

Agricultural Robots Mechanisms And Practice

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Robotics and Mechatronics for Agriculture - Dan Zhang 2017-11-23

The aim of the book is to introduce the state-of-the-art technologies in the field of robotics, mechatronics and automation in agriculture in order to summarize and review the improvements in the methodologies in agricultural robotics. Advances made in the past decades are described, including robotics for agriculture, mechatronics for agriculture, kinematics, dynamics and control analysis of agricultural robotics, and a wide range of topics in the field of robotics, mechatronics and automation for agricultural applications.

Theory and Practice of Robots and Manipulators - A. Morecki 2014-05-04

The CISM-IFTOMM Symposia have played a dynamic role in the development of the theory and practice of robotics. The proceedings of the Tenth Symposia present a world view to date of the state-of-the-art, including a unique record of the results achieved in central and eastern Europe.

Integrated Pest Management - David Pimentel 2014-04-10

The book deals with the present state and problems of integrated pest management as relating to stakeholder acceptance of IPM and how integrated pest management can become a sustainable practice. The discussions include using less pesticides and the possibility of eliminating pesticides from agricultural practice.

Food Industry 4.0 - Wayne Martindale 2022-09-21

This book provides industry insights and fresh ideas for the advancement of the most vital global industry - food. Drawing on their industry and academic expertise the authors have identified three controlling aspects of food business operations that can unleash long term success: consumer health and wellbeing; product and process sustainability; and harnessing advances in digitalization. If developed to their maximum potential these factors have the capability to revolutionize the food sector. Food Industry 4.0 highlights advancement opportunities for the food manufacturing sector, including innovation in products, processes and services, as it seeks to combine productive, efficient and sustainable practices.

Robotics, Machinery and Engineering Technology for Precision Agriculture - Mark Shamtsyan 2021-10-04

This book is a collection of papers presented at XIV International Scientific Conference "INTERAGROMASH 2021", held at Don State Technical University, Rostov-on-Don, Russia, during 24-26 February 2021. The research results presented in this book cover applications of unmanned aerial systems, satellite-based applications for precision agriculture, proximal and remote sensing of soil and crop, spatial analysis, variable-rate technology, embedded sensing systems, drainage optimization and variable rate irrigation, wireless sensor networks, Internet of things, robotics, guidance and automation, software and mobile apps for precision agriculture, decision support for precision agriculture and data mining for precision agriculture.

Springer Handbook of Automation - Shimon Y. Nof 2009-07-16

This handbook incorporates new developments in automation. It also presents a widespread and well-structured conglomeration of new emerging application areas, such as medical systems and health, transportation, security and maintenance, service, construction and retail as well as production or logistics. The handbook is not only an ideal resource for automation experts but also for people new to this expanding field.

ROBOT2022: Fifth Iberian Robotics Conference - Danilo Tardioli 2022-11-18

This book contains a selection of papers accepted for presentation and discussion at ROBOT 2022—Fifth Iberian Robotics Conference, held in Zaragoza, Spain, on November 23-25, 2022. ROBOT 2022 is part of a series of conferences that are a joint organization of SEIDROB—Sociedad Española para la Investigación y Desarrollo en Robótica/Spanish Society for Research and Development in Robotics, and SPR—Sociedade Portuguesa de Robótica/Portuguese Society for Robotic. ROBOT 2022 builds upon several previous successful events, including three biennial workshops and the four previous editions of the Iberian Robotics Conference, and is focused on presenting the research and development of new applications, on the field of Robotics, in the Iberian Peninsula, although open to research and delegates from other countries. ROBOT 2022 featured four plenary talks on state-of-the-art subjects on robotics and 15 special sessions, plus a main/general robotics track. In total, after a careful review process, 98 high-quality papers were selected for publication, with a total of 219 unique authors, from 22 countries.

The impact of disasters and crises on agriculture and food security: 2021 - Food and Agriculture Organization of the United Nations 2021-03-17

On top of a decade of exacerbated disaster loss, exceptional global heat, retreating ice and rising sea levels, humanity and our food security face a range of new and unprecedented hazards, such as megafires, extreme weather events, desert locust swarms of magnitudes previously unseen, and the COVID-19 pandemic. Agriculture underpins the livelihoods of over 2.5 billion people - most of them in low-income developing countries - and remains a key driver of development. At no other point in history has agriculture been faced with such an array of familiar and unfamiliar risks, interacting in a hyperconnected world and a precipitously changing landscape. And agriculture continues to absorb a disproportionate share of the damage and loss wrought by disasters. Their growing frequency and intensity, along with the systemic nature of risk, are upending people's lives, devastating livelihoods, and jeopardizing our entire food system. This report makes a powerful case for investing in resilience and disaster risk reduction - especially data gathering and analysis for evidence informed action - to ensure agriculture's crucial role in achieving the future we want.

Agricultural robotics: part of the new deal? FIRA 2020 conclusions - Roland Lenain 2021-09-01

The farming and agricultural robotics industries are inextricably linked. This connection is reinforced every year at the FIRA International Forum of Agricultural Robots, where, inevitably, there are new players and new problems, bigger goals and better solutions. This book is a journey into the state of the art of the industry in 2020, followed by 27 agricultural robot information sheets.

Innovation in Agricultural Robotics for Precision Agriculture - Avital Bechar 2021-09-24

This book provides a review of the state-of-the-art of agricultural robotics in different aspects of PA, the goals, and the gaps. The book introduces the area of Agricultural Robotics for Precision Agriculture (PA) specifically the conditions and limitations for implementing robots in this field and presents the concepts, principles, required abilities, components, characteristics and performance measures, conditions, and rules for robots in PA.

Agricultural Robots - Naoshi Kondo 2011

The history of Japan's agriculture is characterized by efforts to increase production and productivity. At the beginning of the 21st century, both public and private sector research has focused on developing ever-more sophisticated tools to address a wide-range of challenges facing the agricultural industry. An amazing array

of automation technologies and robots have been developed in the process, to do everything from tilling fields to picking strawberries, from planting rice seedlings to autonomously weeding the paddies. This richly-illustrated volume surveys the results of these efforts, concisely and plainly presenting specific examples of the latest robotic mechanisms and practices for agricultural applications.

Robot Ethics 2.0 - Patrick Lin 2017

The robot population is rising on Earth and other planets. (Mars is inhabited entirely by robots.) As robots slip into more domains of human life--from the operating room to the bedroom--they take on our morally important tasks and decisions, as well as create new risks from psychological to physical. This makes it all the more urgent to study their ethical, legal, and policy impacts. To help the robotics industry and broader society, we need to not only press ahead on a wide range of issues, but also identify new ones emerging as quickly as the field is evolving. For instance, where military robots had received much attention in the past (and are still controversial today), this volume looks toward autonomous cars here as an important case study that cuts across diverse issues, from liability to psychology to trust and more. And because robotics feeds into and is fed by AI, the Internet of Things, and other cognate fields, robot ethics must also reach into those domains, too. Expanding these discussions also means listening to new voices; robot ethics is no longer the concern of a handful of scholars. Experts from different academic disciplines and geographical areas are now playing vital roles in shaping ethical, legal, and policy discussions worldwide. So, for a more complete study, the editors of this volume look beyond the usual suspects for the latest thinking. Many of the views as represented in this cutting-edge volume are provocative--but also what we need to push forward in unfamiliar territory.

Rapid Damage-Free Robotic Harvesting of Tomatoes - Jizhan Liu 2021-06-23

This book shares the latest findings on this topic, systematically introduces readers to advances made in robotic harvesting around the globe, and explores the relations between the development of robotic harvesting and the respective social/economic conditions and agricultural business patterns in various countries/regions. Due to the unstructured setting it is used in, and to the significant differences between individual fruit and vegetable targets, robotic harvesting is currently considered to be one of the most challenging robotics technologies. Accordingly, research into this area involves the integration of various aspects, including biomechanics, optimization design, advanced perception and intelligent control. In addition to rapid and damage-free robotic harvesting, which reflects the multidisciplinary nature of the topic, further aspects addressed include gripping collisions with viscoelastic objects, using lasers to cut plant material, plant-fruit response to vacuum sucking and pulling, and performance probability distribution. Highlighting outstanding innovations and reflecting the latest advances in intelligent agricultural equipment in China, the book offers a unique and valuable resource.

Mechanics and Mechanisms - David H. Myszka 2005

Provides the techniques necessary to study the motion of machines, and emphasizes the application of kinematic theories to real-world machines consistent with the philosophy of engineering and technology programs. This book intends to bridge the gap between a theoretical study of kinematics and the application to practical mechanism.

Artificial Intelligence Illuminated - Ben Coppin 2004

Artificial Intelligence Illuminated presents an overview of the background and history of artificial intelligence, emphasizing its importance in today's society and potential for the future. The book covers a range of AI techniques, algorithms, and methodologies, including game playing, intelligent agents, machine learning, genetic algorithms, and Artificial Life. Material is presented in a lively and accessible manner and the author focuses on explaining how AI techniques relate to and are derived from natural systems, such as the human brain and evolution, and explaining how the artificial equivalents are used in the real world. Each chapter includes student exercises and review questions, and a detailed glossary at the end of the book defines important terms and concepts highlighted throughout the text.

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.

Perspectives on the Use of New Information and Communication Technology (ICT) in the Modern Economy - Elena G. Popkova 2018-06-04

This book includes the best works presented at the scientific and practical conference that took place on February 1, 2018 in Pyatigorsk, Russia on the topic "Perspectives on the use of New Information and Communication Technology (ICT) in the Modern Economy". The conference was organized by the Institute of Scientific Communications (Volgograd, Russia), the Center for Marketing Initiatives (Stavropol, Russia), and Pyatigorsk State University (Pyatigorsk, Russia). The book presents the results of research on the complex new information and communication technologies in the modern economy and law as well as research that explore limits of and opportunities for their usage. The target audience of this book includes undergraduates and postgraduates, university lecturers, experts, and researchers studying various issues concerning the use of new information and communication technologies in modern economies. The book includes research on the following current topics in modern economic science: new challenges and opportunities for establishing information economies under the influence of scientific and technical advances, digital economy as a new vector of development of the modern global economy, economic and legal aspects of using new information and communication technologies in developed and developing countries, priorities of using the new information and communication technologies in modern economies, platforms of communication integration in tourism using new information and communication technologies, and economic and legal managerial aspects and peculiarities of scientific research on the information society.

International e-Conference of Computer Science 2006 - Theodore Simos 2007-04-30

Lecture Series on Computer and on Computational Sciences (LSCCS) aims to provide a medium for the publication of new results and developments of high-level research and education in the field of computer and computational science. In this series, only selected proceedings of conferences in all areas of computer science and computational sciences will be published. All publications are aimed at top researchers in the field and all papers in the proceedings volumes will be strictly peer reviewed. The series aims to cover the following areas of computer and computational sciences: Computer Science Hardware Computer Systems Organization Software Data Theory of Computation Mathematics of Computing Information Systems Computing Methodologies Computer Applications Computing Milieu Computational Sciences Computational Mathematics, Theoretical and Computational Physics, Theoretical and Computational Chemistry Scientific Computation Numerical and Computational Algorithms, Modeling and Simulation of Complex System, Web-Based Simulation and Computing, Grid-Based Simulation and Computing Fuzzy Logic, Hybrid Computational Methods, Data Mining and Information Retrieval and Virtual Reality, Reliable Computing, Image Processing, Computational Science and Education

Tech Trends in Practice - Bernard Marr 2020-04-09

Discover how 25 powerful technology trends are transforming 21st century businesses How will the latest technologies transform your business? Future Tech Trends in Practice will give you the knowledge of today's most important technology trends, and how to take full advantage of them to grow your business. The book presents 25 real-world technology trends along with their potential contributions to organisational success. You'll learn how to integrate existing advancements and plan for those that are on the way. In this book, best-selling author, strategic business advisor, and respected futurist Bernard Marr explains the role of technology in providing innovative businesses solutions for companies of varying sizes and across different industries. He covers wide-ranging trends and provides an overview of how companies are using these new and emerging technologies in practice. You, too, can prepare your company for the potential and power of trending technology by examining these and other areas of innovation described in Future Tech Trends in Practice: Artificial intelligence, including machine and deep learning The Internet of Things and the rise of smart devices Self-driving cars and autonomous drones 3D printing and additive manufacturing

Blockchain technology Genomics and gene editing Augmented, virtual and mixed reality When you understand the technology trends that are driving success, now and into the future, you'll be better positioned to address and solve problems within your organisation.

Intelligent Agrifood Chains and Networks - Michael A. Bourlakis 2011-02-25

Food has a fundamental position in society, ensuring health, happiness and political stability. Consequently, the management of food chains and networks is one of the most important aspects of the modern food industry. Yet food is difficult to handle along long supply chains, with a limited window for storage and handling time, and the risk of spoiling if incorrectly handled or processed. These issues can lead to logistical problems that can severely affect product quality and freshness. Intelligent Agrifood Chains and Networks offers a timely discussion of the current state of food logistics, and indicates the major ICT problems that can occur during production, warehousing, transportation and retailing. Emphasis is given to new technologies and intelligent systems that are able to process time-dependent information, handle emergencies, and support logistics operations in food management. In particular, the authors show how telematics and RFID can be implemented in the supply chain. The book also includes real-life case studies, in which actual food logistics problems and their solutions are presented, demonstrating how systemic and logistics approaches may be combined. The book is directed at academics, researchers, and students seeking the necessary background in terms of the interplay between the food supply chain and ICT. Its comprehensive review of current issues in the food supply chain will be of interest to managers and technicians working in the food industry, while its technological focus will be invaluable to food scientists and technologists working in research and industry environments.

Agricultural Automation - Qin Zhang 2016-04-19

Agricultural automation is the core technology for computer-aided agricultural production management and implementation. An integration of equipment, infotronics, and precision farming technologies, it creates viable solutions for challenges facing the food, fiber, feed, and fuel needs of the human race now and into the future. Agricultural Automat

Fundamentals of Agricultural and Field Robotics - Manoj Karkee 2021

Over the past century, mechanization has been an important means for optimizing resource utilization, improving worker health and safety and reducing labor requirements in farming while increasing productivity and quality of 4F (Food, Fuel, Fiber, Feed). Recognizing this contribution, agricultural mechanization was considered as one of the top ten engineering achievements of 20th century by the National Academy of Engineering. Accordingly farming communities have adopted increasing level of automation and robotics to further improve the precision management of crops (including input resources), increase productivity and reduce farm labor beyond what has been possible with conventional mechanization technologies. It is more important than ever to continue to develop and adopt novel automation and robotic solutions into farming so that some of the most complex agricultural tasks, which require huge amount of seasonal labor such as fruit and vegetable harvesting, could be automated while meeting the rapidly increasing need for 4F. In addition, continual innovation in and adoption of agricultural automation and robotic technologies is essential to minimize the use of depleting resources including water, minerals and other chemicals so that sufficient amount of safe and healthy food can be produced for current generation while not compromising the potential for the future generation. This book aims at presenting the fundamental principles of various aspects of automation and robotics as they relate to production agriculture (the branch of agriculture dealing with farming operations from field preparation to seeding, to harvesting and field logistics). The building blocks of agricultural automation and robotics that are discussed in the book include sensing and machine vision, control, guidance, manipulation and end-effector technologies. The fundamentals and operating principles of these technologies are explained with examples from cutting-edge research and development currently going on around the world. This book brings together scientists, engineers, students and professionals working in these and related technologies to present their latest examples of agricultural automation and robotics research, innovation and development while explaining the fundamentals of the technology. The book, therefore, benefits those who wish to develop novel agricultural engineering solutions and/or to adopt them in the future. .

Agricultural Robots - Jun Zhou 2019-01-03

Over the past few decades, extensive research has been conducted on the applications of agricultural robots and automation to a variety of field and greenhouse operations, and technical fundamentals and their feasibility have also been widely demonstrated. Due to the unstructured environment, adverse interference and complicated and diversified operation process are the key of blocking its commercialization in robotic agricultural operations. Because of the development of automation techniques, smart sensors, and information techniques, some types of agricultural robots have achieved considerable success in recent years. This book intends to provide the reader with a comprehensive overview of the current state of the art in agricultural robots, fundamentals, and applications in robotic agricultural operations.

Artificial Intelligence for Sustainable Development: Theory, Practice and Future Applications Hassanien 2020-08-31

This book highlights the latest advances in the field of artificial intelligence and related technologies, with a special focus on sustainable development and environmentally friendly artificial intelligence applications. Discussing theory, applications and research, it covers all aspects of artificial intelligence in the context of sustainable development.

The Fourth Industrial Revolution - Klaus Schwab 2017-01-03

World-renowned economist Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, explains that we have an opportunity to shape the fourth industrial revolution, which will fundamentally alter how we live and work. Schwab argues that this revolution is different in scale, scope and complexity from any that have come before. Characterized by a range of new technologies that are fusing the physical, digital and biological worlds, the developments are affecting all disciplines, economies, industries and governments, and even challenging ideas about what it means to be human. Artificial intelligence is already all around us, from supercomputers, drones and virtual assistants to 3D printing, DNA sequencing, smart thermostats, wearable sensors and microchips smaller than a grain of sand. But this is just the beginning: nanomaterials 200 times stronger than steel and a million times thinner than a strand of hair and the first transplant of a 3D printed liver are already in development. Imagine "smart factories" in which global systems of manufacturing are coordinated virtually, or implantable mobile phones made of biosynthetic materials. The fourth industrial revolution, says Schwab, is more significant, and its ramifications more profound, than in any prior period of human history. He outlines the key technologies driving this revolution and discusses the major impacts expected on government, business, civil society and individuals. Schwab also offers bold ideas on how to harness these changes and shape a better future—one in which technology empowers people rather than replaces them; progress serves society rather than disrupts it; and in which innovators respect moral and ethical boundaries rather than cross them. We all have the opportunity to contribute to developing new frameworks that advance progress.

Search and Rescue Robots Multiple Authors 2017-08-23

In the event of large crises (earthquakes, typhoons, floods, ...), a primordial task of the fire and rescue services is the search for human survivors on the incident site. This is a complex and dangerous task, which - too often - leads to loss of lives among the human crisis managers themselves. This book explains how unmanned search can be added to the toolkit of the search and rescue workers, offering a valuable tool to save human lives and to speed up the search and rescue process. The introduction of robotic tools in the world of search and rescue is not straightforward, due to the fact that the search and rescue context is extremely technology-unfriendly, meaning that very robust solutions, which can be deployed extremely quickly, are required. Multiple research projects across the world are tackling this problem and in this book, a special focus is placed on showcasing the results of the European Union ICARUS project on this subject. The ICARUS project proposes to equip first responders with a comprehensive and integrated set of unmanned search and rescue tools, to increase the situational awareness of human crisis managers, so that more work can be done in a shorter amount of time. The ICARUS tools consist of assistive unmanned air, ground, and sea vehicles, equipped with victim-detection sensors. The unmanned vehicles collaborate as a coordinated team, communicating via ad hoc cognitive radio networking. To ensure optimal human-robot collaboration, these tools are seamlessly integrated into the command and control equipment of the human crisis managers and a set of training and support tools is provided to them in order to learn to use the

ICARUS system. The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement number 285417. The publishing of this book was funded by the EC FP7 Post-Grant Open Access Pilot programme.

Lecture Notes in Real-Time Intelligent Systems - Jolanta Mizera-Pietraszko 2017-08-07

Intelligent computing refers greatly to artificial intelligence with the aim at making computer to act as a human. This newly developed area of real-time intelligent computing integrates the aspect of dynamic environments with the human intelligence. This book presents a comprehensive practical and easy to read account which describes current state-of-the art in designing and implementing real-time intelligent computing to robotics, alert systems, IoT, remote access control, multi-agent systems, networking, mobile smart systems, crowd sourcing, broadband systems, cloud computing, streaming data and many other applications areas. The solutions discussed in this book will encourage the researchers and IT professional to put the methods into their practice.

Agricultural Internet of Things and Decision Support for Precision Smart Farming - Castrignano 2020-01-09

Agricultural Internet of Things and Decision Support for Smart Farming reveals how a set of key enabling technologies (KET) related to agronomic management, remote and proximal sensing, data mining, decision-making and automation can be efficiently integrated in one system. Chapters cover how KETs enable real-time monitoring of soil conditions, determine real-time, site-specific requirements of crop systems, help develop a decision support system (DSS) aimed at maximizing the efficient use of resources, and provide planning for agronomic inputs differentiated in time and space. This book is ideal for researchers, academics, post-graduate students and practitioners who want to embrace new agricultural technologies. Presents the science behind smart technologies for agricultural management Reveals the power of data science and how to extract meaningful insights from big data on what is most suitable based on individual time and space Proves how advanced technologies used in agriculture practices can become site-specific, locally adaptive, operationally feasible and economically affordable

Smart Maintenance for Human-Robot Interaction - Bo Xing 2017-09-08

This self-contained book, written by active researchers, presents up-to-date information on smart maintenance strategies for human-robot interaction (HRI) and the associated applications of novel search algorithms in a single volume, eliminating the need to consult scattered resources. Unlike other books, it addresses maintaining a smart HRI from three dimensions, namely, hardware, cyberware, and hybrid-asset management, covering problems encountered in each through a wide variety of representative examples and elaborated illustrations. Further, the diverse mathematical models and intelligent systems constructions make the book highly practical. It enables readers interested in maintenance, robotics, and intelligent systems but perplexed by myriads of interrelated issues to grasp basic methodologies. At the same time, the referenced literature can be used as a roadmap for conducting deeper researches.

Robot Intelligence Technology and Applications 2 - Jong-Hwan Kim 2014-03-21

We are facing a new technological challenge on how to store and retrieve knowledge and manipulate intelligence for autonomous services by intelligent systems which should be capable of carrying out real world tasks autonomously. To address this issue, robot researchers have been developing intelligence technology (InT) for "robots that think" which is in the focus of this book. The book covers all aspects of intelligence from perception at sensor level and reasoning at cognitive level to behavior planning at execution level for each low level segment of the machine. It also presents the technologies for cognitive reasoning, social interaction with humans, behavior generation, ability to cooperate with other robots, ambient awareness and an artificial genome that can be passed on to other robots. These technologies are to materialize cognitive intelligence, social intelligence, behavioral intelligence, collective intelligence, ambient intelligence and genetic intelligence. The book aims at serving researchers and practitioners with a timely dissemination of the recent progress on robot intelligence technology and its applications, based on a collection of papers presented at the at the 2nd International Conference on Robot Intelligence Technology and Applications (RiTA), held in Denver, USA, December 18-20, 2013.

Intelligent Data Analysis for Real-Life Applications: Theory and Practice - Magdalena-Benedito, Rafael 2012-06-30

With the recent and enormous increase in the amount of available data sets of all kinds, applying effective and efficient techniques for analyzing and extracting information from that data has become a crucial task. Intelligent Data Analysis for Real-Life Applications: Theory and Practice investigates the application of Intelligent Data Analysis (IDA) to these data sets through the design and development of algorithms and techniques to extract knowledge from databases. This pivotal reference explores practical applications of IDA, and it is essential for academic and research libraries as well as students, researchers, and educators in data analysis, application development, and database management.

Leonardo's Lost Robots - Mark Rosheim 2006-06-14

This book reinterprets Leonardo da Vinci's mechanical design work, revealing a new level of sophistication not recognized by art historians or engineers. The book reinterprets Leonardo's legacy of notes, showing that apparently unconnected fragments from dispersed manuscripts actually comprise cohesive designs for functioning automata. Using the rough sketches scattered throughout almost all of Leonardo's notebooks, the author has reconstructed Leonardo's programmable cart, which was the platform for other automata. Through a readable, lively narrative, the author explains how he reconstructed da Vinci's designs.

Living Machines - Tony J. Prescott 2018

Contemporary research in the field of robotics attempts to harness the versatility and sustainability of living organisms with the hope of rendering a renewable, adaptable, and robust class of technology that can facilitate self-repairing, social, and moral-even conscious-machines. This landmark volume surveys this flourishing area of research.

Scientific Knowledge and the Transgression of Boundaries - Bettina-Johanna Krings 2016-11-30

The aim of this book is to understand and critically appraise science-based transgression dynamics in their whole complexity. It includes contributions from experts with different disciplinary backgrounds, such as philosophy, history and sociology. Thus, it is in itself an example of boundary transgression. Scientific disciplines and their objects have tended to be seen as permanent and distinct. However, science is better conceived as an activity that constantly surpasses, erases and rebuilds all kinds of boundaries, either disciplinary, socio-ethical or ecological. This transgressive capacity, a characteristic trait of science and its applications, defines us as "knowledge societies." However, scientific and technological developments are also sources of serious environmental and social concerns.

Agricultural and Food Controversies - F. Bailey Norwood 2015

The public is more interested in agricultural and food issues than ever before, as is evident in the many agricultural controversies debated in the media. Why is it that some people embrace new agricultural technologies while others steadfastly defend traditional farming methods? Why do some prefer to buy food grown around the world while others patronize small, local farmers? In the debates about organic food, genetically modified organisms, and farm animal welfare, it is not always clear what the scientific literature actually says. To understand these controversies, the authors encourage readers to develop first an appreciation for why two equally intelligent and well-intentioned people can form radically different notions about food. Sometimes the disputes are scientific in nature, and sometimes they arise from conflicting ethical views. This book confronts the most controversial issues in agriculture by first explaining the principles of both sides of the debate, and then guiding readers through the scientific literature so that they may form their own educated opinions. Is food safe if the farm used pesticides, or are organic foods truly better for your health? Are chemical fertilizers sustainable, or are we producing cheap food today at the expense of future generations? What foods should we eat to have a smaller carbon footprint? Is genetically-modified food the key to global food security, and does it give corporations too much market power? Is the prevalence of corn throughout the food system the result of farm subsidies? Does buying local food stimulate the local economy? Why are so many farm animals raised indoors, and should antibiotics be given to livestock? These are the issues addressed in *Agricultural and Food Controversies: What Everyone Needs to Know*. While it doesn't claim to have all the answers, it provides a synthesis of research and popular opinions on both sides of these important issues, allowing readers to decide what they value and believe for themselves.

Agroecological Transitions: From Theory to Practice in Local Participatory Design - Jacques-Eric Bergez 2019-02-28

This Open Access book presents feedback from the 'Territorial Agroecological Transition in Action' - TATA-BOX research project, which was devoted to these specific issues. The multidisciplinary and multi-organisation research team steered a four-year action-research process in two territories of France. It also presents: i) the key dimensions to be considered when dealing with agroecological transition: diversity of agriculture models, management of uncertainties, polycentric governance, autonomies, and role of actors' networks; ii) an operational and original participatory process and associated boundary tools to support local stakeholders in shifting from a shared diagnosis to a shared action plan for transition, and in so doing developing mutual understanding and involvement; iii) an analysis of the main effects of the methodology on research organisation and on stakeholders' development and application; iv) critical analysis and foresights on the main outcomes of TATA-BOX, provided by external researchers.

Artificial Intelligence for Biology and Agriculture - S. Panigrahi 2012-12-06

This volume contains a total of thirteen papers covering a variety of AI topics ranging from computer vision and robotics to intelligent modeling, neural networks and fuzzy logic. There are two general articles on robotics and fuzzy logic. The article on robotics focuses on the application of robotics technology in plant production. The second article on fuzzy logic provides a general overview of the basics of fuzzy logic and a typical agricultural application of fuzzy logic. The article 'End effectors for tomato harvesting' enhances further the robotic research as applied to tomato harvesting. The application of computer vision techniques for different biological/agricultural applications, for example, length determination of cheese threads, recognition of plankton images and morphological identification of cotton fibers, depicts the complexity and heterogeneities of the problems and their solutions. The development of a real-time orange grading system in the article 'Video grading of oranges in real-time' further reports the capability of computer vision technology to meet the demand of high quality food products. The integration of neural network technology with computer vision and fuzzy logic for defect detection in eggs and identification of lettuce growth shows the power of hybridization of AI technologies to solve agricultural problems. Additional papers also focus on automated modeling of physiological processes during postharvest distribution of agricultural products, the applications of neural networks, fusion of AI technologies and three dimensional computer vision technologies for different problems ranging from botanical identification and cell migration analysis to food microstructure evaluation.

Development Practice of Digital Business Environment in China - Xiaolong Li 2022

This book gives an in-depth research on digital business environment as well as its indicators analysis by means of collecting huge data and cases in China. Additionally, its on the first try to apply bibliometric method to business environment literature review. The main contents of this book contain the research on the connotation and evaluation indicator system of digital business environment, and a series of excellent practices in improving the business environment in China in the aspects of digital infrastructure construction, digital market order, digital security, digital government application, digital literacy and innovation, etc. The expected readers are scholars who study business environment-related topics, groups interested in digital business environment, businessmen and officials. The most significant features of this book lie in its novel topics and detailed cases, which can help readers to have a more comprehensive and in-depth understanding of China's digital business environment construction.

Service Robot Applications - Yoshihiko Takahashi 2008-08-01

The aim of this book is to provide new ideas, original results and practical experiences regarding service robotics. This book provides only a small example of this research activity, but it covers a great deal of what has been done in the field recently. Furthermore, it works as a valuable resource for researchers interested in this field.

Robotic Systems: Concepts, Methodologies, Tools, and Applications - Management Association, Information Resources 2020-01-03

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 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.