Pive Macromodeling Theory And Applications Wiley Series In Microwave And Optical Engineering

This proven textbook guides readers to a thorough understanding of the theory and design of operational amplifiers (OpAmps). The core of the book presents systematically the design of operational amplifiers, classifying them into a periodic system of nine main overall configurations, ranging from one gain stage up to four or more stages. This division enables circuit designers to recognize quickly, understand, and choose optimal configurations. Characterization of operational amplifiers is given by macro models and error matrices, together with measurement techniques for their parameters. Definitions are given for four types of operational amplifiers depending on the grounding of their input and output ports. Many famous designs are evaluated in depth, using a carefully structured approach enhanced by numerous figures. In order to reinforce the concepts introduced and facilitate self-evaluation of design skills, the author includes problems with detailed solutions, as well as simulation exercises.
This book proposes, from a cross-disciplinary perspective, an original reading of current work on residential choice and the decisions associated with it. Geographers, social-psychologists, economists, sociologists, neurologists and linguists have worked together in the context of collective research into evaluation, choice and decision-making in the use of urban and periurban spaces. A synthetic outlook has been constructed from these complimentary scientific references. The book, which is designed as a handbook, also provides the opportunity to set out the different approaches to deal with the models which have been developed in this field.
The substantially revised fourth edition of a widely used text, offering both an introduction to recursive methods and advanced material, mixing tools and sample applications. Recursive methods provide powerful ways to pose and solve problems in dynamic macroeconomics. Recursive Macroeconomic Theory offers both an introduction to recursive methods and more advanced material. Only practice in solving diverse problems fully conveys the advantages of the recursive approach, so the book provides many applications. This fourth edition features two new chapters and substantial revisions to other chapters that demonstrate the power of recursive methods. One new chapter applies the recursive approach to Ramsey taxation and sharply characterizes the time inconsistency of optimal policies. These insights are used in other chapters to simplify recursive formulations of Ramsey plans and credible government policies. The second new chapter explores the mechanics of matching models and identifies a common channel through which productivity shocks are magnified across a variety of matching models. Other chapters have been extended and refined. For example, there is new material on heterogeneous beliefs in both complete and incomplete markets models; and there is a deeper account of forces that shape aggregate labor supply elasticities in lifecycle models. The book is suitable for first- and second-year graduate courses in macroeconomics. Most chapters conclude with exercises; many exercises and examples use Matlab or Python computer programming languages.
Like all of us, though few so visibly, Alan Greenspan was forced by the financial crisis of 2008 to question some fundamental assumptions about risk management and economic forecasting. No one with any meaningful role in economic decision making in the world saw beforehand the storm for what it was. How had our models so utterly failed us? To answer this question, Alan Greenspan embarked on a rigorous and far-reaching multiyear examination of how Homo economicus predicts the economic future, and how it can predict it better. Economic risk is a fact

of life in every realm, from home to business to government at all levels. Whether we ' re conscious of it or not, we make wagers on the future virtually every day, one way or another. Very often, however, we ' re steering by out-of-date maps, when we ' re not driven by factors entirely beyond our conscious control. The Map and the Territory is nothing less than an effort to update our forecasting conceptual grid. It integrates the history of economic prediction, the new work of behavioral economists, and the fruits of the author ' s own remarkable career to offer a thrillingly lucid and empirically based grounding in what we can know about economic forecasting and what we can ' t.The book explores how culture is and isn't destiny and probes what we can predict about the world's biggest looming challenges, from debt and the reform of the welfare state to natural disasters in an age of global warming. No map is the territory, but Greenspan ' s approach, grounded in his trademark rigor, wisdom, and unprecedented context, ensures that this particular map will assist in safe journeys down many different roads, traveled by individuals, businesses, and the state.

Analytical Criminology

Electrical Modeling and Design for 3D System Integration

Edn Series for Design Engineers

Applications of Combinatorics and Graph Theory to the Biological and Social Sciences

Theory and Applications

The Marriage Motive: A Price Theory of Marriage

There are more than 20 theories that explain crime. Each theory has weaknesses, and no scholar knows which theory is best. To remedy this unsatisfactory situation a new research program of comparative theory testing is proposed. Comparing the theories with each other has not yet been successful. The alternative, suggested in this book, is to show how criminological theories must be modified if they are compared with a general behavioral theory. The book shows under which conditions the major criminological theories provide valid explanations of crime. The latter thus become integrated as parts of the general theory. The general theory that is chosen is a version of the theory of rational action. This is not the problematic version discussed in the literature, but states the real conditions of decision making and, thus, explains when people actually violate the law or remain law-abiding. The general theory is a component of a theoretical approach that explains individual behavior in interaction with societal (macro) conditions. This micro-macro approach is summarized in a proposed structural-cognitive model. This is part of the new program of Analytical Criminology. It suggests empirical theory comparison, process explanations, and micro-macro explanations. The book is not only written for readers who are interested in theories of crime and deviant behavior. It is also a treatise in "analytical" (i.e., rigorous) theory construction and empirical theory comparison.

This book combines historical and policy-oriented perspectives on the relevance of the Keynesian approach for economic theory, policy, and crisis analysis. The first part focuses on historical, theoretical, and methodological issues, and puts them in context with current developments. The second part focuses on the application of the Keynesian approach to modeling the economy, policy-making, and analyzing the ongoing crisis of the early 21st century. Bringing together contributions by leading macroeconomists such as Laidler, Cukierman, Colander and Boyer, and leading historians of economics such as Hollander, Boianovsky, Marcuzzo, Dimand, Witztum, Young, deVroey and Arnon, the

book offers a comprehensive overview of Keynesian economics today. One of the book's most essential features are the commentaries on the papers, which promote a cross-fertilization between macroeconomists and historians of economics, providing, in conjunction with the papers themselves, a balanced outlook on the current relevance of Keynesian economics.

New advanced modeling methods for simulating the electromagnetic properties of complex three-dimensional electronic systems Based on the author's extensive research, this book sets forth tested and proven electromagnetic modeling and simulation methods for analyzing signal and power integrity as well as electromagnetic interference in large complex electronic interconnects, multilayered package structures, integrated circuits, and printed circuit boards. Readers will discover the state of the technology in electronic package integration and printed circuit board simulation and modeling. In addition to popular full-wave electromagnetic computational methods, the book presents new, more sophisticated modeling methods, offering readers the most advanced tools for analyzing and designing large complex electronic structures. Electrical Modeling and Design for 3D System Integration begins with a comprehensive review of current modeling and simulation methods for signal integrity, power integrity, and electromagnetic compatibility. Next, the book guides readers through: The macromodeling technique used in the electrical and electromagnetic modeling and simulation of complex interconnects in three-dimensional integrated systems The semi-analytical scattering matrix method based on the N-body scattering theory for modeling of three-dimensional electronic package and multilayered printed circuit boards with multiple vias Two- and three-dimensional integral equation methods for the analysis of power distribution networks in three-dimensional package integrations The physics-based algorithm for extracting the equivalent circuit of a complex power distribution network in three-dimensional integrated systems and printed circuit boards An equivalent circuit model of through-silicon vias Metal-oxide-semiconductor capacitance effects of through-silicon vias Engineers, researchers, and students can turn to this book for the latest techniques and methods for the electrical modeling and design of electronic packaging, three-dimensional electronic integration, integrated circuits, and printed circuit boards.

This is the first comprehensive monograph that featuresstate-of-the-art multigrid methods for enhancing the modelingversatility, numerical robustness, and computational efficiency ofone of the most popular classes of numerical electromagnetic fieldmodeling methods: the method of finite elements. The focus of thepublication is the development of robust preconditioners for theiterative solution of electromagnetic field boundary value problems(BVPs) discretized by means of finite methods. Specifically, the authors set forth their own successful attemptsto utilize concepts from multigrid and multilevel methods for theeffective preconditioning of matrices resulting from theapproximation of electromagnetic BVPs using finite methods.Following the authors' careful explanations and step-by-stepinstruction, readers can duplicate the authors' results and takeadvantage of today's state-of-the-art multigrid/multilevelpreconditioners for finite element-based iterative electromagneticfield solvers. Among the highlights of coverage are: * Application of multigrid, multilevel, and hybridmultigrid/multilevel preconditioners to

electromagnetic scatteringand radiation problems * Broadband, robust numerical modeling of passive microwavecomponents and circuits * Robust, finite element-based modal analysis of electromagneticwaveguides and cavities * Application of Krylov subspace-based methodologies forreduced-order macromodeling of electromagnetic devices andsystems * Finite element modeling of electromagnetic waves in periodicstructures The authors provide more than thirty detailed algorithms alongsidepseudo-codes to assist readers with practical computerimplementation. In addition, each chapter includes an applicationssection with helpful numerical examples that validate the authors'methodologies and demonstrate their computational efficiency androbustness. This groundbreaking book, with its coverage of an exciting newenabling computer-aided design technology, is an essentialreference for computer programmers, designers, and engineers, aswell as graduate students in engineering and applied physics.

Journal of the Audio Engineering Society

Through the Rotor Disc

Passive Macromodeling

3D Integrated Circuits and Packaging, Signal Integrity, Power Integrity and EMC

An Interdisciplinary Approach to Residential Choice in its Social Context

Applying Sustainomics to Implement the Sustainable Development Goals

This volume collects a selection of contributions which has been presented at the 23rd Italian Workshop on Neural Networks, the yearly meeting of the Italian Society for Neural Networks (SIREN). The conference was held in Vietri sul Mare, Salerno, Italy during May 23-24, 2013. The annual meeting of SIREN is sponsored by International Neural Network Society (INNS), European Neural Network Society (ENNS) and IEEE Computational Intelligence Society (CIS). The book – as well as the workshop- is organized in two main components, a special session and a group of regular sessions featuring different aspects and point of views of artificial neural networks, artificial and natural intelligence, as well as psychological and cognitive theories for modeling human behaviors and human machine interactions, including Information Communication applications of compelling interest.

Energy drives the economy, economics informs policy, and policy affects social outcomes. Since the oil crises of the 1970s, pundits have debated the validity of this sequence, but most economists and politicians still ignore it. Thus, they delude the public about the underlying influence of energy costs and constraints on economic policies that address such pressing contemporary issues as income inequality, growth, debt, and climate change. To understand why, Carey King explores the scientific and rhetorical basis of the competing narratives both within and between energy technology and economics. Energy and economic discourse seems to mirror Newton ' s 3rd Law of Motion: For every narrative there is an equal and opposite counter-narrative. The competing energy narratives pit "drill, baby, drill!" against renewable technologies such as wind and solar. Both claim to provide secure, reliable, clean, and affordable energy to support economic growth with the most benefit to society, but how? To answer this question, we need to understand the competing economic narratives, techno-optimism and techno-realism. Techno-optimism claims that innovation overcomes any physical resource constraints and enables the social outcomes and economic growth we desire. Techno-realism, in contrast, states that no matter what energy technologies we use, feedbacks from physical growth on a finite planet constrain economic growth and create an uneven

distribution of social impacts. In The Economic Superorganism, you will discover stories, data, science, and philosophy to guide you through the arguments from competing narratives on energy, growth, and policy. You will be able to distinguish the technically possible from the socially viable, and understand how our future depends on this distinction.

A comprehensive overview of Sigma-Delta Analog-to-DigitalConverters (ADCs) and a practical guide to their design innano-scale CMOS for optimal performance. This book presents a systematic and comprehensive compilation ofsigma-delta converter operating principles, the new advances inarchitectures and circuits, design methodologies and practicalconsiderations – going from system-level specifications tosilicon integration, packaging and measurements, with emphasis onnanometer CMOS implementation. The book emphasizes practical designissues – from high-level behavioural modelling inMATLAB/SIMULINK, to circuit-level implementation in Cadence DesignFrameWork II. As well as being a comprehensive reference to thetheory, the book is also unique in that it gives special importanceon practical issues, giving a detailed description of the differentsteps that constitute the whole design flow of sigma-delta ADCs. The book begins with an introductory survey of sigma-deltamodulators, their fundamentals architectures and synthesis methodscovered in Chapter 1. In Chapter 2, the effect of main circuiterror mechanisms is analysed, providing the necessary understandingof the main practical issues affecting the performance ofsigma-delta modulators. The knowledge derived from the first twochapters is presented in the book as an essential part of thesystematic top-down/bottom-up synthesis methodology of sigma-deltamodulators described in Chapter 3, where a time-domain behaviouralsimulator named SIMSIDES is described and applied to the high-leveldesign and verification of sigma-delta ADCs. Chapter 4 movesfarther down from system-level to the circuit and physical level,providing a number of design recommendations and practical recipesto complete the design flow of sigma-delta modulators. To concludethe book, Chapter 5 gives an overview of the state-of-the-artsigma-delta ADCs, which are exhaustively analysed in order toextract practical design guidelines and to identify the incomingtrends, design challenges as well as practical solutions proposedby cutting-edge designs. Offers a complete survey of sigma-delta modulator architecturesfrom fundamentals to state-of-the art topologies, considering bothswitched-capacitor and continuous-time circuit implementations Gives a systematic analysis and practical design guide ofsigma-delta modulators, from a top-down/bottom-up perspective,including mathematical models and analytical procedures,behavioural modeling in MATLAB/SIMULINK, macromodeling, andcircuit-level implementation in Cadence Design FrameWork II, chipprototyping, and experimental characterization. Systematic compilation of cutting-edge sigma-deltamodulators Complete description of SIMSIDES, a time-domain behaviouralsimulator implemented in MATLAB/SIMULINK Plenty of examples, case studies, and simulation test benches,covering the different stages of the design flow of sigma-deltamodulators A number of electronic resources, including SIMSIDES, thestatistical data used in the state-of-the-art survey, as well asmany design examples and test benches are hosted on a companionwebsite Essential reading for Researchers and electronics engineeringpractitioners interested in the design of high-performance dataconverters integrated in nanometer CMOS technologies; mixed-signaldesigners.

This IMA Volume in Mathematics and its Applications Applications of Combinatorics and Graph Theory to the Biological and Social Sciences is based on the proceedings of a workshop which was an integral part of the 1987-88 IMA program on APPLIED

COMBINATORICS. We are grateful to the Scientific Committee: Victor Klee (Chairman), Daniel Kleitman, Dijen Ray-Chaudhuri and Dennis Stanton for planning and implementing an exciting and stimulating year long program. We especially thank the Workshop Organizers, Joel Cohen and Fred Roberts, for organizing a workshop which brought together many of the major figures in a variety of research fields connected with the application of combinatorial ideas to the social and biological sciences. A vner Friedman Willard Miller APPLICATIONS OF COMBINATORICS AND GRAPH THEORY TO THE BIOLOGICAL AND SOCIAL SCIENCES: SEVEN FUNDAMENTAL IDEAS FRED S. RoBERTS* Abstract. To set the stage for the other papers in this volume, seven fundamental concepts which arise in the applications of combinatorics and graph theory in the biological and social sciences are described. These ideas are: RNA chains as "words" in a 4 letter alphabet; interval graphs; competition graphs or niche overlap graphs; qualitative stability; balanced signed graphs; social welfare functions; and semiorders. For each idea, some basic results are presented, some recent results are given, and some open problems are mentioned.

A.

Practical Design Guide

Model Order Reduction: Theory, Research Aspects and Applications

Theory and Design

The Mechatronics Handbook - 2 Volume Set

Econometric Decision Models

Cited in BCL3 and Sheehy . Formerly Books in series in the United States . The editor's solicitude expressed in the preface Bowker...has consistently recognized those areas in which we can assist to make the work of librarians...easier. It is because of this concern that we decided to publish the 1

Aging is a process that encompasses virtually all aspects of life. Because the speed of population aging is accelerating, and because the data needed to study the aging process are complex and expensive to obtain, it is imperative that countries coordinate their research efforts to reap the most benefits from this important information. Preparing for an Aging World looks at the behavioral and socioeconomic aspects of aging, and focuses on work, retirement, and pensions; wealth and savings behavior; health and disability; intergenerational transfers; and concepts of well-being. It makes recommendations for a collection of new, cross-national data on aging populationsâ€"data that will allow nations to develop policies and programs for addressing the major shifts in population age structure now occurring. These efforts, if made internationally, would advance our understanding of the aging process around the world.

As helicopter pilots in the Indian Air Force, we always glimpsed the world through a rotor disc! For many of us who flew before and after the 1971 war, our world view was shaped by our experiences and the training we imbibed. “Through the Rotor Disc” hopes to chronicle the journey of a few helicopter pilots and ground crew in Air Force Station Kumbhirgram in creating history as we helped change the course of the Bangladesh war in 1971. The book is a retelling of our experiences in and out of uniform, hundreds of places we landed and the valiant soldiers and civilians we ferried. We flew the helicopters and landed in every nook and corner of the country. Then we realised that… Pilots do not steer helicopters, destiny does…

"Directory of members" published as pt. 2 of Apr. 1954- issue.

Beyond the Competing Narratives on Energy, Growth, and Policy

CMOS Sigma-Delta Converters

Sustainability in the Twenty-First Century

Perspectives on Keynesian Economics

How Marriage Markets Affect Employment, Consumption, and Savings

Integrating Explanations of Crime and Deviant Behavior

This open access book focuses on both the theory and practice associated with the tools and approaches for decisionmaking in the face of deep uncertainty. It explores approaches and tools supporting the design of strategic plans under deep uncertainty, and their testing in the real world, including barriers and enablers for their use in practice. The book broadens traditional approaches and tools to include the analysis of actors and networks related to the problem at hand. It also shows how lessons learned in the application process can be used to improve the approaches and tools used in the design process. The book offers guidance in identifying and applying appropriate approaches and tools to design plans, as well as advice on implementing these plans in the real world. For decisionmakers and practitioners, the book includes realistic examples and practical guidelines that should help them understand what decisionmaking under deep uncertainty is and how it may be of assistance to them. Decision Making under Deep Uncertainty: From Theory to Practice is divided into four parts. Part I presents five approaches for designing strategic plans under deep uncertainty: Robust Decision Making, Dynamic Adaptive Planning, Dynamic Adaptive Policy Pathways, Info-Gap Decision Theory, and Engineering Options Analysis. Each approach is worked out in terms of its theoretical foundations, methodological steps to follow when using the approach, latest methodological insights, and challenges for improvement. In Part II, applications of each of these approaches are presented. Based on recent case studies, the practical implications of applying each approach are discussed in depth. Part III focuses on using the approaches and tools in real-world contexts, based on insights from real-world cases. Part IV contains conclusions and a synthesis of the lessons that can be drawn for designing, applying, and implementing strategic plans under deep uncertainty, as well as recommendations for future work. The publication of this book has been funded by the Radboud University, the RAND Corporation, Delft University of Technology, and Deltares.; Offers a comprehensive examination of the approaches and tools for designing plans under deep uncertainty and their application Identifies barriers and enablers for the use of the various approaches and tools in practice Includes realistic examples and practical guidelines to help readers better understand the concepts This work was published by Saint Philip Street Press pursuant to a Creative Commons license permitting commercial use. All rights not granted by the work's license are retained by the author or authors.

Class-tested and coherent, this textbook teaches classical and

web information retrieval, including web search and the related areas of text classification and text clustering from basic concepts. It gives an up-to-date treatment of all aspects of the design and implementation of systems for gathering, indexing, and searching documents; methods for evaluating systems; and an introduction to the use of machine learning methods on text collections. All the important ideas are explained using examples and figures, making it perfect for introductory courses in information retrieval for advanced undergraduates and graduate students in computer science. Based on feedback from extensive classroom experience, the book has been carefully structured in order to make teaching more natural and effective. Slides and additional exercises (with solutions for lecturers) are also available through the book's supporting website to help course instructors prepare their lectures.

The idea for this book originated during the workshop “Model order reduction, coupled problems and optimization” held at the Lorentz Center in Leiden from S- tember 19–23, 2005. During one of the discussion sessions, it became clear that a book describing the state of the art in model order reduction, starting from the very basics and containing an overview of all relevant techniques, would be of great use for students, young researchers starting in the ?eld, and experienced researchers. The observation that most of the theory on model order reduction is scattered over many good papers, making it dif?cult to ?nd a good starting point, was supported by most of the participants. Moreover, most of the speakers at the workshop were willing to contribute to the book that is now in front of you. The goal of this book, as de?ned during the discussion sessions at the workshop, is three-fold: ?rst, it should describe the basics of model order reduction. Second, both general and more specialized model order reduction techniques for linear and nonlinear systems should be covered, including the use of several related numerical techniques. Third, the use of model order reduction techniques in practical appli- tions and current research aspects should be discussed. We have organized the book according to these goals. In Part I, the rationale behind model order reduction is explained, and an overview of the most common methods is described.

Essentials of Computational Chemistry provides a balanced introduction to this dynamic subject. Suitable for both experimentalists and theorists, a wide range of samples and applications are included drawn from all key areas. The book carefully leads the reader thorough the necessary equations providing information explanations and reasoning where necessary and firmly placing each equation in context.

Recent Advances of Neural Network Models and Applications
The IoT Physical Layer
Risk, Human Nature, and the Future of Forecasting
Linked National Models: A Tool For International Food Policy Analysis
The Case for Cross-National Research
Multigrid Finite Element Methods for Electromagnetic Field Modeling

Provides a rigorous analysis of sustainable development that includes practical, policy-relevant, global case studies, explained concisely and clearly.

Troubleshooting Analog Circuits is a guidebook for solving product or process related problems in analog circuits. The book also provides advice in selecting equipment, preventing problems, and general tips. The coverage of the book includes the philosophy of troubleshooting; the modes of failure of various components; and preventive measures. The text also deals with the active components of analog circuits, including diodes and rectifiers, optically coupled devices, solar cells, and batteries. The book will be of great use to both students and practitioners of electronics engineering. Other professionals dealing with electronics will also benefit from the text, such as electric technicians.

The first comprehensive reference on mechatronics, The Mechatronics Handbook was quickly embraced as the gold standard in the field. From washing machines, to coffeemakers, to cell phones, to the ubiquitous PC in almost every household, what, these days, doesn’t take advantage of mechatronics in its design and function? In the scant five years since the initial publication of the handbook, the latest generation of smart products has made this even more obvious. Too much material to cover in a single volume Originally a single-volume reference, the handbook has grown along with the field. The need for easy access to new material on rapid changes in technology, especially in computers and software, has made the single volume format unwieldy. The second edition is offered as two easily digestible books, making the material not only more accessible, but also more focused. Completely revised and updated, Robert Bishop’s seminal work is still the most exhaustive, state-of-the-art treatment of the field available.

This volume contains a refereed selection of revised papers which were originally presented at the Second International Conference on Econometric Decision Models, University of Hagen (FernUni versitat). The conference was held in Haus Nordhelle, a meeting place in the mountainous area " Sauerland" , some 50 kilometers south of Hagen, on August 29 - September 1, 1989. Some details about this conference are given in the first paper, they need not be repeated here. The 40 papers included in this volume are organized in 10 "parts", shown in the table of contents. Included are such "fashionable" topics like "optimal control", "cointegration" and "rational expec tations models". In each part, the papers have been arranged alphabetically by author, unless there were good reasons for a different arrangement. To facilitate the decision making of the readers, all papers (except a few short ones) contain an abstract, a list of keywords and a table of contents. At the end of the proceedings volume, there is a list of authors. More than ten years ago, I began to organize meetings of econometricians, mainly called "seminar" or " colloquium". One major purpose of these meetings has always been to improve international cooperation of econometric model builders (and model users) from "the East" and "the West". Unprecedented changes to the better have taken place recently ("perestroika"). For a large fraction of participants from the Soviet Union, the 1989 conference was the first conference in a Western country.

Science and Engineering of Casting Solidification

Scientific and Technical Aerospace Reports

Money, Interest, and Policy

Troubleshooting Analog Circuits

Decision Making Under Deep Uncertainty

Essentials of Computational Chemistry

Late in a career of more than sixty years, Thomas Burch, an internationally known social demographer, undertook a wide-ranging methodological critique of demography. This open access volume contains a selection of resulting papers, some previously unpublished, some published but not readily accessible [from past meetings of The International Union for the Scientific Study of Population and its research committees, or from other small conferences and seminars]. Rejecting the idea that demography is simply a branch of applied statistics, his work views it as an autonomous and complete scientific discipline. When viewed from the perspective of modern philosophy of science, specifically the semantic or model-based school, demography

is a balanced discipline, with a rich body of techniques and data, but also with more and better theories than generally recognized. As demonstrated in this book, some demographic techniques can also be seen as theoretical models, and some substantive/behavioral models, commonly rejected as theory because of inconsistent observations, are now seen as valuable theoretical models, for example demographic transition theory. This book shows how demography can build a strong theoretical edifice on its broad and deep empirical foundation by adoption of the model-based approach to science. But the full-fruits of this approach will require demographers to make greater use of computer modeling [both macro- and micro-simulation], in the statement and manipulation of theoretical ideas, as well as for numerical computation. This book is open access under a CC BY license.

The 3rd edition of this popular textbook covers current topics in all areas of casting solidification. Partial differential equations and numerical analysis are used extensively throughout the text, with numerous calculation examples, to help the reader in achieving a working knowledge of computational solidification modeling. The features of this new edition include: • new chapters on semi-solid and metal matrix composites solidification • a significantly extended treatment of multiscale modeling of solidification and its applications to commercial alloys • a survey of new topics such as solidification of multicomponent alloys and molecular dynamic modeling • new theories, including a theory on oxide bi-films in the treatment of shrinkage problems • an in-depth treatment of the theoretical aspects of the solidification of the most important commercial alloys including steel, cast iron, aluminum-silicon eutectics, and superalloys • updated tables of material constants.

The role of theory in ex ante policy evaluations and the limits that eschewing theory places on inference In this rigorous and well-crafted work, Kenneth Wolpin examines the role of theory in inferential empirical work in economics and the social sciences in general—that is, any research that uses raw data to go beyond the mere statement of fact or the tabulation of statistics. He considers in particular the limits that eschewing the use of theory places on inference. Wolpin finds that the absence of theory in inferential work that addresses microeconomic issues is pervasive. That theory is unnecessary for inference is exemplified by the expression “let the data speak for themselves.” This approach is often called “reduced form.” A more nuanced view is based on the use of experiments or quasi-experiments to draw inferences. Atheoretical approaches stand in contrast to what is known as the structuralist approach, which requires that a researcher specify an explicit model of economic behavior—that is, a theory. Wolpin offers a rigorous examination of both structuralist and nonstructuralist approaches. He first considers ex ante policy evaluation, highlighting the role of theory in the implementation of parametric and nonparametric estimation strategies. He illustrates these strategies with two examples, a wage tax and a school attendance subsidy, and summarizes the results from applications. He then presents a number of examples that illustrate the limits of inference

without theory: the effect of unemployment benefits on unemployment duration; the effect of public welfare on women's labor market and demographic outcomes; the effect of school attainment on earnings; and a famous field experiment in education dealing with class size. Placing each example within the context of the broader literature, he contrasts them to recent work that relies on theory for inference.
Modeling and Simulation of Mixed Analog-Digital Systems brings together in one place important contributions and state-of-the-art research results in this rapidly advancing area. Modeling and Simulation of Mixed Analog-Digital Systems serves as an excellent reference, providing insight into some of the most important issues in the field.
Recursive Macroeconomic Theory, fourth edition
Model Reduction for Circuit Simulation
Deciding Where to Live
Modeling and Simulation of Mixed Analog-Digital Systems
Proceedings of the 23rd Workshop of the Italian Neural Networks Society (SIREN), May 23-25, Vietri sul Mare, Salerno, Italy
The Economic Superorganism
Simulation based on mathematical models plays a major role in computer aided design of integrated circuits (ICs). Decreasing structure sizes, increasing packing densities and driving frequencies require the use of refined mathematical models, and to take into account secondary, parasitic effects. This leads to very high dimensional problems which nowadays require simulation times too large for the short time-to-market demands in industry. Modern Model Order Reduction (MOR) techniques present a way out of this dilemma in providing surrogate models which keep the main characteristics of the device while requiring a significantly lower simulation time than the full model. With Model Reduction for Circuit Simulation we survey the state of the art in the challenging research field of MOR for ICs, and also address its future research directions. Special emphasis is taken on aspects stemming from miniturisations to the nano scale. Contributions cover complexity reduction using e.g., balanced truncation, Krylov-techniques or POD approaches. For semiconductor applications a focus is on generalising current techniques to differential-algebraic equations, on including design parameters, on preserving stability, and on including nonlinearity by means of piecewise linearisations along solution trajectories (TPWL) and interpolation techniques for nonlinear parts. Furthermore the influence of interconnects and power grids on the physical properties of the device is considered, and also top-down system design approaches in which detailed block descriptions are combined with behavioral models. Further topics consider MOR and the combination of approaches from optimisation and statistics, and the inclusion of PDE models with emphasis on MOR for the resulting partial differential

algebraic systems. The methods which currently are being developed have also relevance in other application areas such as mechanical multibody systems, and systems arising in chemistry and to biology. The current number of books in the area of MOR for ICs is very limited, so that this volume helps to fill a gap in providing the state of the art material, and to stimulate further research in this area of MOR. Model Reduction for Circuit Simulation also reflects and documents the vivid interaction between three active research projects in this area, namely the EU-Marie Curie Action ToK project O-MOORE-NICE (members in Belgium, The Netherlands and Germany), the EU-Marie Curie Action RTN-project COMSON (members in The Netherlands, Italy, Germany, and Romania), and the German federal project System reduction in nano-electronics (SyreNe).

An important recent advance in macroeconomics is the development of dynamic stochastic general equilibrium (DSGE) macromodels. The use of DSGE models to study monetary policy, however, has led to paradoxical and puzzling results on a number of central monetary issues including price determinacy and liquidity effects. In Money, Interest, and Policy, Jean-Pascal Benassy argues that moving from the standard DSGE models - which he calls "Ricardian" because they have the famous "Ricardian equivalence" property-to another, "non-Ricardian" model would resolve many of these issues. A Ricardian model represents a household as a homogeneous family of infinitely lived individuals, and Benassy demonstrates that a single modification-the assumption that new agents are born over time (which makes the model non-Ricardian)-can bridge the current gap between monetary intuitions and facts, on one hand, and rigorous modeling, on the other. After comparing Ricardian and non-Ricardian models, Benassy introduces a model that synthesizes the two approaches, incorporating both infinite lives and the birth of new agents. Using this model, he considers a number of issues in monetary policy, including liquidity effects, interest rate rules and price determinacy, global determinacy, the Taylor principle, and the fiscal theory of the price level. Finally, using a simple overlapping generations model, he analyzes optimal monetary and fiscal policies, with a special emphasis on optimal interest rate rules

Fundamentals and Sensing Applications of 2D Materials provides a comprehensive understanding of a wide range of 2D materials. Examples of fundamental topics include: defect and vacancy engineering, doping and advantages of 2D materials for sensing, 2D materials and composites for sensing, and 2D materials in biosystems. A wide range of applications are addressed, such as gas sensors based on 2D materials, electrochemical glucose

sensors, biosensors (enzymatic and non-enzymatic), and printed, stretchable, wearable and flexible biosensors. Due to their sub-nanometer thickness, 2D materials have a high packing density, thus making them suitable for the fabrication of thin film based sensor devices. Benefiting from their unique physical and chemical properties (e.g. strong mechanical strength, high surface area, unparalleled thermal conductivity, remarkable biocompatibility and ease of functionalization), 2D layered nanomaterials have shown great potential in designing high performance sensor devices. Provides a comprehensive overview of 2D materials systems that are relevant to sensing, including transition metal dichalcogenides, metal oxides, graphene and other 2D materials system Includes information on potential applications, such as flexible sensors, biosensors, optical sensors, electrochemical sensors, and more Discusses graphene in terms of the lessons learned from this material for sensing applications and how these lessons can be applied to other 2D materials

While this book contains numerous facts and empirical findings and touches on policy issues, its main contribution to the existing literature lies in the theoretical perspective it offers. The core of this book is a general equilibrium theory of labor and marriage presented in Chapter 2, which provides the conceptual framework for the rest of the chapters. Two major implications of the theory are sex ratio effects and compensating differentials in marriage. The book demonstrates how a few core concepts, linked via economic analysis, help explain a multitude of findings based on statistical analyses of data from a wide variety of cultures. It is hoped that readers of this book will improve their understanding of how marriage works to help us design better economic and social policies as well as help people live better and happier lives, making the book of interest to not only economists but sociologists and anthropologists as well.

The Limits of Inference without Theory

108 Questions & Answers in Hinduism

Design and Implementation

Essays on Integrating Data, Technique and Theory

A Primer of Spirituality

Model-Based Demography

A first edition that offers a new perspective on mathematical economics. The emphasis throughout the text is not on mathematical theorems and formal proofs, but on how mathematics can enhance our understanding of the economic behavior under study. An efficient and effective writing style, placing a premium on clear explanation, builds confidence as students,

move through the text.
Thanks to the many seekers for their questions on different concepts of deity, worship and spirituality in Sanatana Dharma, which propelled the author to provide a graded, elaborate response for clarification. The answers herein cover a wide range of topics in copious detail from the most elementary processes to the peaks of Vedanta. Even a random opening of the book can be revelatory.
Offers an overview of state of the art passive macromodeling techniques with an emphasis on black-box approaches This book offers coverage of developments in linear macromodeling, with a focus on effective, proven methods. After starting with a definition of the fundamental properties that must characterize models of physical systems, the authors discuss several prominent passive macromodeling algorithms for lumped and distributed systems and compare them under accuracy, efficiency, and robustness standpoints. The book includes chapters with standard background material (such as linear time-invariant circuits and systems, basic discretization of field equations, state-space systems), as well as appendices collecting basic facts from linear algebra, optimization templates, and signals and transforms. The text also covers more technical and advanced topics, intended for the specialist, which may be skipped at first reading. Provides coverage of black-box passive macromodeling, an approach developed by the authors Elaborates on main concepts and results in a mathematically precise way using easy-to-understand language Illustrates macromodeling concepts through dedicated examples Includes a comprehensive set of end-of-chapter problems and exercises Passive Macromodeling: Theory and Applications serves as a reference for senior or graduate level courses in electrical engineering programs, and to engineers in the fields of numerical modeling, simulation, design, and optimization of electrical/electronic systems. Stefano Grivet-Talocia, PhD, is an Associate Professor of Circuit Theory at the Politecnico di Torino in Turin, Italy, and President of IdemWorks. Dr. Grivet-Talocia is author of over 150 technical papers published in international journals and conference proceedings. He invented several algorithms in the area of passive macromodeling, making them available through IdemWorks. Bjørn Gustavsen, PhD, is a Chief Research Scientist in Energy Systems at SINTEF Energy Research in Trondheim, Norway. More than ten years ago, Dr. Gustavsen developed the original version of the vector fitting method with Prof. Semlyen at the University of Toronto. The vector fitting method is one of the most widespread approaches for model extraction. Dr. Gustavsen is also an IEEE fellow.

This book documents some of the most recent advances on the physical layer of the Internet of Things (IoT), including sensors, circuits, and systems. The application area selected for illustrating these advances is that of autonomous, wearable systems for real-time medical diagnosis. The book is unique in that it adopts a holistic view of such systems and includes not only the sensor and processing subsystems, but also the power, communication, and security subsystems. Particular attention is paid to the integration of these IoT subsystems as well as the prototyping platforms needed for achieving such integration. Other unique features include the discussion of energy-harvesting subsystems to achieve full energy autonomy and the consideration of hardware security as a requirement for the integrity of the IoT physical layer. One unifying thread of the various designs considered in this book is that they have all been fabricated and tested in an advanced, low-power CMOS process, namely GLOBALFOUNDRIES 65nm CMOS LPe.

Using Mathematics in Economic Analysis

Theories and Models

Operational Amplifiers

Introduction to Information Retrieval

Dynamic General Equilibrium in a Non-Ricardian World

Environment & Planning