Data Science For Food Security

Emerging Spatial Big Data (SBD) has transformative potential in solving many grand societal challenges such as water resource management, food security, disaster response, and transportation. However, significant computational challenges exist in analyzing SBD due to the unique spatial characteristics including spatial autocorrelation, anisotropy, heterogeneity, multiple scales and resolutions which is illustrated in this book. This book also discusses current techniques for, spatial big data science with a particular focus on classification techniques for earth observation imagery big data. Specifically, the authors introduce several recent spatial classification techniques, such as spatial decision trees and spatial ensemble learning. Several potential future research directions are also discussed. This book targets an interdisciplinary audience including computer scientists, practitioners and researchers working in the field of data mining, big data, as well as domain scientists working in earth science (e.g., hydrology, disaster), public safety and public health. Advanced level students in computer science will also find this book useful as a reference.

This two-volume set, LNCS 12565 and 12566, constitutes the refereed proceedings of the 6th International Conference on Machine Learning, Optimization, and Data Science, LOD 2020, held in Siena, Italy, in July 2020. The total of 116 full papers presented in this two-volume post-conference proceedings set was carefully reviewed and selected from 209 submissions. These research articles were written by leading scientists in the fields of machine learning, artificial intelligence, reinforcement learning, computational optimization, and data science presenting a substantial array of ideas, technologies, algorithms, methods, and applications.

This book constitutes the refereed proceedings of the 13th IFIP WG 5.11 International Symposium on Environmental Software Systems, ISESS 2020, held in Wageningen, The Netherlands, in February 2020. The 22 full papers and 3 short papers were carefully reviewed and selected from 29 submissions. The papers cover a wide range of topics on environmental informatics, including data mining, artificial intelligence, high performance and cloud computing, visualization and smart sensing for environmental, earth, agricultural and food applications.

Cyber-security is a matter of rapidly growing importance in industry and government. This book provides insight into a range of data science techniques for addressing these pressing concerns.The application of statistical and broader data science techniques provides an

exciting growth area in the design of cyber defences. Networks of connected devices, such as enterprise computer networks or the wider so-called Internet of Things, are all vulnerable to misuse and attack, and data science methods offer the promise to detect such behaviours from the vast collections of cyber traffic data sources that can be obtained. In many cases, this is achieved through anomaly detection of unusual behaviour against understood statistical models of normality.This volume presents contributed papers from an international conference of the same name held at Imperial College. Experts from the field have provided their latest discoveries and review state of the art technologies.

Data Science in Agriculture and Natural Resource Management
Data Science
Statistical Methods and Applications
Proceedings of International Conference on Data Science and Applications
Opportunities and Challenges
Data Science & Business Analytics
Data Science Applied to Sustainability Analysis

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.

The Encyclopedia of Food Security and Sustainability covers the hottest topics in the science of food sustainability, providing a synopsis of the path society is on to secure food for a growing population. It investigates the focal issue of sustainable food production in relation to the effects of global change on food resources, biodiversity and global food security. This collection of methodological approaches and knowledge derived from expert authors around the world offers the research community, food industry, scientists and students with the knowledge to relate to, and report on, the novel challenges of food production and sustainability. This comprehensive encyclopedia will act as a platform to show how an interdisciplinary approach and closer collaboration between the scientific and industrial communities is necessary to strengthen our existing capacity to generate and share research data. Offers readers a 'one-stop' resource on the topic of food security and sustainability Contains articles split into sections based on the various dimensions of Food Security and Food Sustainability Written by academics and practitioners from various fields and regions with a "farm to fork understanding Includes concise and accessible chapters, providing an authoritative introduction for non-specialists and readers from undergraduate level upwards, as well as up-to-date foundational content for those familiar with

the field

Textual Statistics with R comprehensively covers the main multidimensional methods in textual statistics supported by a specially-written package in R. Methods discussed include correspondence analysis, clustering, and multiple factor analysis for contigency tables. Each method is illuminated by applications. The book is aimed at researchers and students in statistics, social sciences, hiistory, literature and linguistics. The book will be of interest to anyone from practitioners needing to extract information from texts to students in the field of massive data, where the ability to process textual data is becoming essential.

This book explains how to perform data de-noising, in large scale, with a satisfactory level of accuracy. Three main issues are considered. Firstly, how to eliminate the error propagation from one stage to next stages while developing a filtered model. Secondly, how to maintain the positional importance of data whilst purifying it. Finally, preservation of memory in the data is crucial to extract smart data from noisy big data. If, after the application of any form of smoothing or filtering, the memory of the corresponding data changes heavily, then the final data may lose some important information. This may lead to wrong or erroneous conclusions. But, when anticipating any loss of information due to smoothing or filtering, one cannot avoid the process of denoising as on the other hand any kind of analysis of big data in the presence of noise can be misleading. So, the entire process demands very careful execution with efficient and smart models in order to effectively deal with it.

Mathematics of Planet Earth

Shifting the Paradigm for a More Ethical, Equitable, and Just World

Data Science For Dummies

Volume III: Technical and Market Considerations

Classification Techniques for Earth Observation Imagery

Advances in Data Science and Information Engineering

Textual Data Science with R

Roughly a billion people around the world continue to live in state of chronic hunger and food insecurity. Unfortunately, efforts to improve their livelihoods must now unfold in the context of a rapidly changing climate, in which warming temperatures and changing rainfall regimes could threaten the basic productivity of the agricultural systems on which most of the world's poor directly depend. But whether climate change represents a minor impediment or an existential threat to development is an area of substantial controversy, with different conclusions wrought from different methodologies and based on different data. This book aims to resolve some of the controversy by exploring and comparing the different methodologies and data that scientists use to understand climate's effects on food security. In explains the nature of the climate threat, the ways in which crops and farmers might respond, and the potential role for public and private investment to help agriculture adapt to a warmer world. This broader understanding should prove useful to both scientists charged with quantifying climate threats, and policy-makers responsible for crucial decisions about how to respond. The book is especially suitable as a companion to an interdisciplinary undergraduate or graduate level class.

The book presents the proceedings of two conferences: the 16th International Conference on Data Science (ICDATA 2020) and the 19th International Conference on Information & Knowledge Engineering (IKE 2020),

which took place in Las Vegas, NV, USA, July 27-30, 2020. The conferences are part of the larger 2020 World Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE'20), which features 20 major tracks. Papers cover all aspects of Data Science, Data Mining, Machine Learning, Artificial and Computational Intelligence (ICDATA) and Information Retrieval Systems, Information & Knowledge Engineering, Management and Cyber-Learning (IKE). Authors include academics, researchers, professionals, and students. Presents the proceedings of the 16th International Conference on Data Science (ICDATA 2020) and the 19th International Conference on Information & Knowledge Engineering (IKE 2020); Includes papers on topics from data mining to machine learning to informational retrieval systems; Authors include academics, researchers, professionals and students.

Reimagining Leadership on the Commons examines leadership approaches derived from an, open, whole systems perspective and a more collaborative paradigm that recognizes that rather than being individualist self-maximizers, people prefer to work together to share benefits and found a society based on equality and justice.

This edited book brings out a comprehensive collection of information on the modern omics-based research. The main focus of this book is to educate researchers about utility of omics-based technologies in rapid crop improvement. In last two decades, omics technologies have been utilized significantly in the area of plant sciences and has shown promising results. Omics technology has potential to address the challenge of food security in the near future. The comprehensive use of omics technology occurred in last two decades and helped greatly in the understanding of complex biological problems, improve crop productivity and ensure sustainable use of ecosystem services. This book is of interest to researchers and students of life sciences, biotechnology, plant biotechnology, agriculture, forestry, and environmental sciences. It is also a useful knowledge resource for national and international agricultural scientists.

Enabling AI Applications in Data Science
Data Science For Cyber-security
Handbook of Research on Academic Libraries as Partners in Data Science Ecosystems
Industry 4.0, AI, and Data Science
Advances in Data Science and Management
Intelligent Computing and Innovation on Data Science
Noise Filtering for Big Data Analytics

This book constitutes the refereed proceedings of the 6th International Conference on Data Science, ICDS 2019, held in Ningbo, China, during May 2019. The 64 revised full papers presented were carefully reviewed and selected from 210 submissions. The research papers cover the areas of Advancement of

Data Science and Smart City Applications, Theory of Data Science, Data Science of People and Health, Web of Data, Data Science of Trust and Internet of Things.

This book aims to address emerging challenges in the field of agriculture and natural resource management using the principles and applications of data science (DS). The book is organized in three sections, and it has fourteen chapters dealing with specialized areas. The chapters are written by experts sharing their experiences very lucidly through case studies, suitable illustrations and tables. The contents have been designed to fulfil the needs of geospatial, data science, agricultural, natural resources and environmental sciences of traditional universities, agricultural universities, technological universities, research institutes and academic colleges worldwide. It will help the planners, policymakers and extension scientists in planning and sustainable management of agriculture and natural resources. The authors believe that with its uniqueness the book is one of the important efforts in the contemporary cyber-physical systems.

Just five years ago, it was generally believed that the number of food insecure people in the world was on continuous decline. Unfortunately, widespread soil degradation along with resistance to recommended agronomic practices, and little attempt to restore degraded soils have conspired with significant droughts (in regions that could least tolerate them) to swell the ranks of the food insecure to over a billion people. The U.N. Millennium Development Goals' intent to halve hunger by 2015 will not be realized. Food Security and Soil Quality brings together leading experts from across the world to provide a concise and factually supported exploration of the problem at hand and the critical steps needed to reverse it. Edited by Rattan Lal, and B.A. Stewart, two of the world's most respected soil scientists, this important work — Assesses farming systems and food security in Sub-Saharan Africa, with special emphasis on land degradation Examines concerns with and approaches to soil quality management in Brazil and China Details achievable methods for improving soil quality for sustainable production Provides an insightful comparison of temporal changes in agricultural systems productivity in Punjab, India and Ohio Discusses the human dimension of the crisis including the influence of culture and spiritual beliefs Dr. Lal himself writes that despite the existence of scientific data on sustainable management of soil and water resources, problems of soil and environmental degradation have persisted and have been aggravated. And that these problems are rooted in land misuse and soil mismanagement. This book does provide policymakers and others with an understanding of the depth, complexity, and

immediacy of this crisis, but more than a call to action, it also offers soil scientists working in this area with an understanding of what is being done and what needs to be done. Most importantly, this book helps us understand that the situation is not beyond remediation were we to act with great resolve and a sense of urgency. A tree's leaves may be ever so good, So may its bark, so may its wood; But unless you put the right thing to its root, It never will show much flower or fruit. — from Leaves Compared With Flowers, by Robert Frost

Data Science Applied to Sustainability Analysis focuses on the methodological considerations associated with applying this tool in analysis techniques such as lifecycle assessment and materials flow analysis. As sustainability analysts need examples of applications of big data techniques that are defensible and practical in sustainability analyses and that yield actionable results that can inform policy development, corporate supply chain management strategy, or non-governmental organization positions, this book helps answer underlying questions. In addition, it addresses the need of data science experts looking for routes to apply their skills and knowledge to domain areas. Presents data sources that are available for application in sustainability analyses, such as market information, environmental monitoring data, social media data and satellite imagery Includes considerations sustainability analysts must evaluate when applying big data Features case studies illustrating the application of data science in sustainability analyses

Proceedings of ICTIDS 2019

Volume 2: Societal and Medical Perspectives

Data Science and Data Analytics

Environmental Software Systems. Data Science in Action

Science Breakthroughs to Advance Food and Agricultural Research by 2030

Food Security, Poverty and Nutrition Policy Analysis

Data Science Advancements in Pandemic and Outbreak Management

For nearly a century, scientific advances have fueled progress in U.S. agriculture to enable American producers to deliver safe abundant food domestically and provide a trade surplus in bulk and high-value agricultural commodities and foods. Today, the and agricultural enterprise faces formidable challenges that will test its long-term sustainability, competitiveness, and resilier current path, future productivity in the U.S. agricultural system is likely to come with trade-offs. The success of agriculture i systems, and these systems are showing signs of stress, even more so with the change in climate. More than a third of the

unconsumed, an unacceptable loss of food and nutrients at a time of heightened global food demand. Increased food animal p
meet greater demand will generate more greenhouse gas emissions and excess animal waste. The U.S. food supply is generally
not immune to the costly and deadly shocks of continuing outbreaks of food-borne illness or to the constant threat of pests
crops, livestock, and poultry. U.S. farmers and producers are at the front lines and will need more tools to manage the pressu
Science Breakthroughs to Advance Food and Agricultural Research by 2030 identifies innovative, emerging scientific advances
the U.S. food and agricultural system more efficient, resilient, and sustainable. This report explores the availability of relatively
scientific developments across all disciplines that could accelerate progress toward these goals. It identifies the most promisi
breakthroughs that could have the greatest positive impact on food and agriculture, and that are possible to achieve in the n
2030).

This book provides a detailed overview of the latest developments and applications in the field of artificial intelligence and dat
applications have achieved great accuracy and performance with the help of developments in data processing and storage. It
gained strength through the amount and quality of data which is the main nucleus of data science. This book aims to provide
research findings in the field of artificial intelligence with data science.

This book constitutes the second part of refereed proceedings of the 5th Computational Methods in Systems and Software 2
2021) proceedings. The real-world problems related to data science and algorithm design related to systems and software er
presented in this papers. Furthermore, the basic research' papers that describe novel approaches in the data science, algorith
in systems and software engineering are included. The CoMeSySo 2021 conference is breaking the barriers, being held online.
2021 intends to provide an international forum for the discussion of the latest high-quality research results

Since its inception in 2013, Mathematics of Planet Earth (MPE) focuses on mathematical issues arising in the study of our pl
Interested in the impact of human activities on the Earth's system, this multidisciplinary field considers the planet not only as
system, but also as a system supporting life, a system organized by humans, and a system at risk. ?The articles collected in tl
demonstrate the breadth of techniques and tools from mathematics, statistics, and operations research used in MPE. Topics
modeling, the spread of infectious diseases, stability of ecosystems, ecosystem services, biodiversity, infrastructure restoratic
extreme event, urban environments, food security, and food safety. Demonstrating the mathematical sciences in action, this b
real-world challenges for the mathematical sciences, highlighting applications to issues of current concern to society. Arrange
topical sections (Geo- and Physical Sciences; Life Sciences, Ecology and Evolution; Socio-economics and Infrastructure), thirtee
address questions such as how to measure biodiversity, what mathematics can say about the sixth mass extinction, how to
term human use of natural capital, and the impact of data on infrastructure management. The book also treats the subject of
diseases with new examples and presents an introduction to the mathematics of food systems and food security. Each chapt
an introduction that can be studied independently, offering source material for graduate student seminars and self-study. The
featured research topics provides mathematical scientists with starting points for the study of our planet and the impact of

At the same time, it offers application scientists a plethora of modern mathematical tools and techniques to address the vari practice. Including hundreds of references to the vast literature associated with each topic, this book serves as an inspiration research.

Proceedings from ICDATA 2020 and IKE 2020

Philanthropy and Social Impact in a Complex World

16th International Conference on Information Technology-New Generations (ITNG 2019)

6th International Conference, ICDS 2019, Ningbo, China, May 15–20, 2019, Revised Selected Papers

Encyclopedia of Food Security and Sustainability

Biotechnology, Agriculture, and Food Security in Southern Africa

Getting Started with Data Science

Pandemics are disruptive. Thus, there is a need to prepare and plan actions in advance for identifying, assessing, and responding to such events to manage uncertainty and support sustainable livelihood and wellbeing. A detailed assessment of a continuously evolving situation needs to take place, and several aspects must be brought together and examined before the declaration of a pandemic even happens. Various health organizations; crisis management bodies; and authorities at local, national, and international levels are involved in the management of pandemics. There is no better time to revisit current approaches to cope with these new and unforeseen threats. As countries must strike a fine balance between protecting health, minimizing economic and social disruption, and respecting human rights, there has been an emerging interest in lessons learned and specifically in revisiting past and current pandemic approaches. Such approaches involve strategies and practices from several disciplines and fields including healthcare, management, IT, mathematical modeling, and data science. Using data science to advance in-situ practices and prompt future directions could help alleviate or even prevent human, financial, and environmental compromise, and loss and social interruption via state-of-the-art technologies and frameworks. Data Science Advancements in Pandemic and Outbreak Management demonstrates how strategies and state-of-the-art IT have and/or could be applied to serve as the vehicle to advance pandemic and outbreak management. The chapters will introduce both technical and non-technical details of management strategies and advanced IT, data science, and mathematical modelling and demonstrate their applications and their potential utilization within the identification and management of pandemics and outbreaks. It also prompts revisiting and critically reviewing past and current approaches, identifying good and bad practices, and further developing the area for future adaptation. This book is ideal for data scientists, data analysts, infectious disease experts, researchers studying pandemics and outbreaks, IT, crisis and disaster management, academics, practitioners, government officials, and students interested in applicable theories and practices in data science to mitigate, prepare for, respond to, and recover from future pandemics and outbreaks.

Food Security, Poverty and Nutrition Analysis provides essential insights into the evaluative techniques necessary for creating appropriate and effective policies and programs to address these worldwide issues. Food scientists and nutritionists will use this

important information, presented in a conceptual framework and through case studies for exploring representative problems, identifying and implementing appropriate methods of measurement and analysis, understanding examples of policy applications, and gaining valuable insight into the multidisciplinary requirements of successful implementation. This book provides core information in a format that provides not only the concept behind the method, but real-world applications giving the reader valuable, practical knowledge. * Identify proper analysis method, apply to available data, develop appropriate policy * Demonstrates analytical techniques using real-world scenario application to illustrate approaches for accurate evaluation improving understanding of practical application development * Tests reader comprehension of the statistical and analytical understanding vital to the creation of solutions for food insecurity, malnutrition and poverty-related nutrition issues using hands-on exercises

This book includes high-quality papers presented at the Second International Conference on Data Science and Management (ICDSM 2021), organized by the Gandhi Institute for Education and Technology, Bhubaneswar, from 19 to 20 February 2021. It features research in which data science is used to facilitate the decision-making process in various application areas, and also covers a wide range of learning methods and their applications in a number of learning problems. The empirical studies, theoretical analyses and comparisons to psychological phenomena described contribute to the development of products to meet market demands.

Beyond providing space for data science activities, academic libraries are often overlooked in the data science landscape that is emerging at academic research institutions. Although some academic libraries are collaborating in specific ways in a small subset of institutions, there is much untapped potential for developing partnerships. As library and information science roles continue to evolve to be more data-centric and interdisciplinary, and as research using a variety of data types continues to proliferate, it is imperative to further explore the dynamics between libraries and the data science ecosystems in which they are a part. The Handbook of Research on Academic Libraries as Partners in Data Science Ecosystems provides a global perspective on current and future trends concerning the integration of data science in libraries. It provides both a foundational base of knowledge around data science and explores numerous ways academicians can reskill their staff, engage in the research enterprise, contribute to curriculum development, and help build a stronger ecosystem where libraries are part of data science. Covering topics such as data science initiatives, digital humanities, and student engagement, this book is an indispensable resource for librarians, information professionals, academic institutions, researchers, academic libraries, and academicians.

Data Science for Social Good

Food Safety and Quality Systems in Developing Countries

Advances in Data Science and Intelligent Data Communication Technologies for COVID-19

Principles of Data Science

Protecting Our Planet, Learning from the Past, Safeguarding for the Future

Omics Technologies for Sustainable Agriculture and Global Food Security (Vol II)

Data Science and Intelligent Systems

Precision agriculture integrates new technologies with the agronomic experience to intelligently manage the high spatial variability of all agricultural variables and the time scales at which these variables change. The right application of this approach increases the size and quality of the agricultural production; saves resources; improves environmental quality; helps to achieve self-sufficiency, food security, and agricultural sustainability; increases exports; and more. Precision Agriculture Technologies for Food Security and Sustainability is an essential reference source that compiles a comprehensive, multidisciplinary review of current research in the field of precision agriculture. It also discusses cutting-edge tools and models that can help facilitate and improve the systems implementation. Featuring coverage of a wide range of topics including agronomy, public policy, and internet of things, this book is ideally designed for agriculturalists, government officials, economists, environmentalists, academicians, researchers, students, and engineers in the fields of electronics, ICT, and agriculture.

Master Data Analytics Hands-On by Solving Fascinating Problems You'll Actually Enjoy! Harvard Business Review recently called data science "The Sexiest Job of the 21st Century." It's not just sexy: For millions of managers, analysts, and students who need to solve real business problems, it's indispensable. Unfortunately, there's been nothing easy about learning data science–until now. Getting Started with Data Science takes its inspiration from worldwide best-sellers like Freakonomics and Malcolm Gladwell's Outliers: It teaches through a powerful narrative packed with unforgettable stories. Murtaza Haider offers informative, jargon-free coverage of basic theory and technique, backed with plenty of vivid examples and hands-on practice opportunities. Everything's software and platform agnostic, so you can learn data science whether you work with R, Stata, SPSS, or SAS. Best of all, Haider teaches a crucial skillset most data science books ignore: how to tell powerful stories using graphics and tables. Every chapter is built around real research challenges, so you'll always know why you're doing what you're doing. You'll master data science by answering fascinating questions, such as: • Are religious individuals more or less likely to have extramarital affairs? • Do attractive professors get better teaching evaluations? • Does the higher price of cigarettes deter smoking? • What determines housing prices more: lot size or the number of bedrooms? • How do teenagers and older people differ in the way they use social media? • Who is more likely to use online dating services? • Why do some purchase iPhones and others Blackberry devices? • Does the presence of children influence a family's spending on alcohol? For each problem, you'll walk through defining your question and the answers you'll need; exploring how others have approached similar challenges; selecting your data and methods; generating your statistics; organizing your report; and telling your story. Throughout, the focus is squarely on what matters most: transforming data into insights that are clear, accurate, and can be acted upon.

The aim of this book is to provide insight into Data Science and Artificial Learning Techniques based on Industry

4.0, conveys how Machine Learning & Data Science are becoming an essential part of industrial and academic research. Varying from healthcare to social networking and everywhere hybrid models for Data Science, AI, and Machine Learning are being used. The book describes different theoretical and practical aspects and highlights how new systems are being developed. Along with focusing on the research trends, challenges and future of AI in Data Science, the book explores the potential for integration of advanced AI algorithms, addresses the challenges of Data Science for Industry 4.0, covers different security issues, includes qualitative and quantitative research, and offers case studies with working models. This book also provides an overview of AI and Data Science algorithms for readers who do not have a strong mathematical background. Undergraduates, postgraduates, academicians, researchers, and industry professionals will benefit from this book and use it as a guide.

This book provides readers with a thorough understanding of various research areas within the field of data science. The book introduces readers to various techniques for data acquisition, extraction, and cleaning, data summarizing and modeling, data analysis and communication techniques, data science tools, deep learning, and various data science applications. Researchers can extract and conclude various future ideas and topics that could result in potential publications or thesis. Furthermore, this book contributes to Data Scientists' preparation and to enhancing their knowledge of the field. The book provides a rich collection of manuscripts in highly regarded data science topics, edited by professors with long experience in the field of data science. Introduces various techniques, methods, and algorithms adopted by Data Science experts Provides a detailed explanation of data science perceptions, reinforced by practical examples Presents a road map of future trends suitable for innovative data science research and practice

Data-Enabled Analytics

Machine Learning, Optimization, and Data Science

Proceedings of ICDSM 2021

6th International Conference, LOD 2020, Siena, Italy, July 19–23, 2020, Revised Selected Papers, Part II

Proceedings of 5th Computational Methods in Systems and Software 2021, Vol. 2

Reimagining Leadership on the Commons

Innovative Solutions Against COVID-19

This book covers both basic and high-level concepts relating to the intelligent computing paradigm and data sciences in the context of distributed computing, big data, data sciences, high-performance computing and Internet of Things. It is becoming increasingly important to develop adaptive, intelligent computing-centric, energy-aware, secure and privacy-aware systems in high-performance computing and IoT applications. In this context, the book serves as a useful guide for industry

practitioners, and also offers beginners a comprehensive introduction to basic and advanced areas of intelligent computing. Further, it provides a platform for researchers, engineers, academics and industrial professionals around the globe to showcase their recent research concerning recent trends. Presenting novel ideas and stimulating interesting discussions, the book appeals to researchers and practitioners working in the field of information technology and computer science.

Data Science & Business Analytics explores the application of big data and business analytics by academics, researchers, industrial experts, policy makers and practitioners, helping the reader to understand how big data can be efficiently utilized in better managerial applications.

Food Safety and Quality Systems in Developing Countries: Volume III: Technical and Market Considerations is a practical resource for companies seeking to supply food products from developing countries to developed country markets or to transnational business located in developing countries. It explores practical approaches to complying with food safety and quality systems requirements, backed by the science-based approaches used in the major markets applied in a developing country context. It explores the topic from the perspective of agribusiness value chains and includes deconstructions of regulatory and market channel-specific technical requirements in North America, Europe, and other major markets. Volume III builds on the platforms laid by the previous two volumes, providing guidance from industry-leading experts on addressing regulatory and market-specific microbiological, chemical, packaging and labelling, supply chain, and systems-related food safety and quality compliance requirements. This book addresses technical and market-determined standards that value chain participants in developing countries face supplying developed country markets or transnational firms, including hotels, major multiples, and quick serve restaurant brands. Provides detailed, scientific, and technical information to assist food safety and marketing professionals operating in the global market Helps farmers, processors, exporters, food scientists and technologists, regulators, students, and other stakeholders in the global food industry understand and apply tailored technical and scientific information to their food industry sector Uses specific real-world examples of systems implementation, supported by case studies and the required scientific and marketing inputs in a range of product categories including fruits and vegetables, sauces and spices, beverages, produce staples, dairy products, seafood, and others

This book brings together experts from within and outside Africa to discuss the current status of biotechnology in southern Africa, the conceptual framework for multistakeholder dialogues, the political and ethical issues surrounding biotechnology, food safety and consumer issues, biosafety, intellectual property rights, and trade involving genetically modified foods.

DEA for Big Data

Food Security and Soil Quality

Precision Agriculture Technologies for Food Security and Sustainability
Adapting Agriculture to a Warmer World
Climate Change and Food Security
Data Science for COVID-19
13th IFIP WG 5.11 International Symposium, ISESS 2020, Wageningen, The Netherlands, February 5–7, 2020, Proceedings

This book presents the emerging developments in intelligent computing, machine learning, and data mining. It also provides insights on communications, network technologies, and the Internet of things. It offers various insights on the role of the Internet of things against COVID-19 and its potential applications. It provides the latest cloud computing improvements and advanced computing and addresses data security and privacy to secure COVID-19 data.

Data science is a multi-disciplinary field that uses scientific methods, processes, algorithms, and systems to extract knowledge and insights from structured (labeled) and unstructured (unlabeled) data. It is the future of Artificial Intelligence (AI) and a necessity of the future to make things easier and more productive. In simple terms, data science is the discovery of data or uncovering hidden patterns (such as complex behaviors, trends, and inferences) from data. Moreover, Big Data analytics/data analytics are the analysis mechanisms used in data science by data scientists. Several tools, such as Hadoop, R, etc., are used to analyze this large amount of data to predict valuable information and for decision-making. Note that structured data can be easily analyzed by efficient (available) business intelligence tools, while most of the data (80% of data by 2020) is in an unstructured form that requires advanced analytics tools. But while analyzing this data, we face several concerns, such as complexity, scalability, privacy leaks, and trust issues. Data science helps us to extract meaningful information or insights from unstructured or complex or large amounts of data (available or stored virtually in the cloud). Data Science and Data Analytics: Opportunities and Challenges covers all possible areas, applications with arising serious concerns, and challenges in this emerging field in detail with a comparative analysis/taxonomy. FEATURES Gives the concept of data science, tools, and algorithms that exist for many useful applications Provides many challenges and opportunities in data science and data analytics that help researchers to identify research gaps or problems Identifies many areas and uses of data science in the smart era Applies data science to agriculture, healthcare, graph mining, education, security, etc. Academicians, data scientists, and stockbrokers from industry/business will find this book useful for designing optimal strategies to enhance their firm's productivity.

Data Science for COVID-19, Volume 2: Societal and Medical Perspectives presents the most current and leading-edge research into the applications of a variety of data science techniques for the detection, mitigation, treatment and elimination of the COVID-19 virus. At this point, Cognitive Data Science is the most powerful tool for researchers to fight COVID-19. Thanks to instant data-analysis and predictive techniques, including Artificial Intelligence, Machine Learning, Deep Learning, Data Mining, and computational modeling for processing large amounts of data, recognizing patterns, modeling new techniques, and improving both research and treatment outcomes is now possible. Provides a leading-edge survey of Data Science techniques and methods for research, mitigation and the treatment of the COVID-19 virus Integrates various Data Science techniques to

provide a resource for COVID-19 researchers and clinicians around the world, including the wide variety of impacts the virus is having on societies and medical practice Presents insights into innovative, data-oriented modeling and predictive techniques from COVID-19 researchers around the world, including geoprocessing and tracking, lab data analysis, and theoretical views on a variety of technical applications Includes real-world feedback and user experiences from physicians and medical staff from around the world for medical treatment perspectives, public safety policies and impacts, sociological and psychological perspectives, the effects of COVID-19 in agriculture, economies, and education, and insights on future pandemics

This 16th International Conference on Information Technology - New Generations (ITNG), continues an annual event focusing on state of the art technologies pertaining to digital information and communications. The applications of advanced information technology to such domains as astronomy, biology, education, geosciences, security and health care are among topics of relevance to ITNG. Visionary ideas, theoretical and experimental results, as well as prototypes, designs, and tools that help the information readily flow to the user are of special interest. Machine Learning, Robotics, High Performance Computing, and Innovative Methods of Computing are examples of related topics. The conference features keynote speakers, the best student award, poster award, service award, a technical open panel, and workshops/exhibits from industry, government and academia.

Research Trends and Challenges

Spatial Big Data Science

Making Sense of Data with Analytics

ICDSA 2021, Volume 2

The impact of disasters and crises on agriculture and food security: 2021

Discover how data science can help you gain in-depth insight into your business - the easy way! Jobs in data science abound, but few people have the data science skills needed to fill these increasingly important roles. Data Science For Dummies is the perfect starting point for IT professionals and students who want a quick primer on all areas of the expansive data science space. With a focus on business cases, the book explores topics in big data, data science, and data engineering, and how these three areas are combined to produce tremendous value. If you want to pick-up the skills you need to begin a new career or initiate a new project, reading this book will help you understand what technologies, programming languages, and mathematical methods on which to focus. While this book serves as a wildly fantastic guide through the broad, sometimes intimidating field of big data and data science, it is not an instruction manual for hands-on implementation. Here's what to expect: Provides a background in big data and data engineering before moving on to data science and how it's applied to generate value Includes coverage of big data frameworks like Hadoop, MapReduce, Spark, MPP platforms, and NoSQL Explains machine learning and many of its algorithms as well as artificial intelligence and the evolution of the Internet of Things Details data visualization techniques that can be used to showcase, summarize, and communicate the data insights you generate It's a big, big data world out there—let Data Science For Dummies help you

harness its power and gain a competitive edge for your organization.