

Chapter 19 Inventory Theory Unicamp

The Owners of Kinship investigates how kinship in Indigenous Amazonia is derived from the asymmetrical relation between an "owner" and his or her dependents. Through a comprehensive ethnography of the Kanamari, Luiz Costa shows how this relationship is centered around the bond created between the feeder and the fed. Building on anthropological studies of the acquisition, distribution, and consumption of food and its role in establishing relations of asymmetrical mutuality and kinship, this book breaks theoretical ground for studies in Amazonia and beyond. By investigating how the feeding relation traverses Kanamari society--from the relation between women and the pets they raise, shaman and familiar spirit, mother and child, chiefs and followers, to those between the Brazilian state and the Kanamari--The Owners of Kinship reveals how the mutuality of kinship is determined by the asymmetry of ownership.

This book presents the proceedings of the XXII International Conference on Industrial Engineering and Operations Management, International IIE Conference 2016, and International AIM Conference 2016. This joint conference is a result of an agreement between ADINGOR (Asociación para el Desarrollo de la Ingeniería de Organización), ABEPRO (Associação Brasileira de Engenharia de Produção), AIM (European Academy for Industrial Management) and the IIE (Institute of Industrial Engineers), and took place at TECNUN-School of Engineering (San Sebastián, Spain) from July 13th to 15th, 2016. The book includes the latest research advances and cutting-edge analyses of real case studies in Industrial Engineering and Operations Management from diverse international contexts, while also identifying concrete business applications for the latest findings and innovations in operations management and the decisions sciences.

Recent trends in syntax and morphology have shown the great importance of doing research on variation in closely related languages. This book centers on the study of the morphology and syntax of the two major Romance Languages spoken in Latin America from this perspective. The works presented here either compare Brazilian Portuguese with European Portuguese or compare Latin American Spanish and Peninsular Spanish, or simply compare Portuguese and its varieties with Spanish and its varieties. The chapters advance on a great variety of theoretical questions related to coordination, clitics, hyper-raising, infinitives, null objects, null subjects, hyper-raising, passives, quantifiers, pseudo-clefts, questions and distributed morphology. Finally, this book provides new empirical findings and enriches the descriptions made about Portuguese and Spanish Spoken in the Americas by providing new generalizations, new data and new statistical evidence that help better understand the nature of such variation. The studies contained in this book show a vast array of new phenomena in these young varieties, offering empirical and theoretical windows to language variation and change.

The purpose of this Open Access compendium, written by experienced researchers in mathematics education, is to serve as a resource for early career researchers in furthering their knowledge of the state of the field and disseminating their research through publishing. To accomplish this, the book is split into four sections: Empirical Methods, Important Mathematics Education Themes, Academic Writing and Academic Publishing, and a section Looking Ahead. The chapters are based on workshops that were presented in the Early Career Researcher Day at the 13th International Congress on Mathematical Education (ICME-13). The combination of presentations on methodological approaches and theoretical perspectives shaping the field in mathematics education research, as well as the strong emphasis on academic writing and publishing, offered strong insight into the theoretical and empirical bases of research in mathematics education for early career researchers in this field. Based on these presentations, the book provides a state-of-the-art overview of important theories from

mathematics education and the broad variety of empirical approaches currently widely used in mathematics education research. This compendium supports early career researchers in selecting adequate theoretical approaches and adopting the most appropriate methodological approaches for their own research. Furthermore, it helps early career researchers in mathematics education to avoid common pitfalls and problems while writing up their research and it provides them with an overview of the most important journals for research in mathematics education, helping them to select the right venue for publishing and disseminating their work.

An Introduction to Statistical Learning with Applications in R Springer Science & Business Media
One of the central problems in operations research and management science is how to quantify the effects of uncertainty about the future. This, the second volume in a series of handbooks, is devoted to models where chance events play a major role. The thirteen chapters survey topics in applied probability that have been particularly useful in operations research and management science. Each chapter was written by an expert, both in subject matter and in its exposition. The chapters fall into four groups. The first four cover the fundamentals of stochastic processes, and lay the foundation for the following chapters. The next three chapters are concerned with methods of getting numbers. This includes numerical solution of models, parameter estimation for models, and simulation of models. Chapters 8 and 9 describe the fundamentals of dynamic optimization. The last four chapters are concerned with the most important structured models in operations research and management science; queues, queueing networks, inventories, and reliability.

We are witnessing an unprecedented global outbreak of COVID-19, which has been devastating in its consequences. Beyond the acute health hazard, the pandemic has carried with it other threats for mankind associated with the human economy, society, culture, psychology and politics. Amidst these multifarious dimensions of the pandemic, it is high time for global solidarity to save humankind. Human society, its ambient environment, the process of socio-economic development, and politics and power – all are drivers to establish the world order. All these parameters are intimately and integrally related. The interconnections of these three driving forces have a significant bearing on life, space and time. In parallel, the interrelationship between all these drivers is dynamic, and they are changed drastically with time and space. The statistics serve to align the thought, based on which social scientists need to understand the prevailing equation to project the unforeseen future. The trajectory of the future world helps in planning and policymaking with a scientific direction. The practitioners of all academic disciplines under the umbrella of the social sciences need a common platform to exchange ideas that may be effective in the sustainable management of the crisis and the way forward after it is mitigated. This book provides multidisciplinary contributions for expressing the solidarity of academic knowledge to fight against this global challenge. It is crucial that there should be an on-going discussion and exchange of ideas, not only from the perspective of the current times but keeping in view the preparedness for unforeseen post-COVID crises as well.

Can local markets and clusters represent a powerful alternative to global markets? Do transnational corporations and global buyers enhance or undermine local firms' upgrading and learning? Using original empirical evidence from several clusters in Latin America, *Upgrading to Compete* shows that both local and global dimensions matter at once.

The Meaning of Liberalism in Brazil explores the consequences of globalization in emerging-market economies using Brazil as a case study. This well-researched and thought provoking book elaborates a new interpretation of Brazilian society by showing the relationship between political thought and economics, as well as how the two disciplines can interact, working together to shape a nation. Milton Tosto Jr. carefully traces the meaning of liberalism throughout Brazilian history, explaining liberalism's birth and collapse, and ultimately offers

reasons why the new liberal institutions of Brazil have an excellent chance of prospering. Anyone interested in economics, political theory, or Latin American studies will find this unique and insightful volume helpful.

The dynamics of market changes determine new perspectives both in the theory and practice of management science. The mechanisms of doing business aimed at achieving a high level of company performance are changing. This requires adequate instruments based on the solid pillars of strategic management. Undoubtedly, the key ontological beings which determine the success of an organisation are effective and efficient business models, strategies and business processes. A kind of strategic hybrid emerges that shapes the principles of doing business subject to pressure, constraints and emerging opportunities. In this approach, companies implement strategies for growth and development not only to survive, but also to achieve a strong and competitive advantage. Value creation is another area of developing management science and practices, defining key factors underlying the conceptualisation and operationalisation of business models, strategies and business processes. The above mentioned concepts are nowadays widely discussed, creating a new dimension of strategic management. This monograph consists of chapters focused on both theoretical and practical conditions of modern companies, specifically focused on building effective and efficient business models and strategies. This monograph primarily refers to new research perspectives which determine the new challenges of strategic management. The aim of the monograph is to present views and approaches to strategic management determined by the development and growth of companies through building their business models and strategies. The issues addressed in this book are: determining key trends in the theory and practice of management science; defining key ontological beings and their use in the dynamic management of modern companies; presenting the new dimensions of strategic management as seen through the eyes of the international authors of individual chapters; the possibility of applying solutions to problems addressed in this monograph. The editor and authors hope that the presented combination of theory and practice will satisfy the needs of readers, in particular managers of modern companies, business consultants and researchers.

This open access book presents how Open Science is a powerful tool to boost Higher Education. The book introduces the reader into Open Access, Open Technology, Open Data, Open Research results, Open Licensing, Open Accreditation, Open Certification, Open Policy and, of course, Open Educational Resources. It brings all these key topics from major players in the field; experts that present the current state of the art and the forthcoming steps towards a useful and effective implementation. This book presents radical, transgenic solutions for recurrent and long-standing problems in Higher Education. Every chapter presents a clear view and a related solution to make Higher Education progress and implement tools and strategies to improve the user's performance and learning experience. This book is part of a trilogy with companion volumes on Radical Solutions & Learning Analytics and Radical Solutions & eLearning.

This volume contains a selection of the best papers presented at the 8th International Conference on Industrial Engineering and Industrial Management, XX International Conference on Industrial Engineering and Operations Management, and International IIE Conference 2014, hosted by ADINGOR, ABEPRO and the IIE, whose mission is to promote links between researchers and practitioners from different branches, to enhance an interdisciplinary perspective of industrial engineering and management. The conference topics covered: operations research, modelling and simulation, computer and information systems, operations research, scheduling and sequencing, logistics, production and information systems, supply chain and logistics, transportation, lean management, production planning and control, production system design, reliability and maintenance, quality management, sustainability and eco-efficiency, marketing and consumer behavior, business administration and strategic

management, economic and financial management, technological and organizational innovation, strategy and entrepreneurship, economics engineering, enterprise engineering, global operations and cultural factors, operations strategy and performance, management social responsibility, environment and sustainability. This book will be of interest to researchers and practitioners working in any of the fields mentioned above.

Includes title page, table of contents, list of contributors, preface and all indexes of each book.

"Tell me," Wittgenstein once asked a friend, "why do people always say, it was natural for man to assume that the sun went round the earth rather than that the earth was rotating?" His friend replied, "Well, obviously because it just looks as though the Sun is going round the Earth."

Wittgenstein replied, "Well, what would it have looked like if it had looked as though the Earth was rotating?" What would it have looked like if we looked at all sciences from the viewpoint of Wittgenstein's philosophy? Wittgenstein is undoubtedly one of the most influential philosophers of the twentieth century. His complex body of work has been analysed by numerous scholars, from mathematicians and physicists, to philosophers, linguists, and beyond. This volume brings together some of his central perspectives as applied to the modern sciences and studies the influence they may have on the thought processes underlying science and on the world view it engenders. The contributions stem from leading scholars in philosophy, mathematics, physics, economics, psychology and human sciences; all of them have written in an accessible style that demands little specialist knowledge, whilst clearly portraying and discussing the deep issues at hand.

Part I: Process design -- Introduction to design -- Process flowsheet development -- Utilities and energy efficient design -- Process simulation -- Instrumentation and process control -- Materials of construction -- Capital cost estimating -- Estimating revenues and production costs -- Economic evaluation of projects -- Safety and loss prevention -- General site considerations -- Optimization in design -- Part II: Plant design -- Equipment selection, specification and design -- Design of pressure vessels -- Design of reactors and mixers -- Separation of fluids -- Separation columns (distillation, absorption and extraction) -- Specification and design of solids-handling equipment -- Heat transfer equipment -- Transport and storage of fluids.

An Introduction to Statistical Learning provides an accessible overview of the field of statistical learning, an essential toolset for making sense of the vast and complex data sets that have emerged in fields ranging from biology to finance to marketing to astrophysics in the past twenty years. This book presents some of the most important modeling and prediction techniques, along with relevant applications. Topics include linear regression, classification, resampling methods, shrinkage approaches, tree-based methods, support vector machines, clustering, and more. Color graphics and real-world examples are used to illustrate the methods presented. Since the goal of this textbook is to facilitate the use of these statistical learning techniques by practitioners in science, industry, and other fields, each chapter contains a tutorial on implementing the analyses and methods presented in R, an extremely popular open source statistical software platform. Two of the authors co-wrote *The Elements of Statistical Learning* (Hastie, Tibshirani and Friedman, 2nd edition 2009), a popular reference book for statistics and machine learning researchers. *An Introduction to Statistical Learning* covers many of the same topics, but at a level accessible to a much broader audience. This book is targeted at statisticians and non-statisticians alike who wish to use cutting-edge statistical learning techniques to analyze their data. The text assumes only a previous course in linear regression and no knowledge of matrix algebra.

Most books on inventory theory use the item approach to determine stock levels, ignoring the impact of unit cost, echelon location, and hardware indenture. *Optimal Inventory Modeling of Systems* is the first book to take the system approach to inventory modeling. The result has been dramatic reductions in the resources to operate many systems - fleets of aircraft, ships, telecommunications networks, electric

utilities, and the space station. Although only four chapters and appendices are totally new in this edition, extensive revisions have been made in all chapters, adding numerous worked-out examples. Many new applications have been added including commercial airlines, experience gained during Desert Storm, and adoption of the Windows interface as a standard for personal computer models.

Master and apply both the technical and behavioral skills you need to succeed in any inventory management role or function! Now, there's an authoritative and comprehensive guide to best-practice inventory management in any organization. Authored by world-class experts in collaboration with the Council of Supply Chain Management Professionals (CSCMP), this text illuminates planning, organizing, controlling, directing, motivating and coordinating all the activities used to efficiently control product flow. The Definitive Guide to Inventory Management covers long-term strategic decisions; mid-term tactical decisions; and even short-term operational decisions. Topics discussed include: Basic inventory management goals, roles, concepts, purposes, and terminology Key inventory management elements, processes, and interactions Principles/strategies for establishing efficient and effective inventory flows Using technology in inventory planning and management New approaches to inventory reduction: postponement, vendor-managed inventories, cross-docking, and quick response systems Trade-offs between inventory and transportation costs, including carrying costs Requirements and challenges of global inventory management Best practices, metrics, and frameworks for assessing inventory management performance

What role do universities play in the galloping process of globalization? The Globalization of Higher Education is a thoughtful, compelling examination of how the shrinking of the world is affecting universities and how they are responding. The book includes essays on various aspects of the phenomenon from university or research leaders representing 18 nations and five continents.

The demand for secure, affordable and clean energy is a priority call to humanity. Challenges associated with conventional energy resources, such as depletion of fossil fuels, high costs and associated greenhouse gas emissions, have stimulated interests in renewable energy resources. For instance, there have been clear gaps and rushed thoughts about replacing fossil-fuel driven engines with electric vehicles without long-term plans for energy security and recycling approaches. This book aims to provide a clear vision to scientists, industrialists and policy makers on renewable energy resources, predicted challenges and emerging applications. It can be used to help produce new technologies for sustainable, connected and harvested energy. A clear response to economic growth and clean environment demands is also illustrated. Interactions between firms and universities are key building blocks of innovation systems. This book focuses on those interactions in developing countries, presenting studies based on fresh empirical material prepared by research teams in 12 countries An essential textbook for any student or researcher in biology needing to design experiments, sample programs or analyse the resulting data. The text begins with a revision of estimation and hypothesis testing methods, covering both classical and Bayesian philosophies, before advancing to the analysis of linear and generalized linear models. Topics covered include linear and logistic regression, simple and complex ANOVA models (for factorial, nested, block, split-plot and repeated measures and

covariance designs), and log-linear models. Multivariate techniques, including classification and ordination, are then introduced. Special emphasis is placed on checking assumptions, exploratory data analysis and presentation of results. The main analyses are illustrated with many examples from published papers and there is an extensive reference list to both the statistical and biological literature. The book is supported by a website that provides all data sets, questions for each chapter and links to software.

This book provides comprehensive coverage of neural networks, their evolution, their structure, the problems they can solve, and their applications. The first half of the book looks at theoretical investigations on artificial neural networks and addresses the key architectures that are capable of implementation in various application scenarios. The second half is designed specifically for the production of solutions using artificial neural networks to solve practical problems arising from different areas of knowledge. It also describes the various implementation details that were taken into account to achieve the reported results. These aspects contribute to the maturation and improvement of experimental techniques to specify the neural network architecture that is most appropriate for a particular application scope. The book is appropriate for students in graduate and upper undergraduate courses in addition to researchers and professionals.

This collection brings together leading social anthropologists, historians, philosophers of science and mathematics, and researchers in artificial intelligence to discuss the ontological presuppositions used in indigenous, Eastern, and Western societies, both ancient and contemporary, about the subjects of reality they investigate. The authors analyze prevailing assumptions about societies distant in time or space and propose more faithful, sensitive analyses of their ontologies as a step toward mutual understanding and translatability across cultures and disciplines. *Science in the Forest, Science in the Past* is a pioneering interdisciplinary exploration of science and mathematics that will change the way researchers, educators, policy makers, and students think about our deeply held notions of what constitutes reality and how we apprehend and investigate it.

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.

Designing and Managing the Supply Chain, 3/e provides state-of-the-art models, concepts, and solution methods that are important for the design, control, operation, and management of supply chain systems. In particular, the authors attempt to convey the intuition behind many key supply chain concepts and to provide simple techniques that can be used to analyze various aspects of the supply chain. Topical coverage reflects the authors' desire to introduce students to those aspects of supply chain management that are critical to the success of a

business. Although many essential supply chain management issues are interrelated, the authors strive to make each chapter as self-contained as possible, so that the reader can refer directly to chapters covering topics of interest. Each chapter utilizes numerous case studies and examples, and mathematical and technical sections can be skipped without loss of continuity. The 3rd edition represents a substantial revision. While the structure and philosophy were kept intact, the authors placed an increasing importance on finding or developing effective frameworks that illustrate many important supply chain issues. At the same time, motivated by new developments in industry, they added material on a variety of topics new to the book while increasing the coverage of others.

This report repositions a group of 17 neglected tropical diseases on the global development agenda at a time of profound transitions in the economies of endemic countries and in thinking about the overarching objectives of development. In doing so it reinvigorates the drive to prevent control eliminate or eradicate diseases that blind maim and disfigure making life miserable for more than a billion people. Undetected and untreated several almost invariably kill. The burden of these diseases is further amplified by the fact that many require chronic and costly care underscoring the economic as well as the health benefits of preventive chemotherapy and early detection and care. The report brings a new dimension to long-term thinking about the future approach to these diseases. For the first time it sets out financing needs options and targets for meeting WHO Roadmap goals by 2020 but also for reaching universal coverage of all people in need by 2030. The report makes one investment case for cost-effectiveness and a second investment case where equity is the focus. It sets targets for ending catastrophic health expenditures and as part of the drive to strengthen health systems for getting services closer to where people live.

This book provides information on the historical and theoretical perspectives of biodiversity and ecology in tropical forests, plant and animal behaviour towards seed dispersal and plant-animal interactions within forest communities, consequences of seed dispersal, and conservation, biodiversity and management.

This book contains the most sustained and serious attack on mainstream, neoclassical economics in more than forty years. Nelson and Winter focus their critique on the basic question of how firms and industries change overtime. They marshal significant objections to the fundamental neoclassical assumptions of profit maximization and market equilibrium, which they find ineffective in the analysis of technological innovation and the dynamics of competition among firms. To replace these assumptions, they borrow from biology the concept of natural selection to construct a precise and detailed evolutionary theory of business behavior. They grant that firms are motivated by profit and engage in search for ways of improving profits, but they do not consider them to be profit maximizing. Likewise, they emphasize the tendency for the more profitable firms to drive the less profitable ones out of business, but they do not focus their analysis on hypothetical states of industry equilibrium. The results of their new paradigm and analytical framework are impressive. Not only have they been able to develop more coherent and powerful models of competitive firm dynamics under conditions of growth and technological change, but their approach is compatible with findings in psychology and other social sciences. Finally, their work has important implications for welfare economics and for government policy toward industry.

Dynamic Programming and Stochastic Control

This Open Access volume aims to methodologically improve our understanding of biodiversity by linking disciplines that incorporate remote sensing, and uniting data and perspectives in the fields of biology, landscape ecology, and geography. The book provides a framework for how biodiversity can be detected and evaluated--focusing particularly on plants--using proximal and remotely sensed hyperspectral data and other tools such as LiDAR. The volume, whose chapters bring together a large cross-section of the biodiversity community engaged in these

methods, attempts to establish a common language across disciplines for understanding and implementing remote sensing of biodiversity across scales. The first part of the book offers a potential basis for remote detection of biodiversity. An overview of the nature of biodiversity is described, along with ways for determining traits of plant biodiversity through spectral analyses across spatial scales and linking spectral data to the tree of life. The second part details what can be detected spectrally and remotely. Specific instrumentation and technologies are described, as well as the technical challenges of detection and data synthesis, collection and processing. The third part discusses spatial resolution and integration across scales and ends with a vision for developing a global biodiversity monitoring system. Topics include spectral and functional variation across habitats and biomes, biodiversity variables for global scale assessment, and the prospects and pitfalls in remote sensing of biodiversity at the global scale.

Stochastic systems provide powerful abstract models for a variety of important real-life applications: for example, power supply, traffic flow, data transmission. They (and the real systems they model) are often subject to phase transitions, behaving in one way when a parameter is below a certain critical value, then switching behaviour as soon as that critical value is reached. In a real system, we do not necessarily have control over all the parameter values, so it is important to know how to find critical points and to understand system behaviour near these points. This book is a modern presentation of the 'semimartingale' or 'Lyapunov function' method applied to near-critical stochastic systems, exemplified by non-homogeneous random walks. Applications treat near-critical stochastic systems and range across modern probability theory from stochastic billiards models to interacting particle systems. Spatially non-homogeneous random walks are explored in depth, as they provide prototypical near-critical systems.

This book draws together the essential elements of classical electrodynamics, surface wave physics, plasmonic materials, and circuit theory of electrical engineering to provide insight into the essential physics of nanoscale light-matter interaction and to provide design methodology for practical nanoscale plasmonic devices. A chapter on classical and quantal radiation also highlights the similarities (and differences) between the classical fields of Maxwell's equations and the wave functions of Schrödinger's equation. The aim of this chapter is to provide a semiclassical picture of atomic absorption and emission of radiation, lending credence and physical plausibility to the "rules" of standard wave-mechanical calculations. The structure of the book is designed around five principal chapters, but many of the chapters have extensive "complements" that either treat important digressions from the main body or penetrate deeper into some fundamental issue. Furthermore, at the end of the book are several appendices to provide readers with a convenient reference for frequently-occurring special functions and explanations of the analytical tools, such as vector calculus and phasors, needed to express important results in electromagnetics and waveguide theory.

Mobile Museums presents an argument for the importance of circulation in the study of museum collections, past and present. It brings together an impressive array of international scholars and curators from a wide variety of disciplines – including the history of science, museum anthropology and postcolonial history - to consider the mobility of collections. The book combines historical perspectives on the circulation of museum objects in the past with contemporary accounts of their re-mobilisation, notably in the context of Indigenous community engagement. Contributors seek to explore processes of circulation historically in order to re-examine, inform and unsettle common assumptions about the way museum collections have evolved over time and through

space. By foregrounding questions of circulation, the chapters in *Mobile Museums* collectively represent a fundamental shift in the understanding of the history and future uses of museum collections. The book addresses a variety of different types of collection, including the botanical, the ethnographic, the economic and the archaeological. Its perspective is truly global, with case studies drawn from South America, West Africa, Oceania, Australia, the United States, Europe and the UK. *Mobile Museums* helps us to understand why the mobility of museum collections was a fundamental aspect of their history and why it continues to matter today. Praise for *Mobile Museums* 'This book advances a paradigm shift in studies of museums and collections. A distinguished group of contributors reveal that collections are not dead assemblages. The nineteenth and twentieth centuries were marked by vigorous international traffic in ethnography and natural history specimens that tell us much about colonialism, travel and the history of knowledge – and have implications for the remobilisation of museums in the future.' – Nicholas Thomas, University of Cambridge 'The first major work to examine the implications and consequences of the migration of materials from one scientific or cultural milieu to another, it highlights the need for a more nuanced understanding of collections and offers insights into their potential for future re-mobilisation.' – Arthur MacGregor

In this volume cultural, social and cognitive influences on the research and teaching of mathematical modelling are explored from a variety of theoretical and practical perspectives. The authors of the current volume are all members of the International Community of Teachers of Mathematical Modelling and Applications, the peak research body in this field. A distinctive feature of this volume is the high number of authors from South American countries. These authors bring quite a different perspective to modelling than has been showcased in previous books in this series, in particular from a cultural point of view. As well as recent international research, there is a strong emphasis on pedagogical issues including those associated with technology and assessment, in the teaching and learning of modelling. Applications at various levels of education are exemplified. The contributions reflect common issues shared globally and represent emergent or on-going challenges.

Annotation Provides an analysis of the global monetary system and proposes a comprehensive yet evolutionary reform of the system aimed at creating better monetary cooperation for the twenty-first century.

Written as a tutorial to explore and understand the power of R for machine learning. This practical guide that covers all of the need to know topics in a very systematic way. For each machine learning approach, each step in the process is detailed, from preparing the data for analysis to evaluating the results. These steps will build the knowledge you need to apply them to your own data science tasks. Intended for those who want to learn how to use R's machine learning capabilities and gain insight from your data. Perhaps you already know a bit about machine learning, but have never used R; or perhaps you know a little R but are new to machine learning. In either case, this book will get you up and running quickly. It would be helpful to have a bit of familiarity with basic programming concepts, but no prior experience is required. Sustainability covers environmental, social and economic dimensions, and requires a multi-disciplinary approach in order to examine, explore and critically engage with issues and advances in its related areas. As we are aware, climate change is a

certainty and it affects many economic sectors, including agriculture, particularly production of crop and livestock enterprises. Vast regional differences in these impacts are expected for various parts of the world, culminating in changes in trade patterns, and perhaps eventually even threatening the food security in certain parts of the world. Agricultural sustainability may be especially threatened by climate extremes, such as heat waves, droughts, and floods. However, not all changes induced by climate change would be negative; some may even be positive. Undoubtedly, there would be winners and losers within a nation, as well as among countries. Achieving sustainability would require changes in the way we manage agriculture. Equally important in this discourse is to find solutions to achieve sustainability in the wake of climate change, one of the major threats to sustainability. This book is devoted to various aspect of sustainable agriculture and climate change and their interplay.

The main subject of this introductory book is simple random walk on the integer lattice, with special attention to the two-dimensional case. This fascinating mathematical object is the point of departure for an intuitive and richly illustrated tour of related topics at the active edge of research. It starts with three different proofs of the recurrence of the two-dimensional walk, via direct combinatorial arguments, electrical networks, and Lyapunov functions. After reviewing some relevant potential-theoretic tools, the reader is guided toward the relatively new topic of random interacements - which can be viewed as a 'canonical soup' of nearest-neighbour loops through infinity - again with emphasis on two dimensions. On the way, readers will visit conditioned simple random walks - which are the 'noodles' in the soup - and also discover how Poisson processes of infinite objects are constructed and review the recently introduced method of soft local times. Each chapter ends with many exercises, making it suitable for courses and independent study.

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