and ubiquitous systems, and for tomorrow's IoT and cyber-physical systems. Users will find a detailed overview of the fundamental concepts of gathering, processing and analyzing data from devices disseminated in the environment, as well as the latest proposals for collecting, processing and abstraction of data-sets. In addition, the book addresses algorithms, methods and technologies for diagnosis and informed decision-making for healthcare and well-being. Topics include emotional interface with ambient intelligence and emerging applications in detection and diagnosis of neurological diseases. Finally, the book explores the trends and challenges in an array of areas, such as applications for intelligent monitoring in the workplace for well-being, acquiring data traffic in cities to improve the assistance of first aiders, and applications for supporting the elderly at home. Examines the latest applications and future directions for mobile data sensing in an array of health and well-being scenarios Combines leading computing paradigms and technologies, development applications, empirical studies, and future trends in the multidisciplinary field of smart sensors, smart sensor networks, data analysis and machine intelligence methods Features an analysis of security, privacy and ethical issues in smart sensor health and well-being applications Equips readers interested in interdisciplinary projects in ubiquitous computing or pervasive computing and ambient intelligence with the latest trends and developments