A Probability Path Solution

This text is designed for an introductory probability course at the university level for sophomores, juniors, and seniors in mathematics, physical and social sciences, engineering, and computer science. It presents a thorough treatment of ideas and techniques necessary for a firm understanding of the subject. The text is also recommended for use in discrete probability courses. The material is organized so that the discrete and continuous probability discussions are presented in a separate, but parallel, manner. This organization does not emphasize an overly rigorous or formal view of probability and therefore offers some strong pedagogical value. Hence, the discrete discussions can sometimes serve to motivate the more abstract continuous probability discussions. Features: Key ideas are developed in a somewhat leisurely style, providing a variety of interesting applications to probability and showing some nonintuitive ideas. Over 600 exercises provide the opportunity for practicing skills and developing a sound understanding of ideas. Numerous historical comments deal with the development of discrete probability. The text includes many computer programs that illustrate the algorithms or the methods of computation for important problems. The book is a beautiful introduction to probability theory at the beginning level. The book contains a lot of examples and an easy development of theory without any sacrifice of rigor, keeping the abstraction to a minimal level. It is indeed a valuable addition to the study of probability theory. --Zentralblatt MATH

Excellent basic text covers set theory, probability theory for finite sample spaces, binomial theorem, probability distributions, means, standard deviations, probability function of binomial distribution, more. Includes 360 problems with answers for half.

The latest edition of this classic is updated with new problem sets and material The Second Edition of this fundamental textbook maintains the book's tradition of clear, thought-provoking instruction. Readers are provided once again with an instructive mix of mathematics, physics, statistics, and information theory. All the essential topics in information theory are covered in detail, including entropy, data compression, channel capacity, rate distortion, network information theory, and hypothesis testing. The authors provide readers with a solid understanding of the underlying theory and applications. Problem sets and a telegraphic summary at the end of each chapter further assist readers. The historical notes that follow each chapter recap the main points. The Second Edition features: * Chapters reorganized to improve teaching * 200 new problems * New material on source coding, portfolio theory, and feedback capacity * Updated references Now current and enhanced, the Second Edition of Elements of Information Theory remains the ideal textbook for upper-level undergraduate and graduate courses in electrical engineering, statistics, and telecommunications.

This definitive textbook provides a solid introduction to discrete and continuous stochastic processes, tackling a complex field in a way that instils a deep understanding of the relevant mathematical principles, and develops an intuitive grasp of the way these principles can be applied to modelling real-world systems. It includes a careful review of elementary probability and detailed coverage of Poisson, Gaussian and Markov processes with richly varied queuing applications. The theory and applications of inference, hypothesis testing, estimation, random walks, large deviations, martingales and investments are developed. Written by one of the world's leading information theorists, evolving over twenty years of graduate classroom teaching and enriched by over 300 exercises, this is an exceptional resource for anyone looking to develop their understanding of stochastic processes.

Probability Theory

The Potential Distribution Theorem and Models of Molecular Solutions

An Introduction

A New Class of Algorithms

Elements of Information Theory

Developed from celebrated Harvard statistics lectures, Introduction to Probability provides essential language and tools for understanding statistics, randomness, and uncertainty. The book explores a wide variety of applications and examples, ranging from coincidences and paradoxes to Google PageRank and Markov chain Monte Carlo (MCMC). Additional

This updated and revised first-course textbook in applied probability provides a contemporary and lively post-calculus introduction to the subject of probability. The exposition reflects a desirable balance between fundamental theory and many applications involving a broad range of real problem scenarios. It is intended to appeal to a wide audience, including mathematics and statistics majors, prospective engineers and scientists, and those business and social science majors interested in the quantitative aspects of their disciplines. The textbook contains enough material for a year-long course, though many instructors will use it for a single term (one semester or one quarter). As such, three course syllabi with expanded course outlines are now available for download on the book's page on the Springer website. A one-term course would cover material in the core chapters (1-4), supplemented by selections from one or more of the remaining chapters on statistical inference (Ch. 5), Markov chains (Ch. 6), stochastic processes (Ch. 7), and signal processing (Ch. 8—available exclusively online and specifically designed for electrical and computer engineers, making the book suitable for a one-term class on random signals and noise). For a year-long course, core chapters (1-4) are accessible to those who have taken a year of univariate differential and integral calculus; matrix algebra, multivariate calculus, and engineering mathematics are needed for the latter, more advanced chapters. At the heart of the textbook's pedagogy are 1,100 applied exercises, ranging from straightforward to reasonably challenging, roughly 700 exercises in the first four "core" chapters alone—a self-contained textbook of problems introducing basic theoretical knowledge necessary for solving problems and illustrating how to solve the problems at hand – in R and MATLAB, including code so that students can create simulations. New to this edition •Updated and re-worked Recommended Coverage for instructors, detailing which courses should use the textbook and how to utilize different sections for various objectives and time constraints •Extended and revised instructions and solutions to problem sets •Overhaul of Section 7.7 on continuous-time Markov chains •Supplementary materials include three sample syllabi and updated solutions manuals for both instructors and students

This text introduces engineering students to probability theory and stochastic processes. Along with thorough mathematical development of the subject, the book presents intuitive explanations of key points in order to give students the insights they need to apply math to practical engineering problems. The first seven chapters contain the core material that is essential to any introductory course. In one-semester undergraduate courses, instructors can select material from the remaining chapters to meet their individual goals. Graduate courses can cover all chapters in one semester.

Introduction to Probability Models, Student Solutions Manual (e-only)

A Comprehensive Course

Robustness Analysis in Decision Aiding, Optimization, and Analytics

Theory for Applications

Interfaces in Computer Science and Operations Research

Probability with Applications in Engineering, Science, and Technology

Solving complex optimization problems with parallelmetaheuristics Parallel Metaheuristics brings together an international group ofexperts in parallelism and metaheuristics to provide a much-neededsynthesis of these two fields. Readers discover how metaheuristictechniques can provide useful and practical solutions for a widerange of problems and application domains, with an emphasis on thefields of telecommunications and bioinformatics. This volume fillsa long-existing gap, allowing researchers and practitioners todevelop efficient solutions. The book is divided into three parts: * Part One: Introduction to Metaheuristics and Parallelism,including an Introduction to Metaheuristic Techniques, Measuringthe Performance of Parallel Metaheuristics, New Technologies inParallelism, and a head-to-head discussion on Metaheuristics andParallelism * Part Two: Parallel Metaheuristic Models, including ParallelGenetic Algorithms, Parallel Genetic Programming, ParallelEvolution Strategies, Parallel Ant Colony Algorithms, ParallelEstimation of Distribution Algorithms, Parallel Variable Neighborhood Search, Parallel SimulatedAnnealing, Parallel Tabu Search, Parallel GRASP, Parallel HybridMetaheuristics, Parallel Multi-Objective Optimization, and ParallelHeterogeneous Metaheuristics * Part Three: Theory and Applications, including Theory of ParallelGenetic Algorithms, Parallel Metaheuristics Applications, ParallelMetaheuristics in Telecommunications, and a final chapter onBioinformatics and Parallel Metaheuristics Each self-contained chapter begins with clear overviews andintroductions that bring the reader upto basictechniques, and ends with a reference list for further study.Packed with numerous tables and figures to illustrate the complextheory and processes, this comprehensive volume also includesnumerous practical real-world optimization problems and theirsolutions. This is essential reading for students and researchers in computerscience, mathematics, and engineering who deal with parallelism,metaheuristics, and optimization in general.

This comprehensive book gives an overview of how cognitive systems and artificial intelligence (AI) can be used in electronic warfare (EW). Readers will learn how EW systems respond more quickly and effectively to battlefield conditions where sophisticated radars and spectrum congestion put a high priority on EW systems that can characterize and classify novel waveforms, discern intent, and devise and test countermeasures. Specific techniques are covered for optimizing a cognitive EW system as well as evaluating its ability to learn and handle novel environments, are also discussed. Written by experts with first-hand experience in AI-based EW, this is the first book on in-mission real-time learning and optimization. presents AI for electronic support (ES), including characterization, classification, patterns of life, and intent recognition. Optimization techniques, including temporal tradeoffs and distributed optimization challenges are also discussed. The issues concerning real-time in-mission machine learning and suggests some approaches to address this important challenge are presented and described. The book covers electronic battle management, data management, and knowledge sharing. Evaluation approaches, including how to show that a

This book provides a broad coverage of the recent advances in robustness analysis in decision aiding, optimization, and analytics. It offers a comprehensive illustration of the challenges that robustness raises in different operations research and management science (OR/MS) contexts and the methodologies proposed from multiple perspectives. Aside from covering recent methodological developments, this volume also features applications of robust techniques in engineering and management, thus illustrating the robustness issues raised in practice and their resolution within advances in OR/MS methodologies. Robustness analysis seeks to address issues by promoting solutions, which are acceptable under a wide set of hypotheses, assumptions and estimates. In OR/MS, robustness has been mostly viewed in the context of optimization under uncertainty. Several scholars, however, have emphasized the multiple facets of robustness analysis in a broader OR/MS perspective that goes beyond the traditional framework, seeking to cover the decision support nature of OR/MS methodologies and the "big data" era, where the information volume, speed of flow, and complexity increase rapidly, and analytics play a fundamental role for strategic and operational decision-making at a global level, robustness issues such as the ones covered in this book become more relevant than ever for providing sound decision support through more powerful analytic tools.

Stochastic Differential Equations have become increasingly important in modelling complex systems in physics, chemistry, biology, climatology and other fields. This book examines and provides systems for practitioners to use, and provides a number of case studies to show how they can work in practice.

Mobile Speech and Advanced Natural Language Solutions

Problems In General Physics By IE Irodov's Vol-I

A First Course in Probability

Computational Modeling and Problem Solving in the Networked World

Stochastic Processes

Irodov is renowned for developing the problem-based skills in physics. Almost every engineer students prefer to go through Irodov's Problems due to its unmatched pedagogies enhancing the conceptual clarity and ultimately raising the confidence level of aspirants to perform better in their exams. Solutions to IRODOV'S Problems in General PHYSICS has been revised to teach the solutions to the most difficult and trickiest questions of Physics. Various methodologies shown in the book stimulate the intellect of the students to work out the concept-based problems by strengthening the fundamentals of the Physics. Volume 1 is segregated into two parts promoting the problem-based skill in the topics of Mechanics, Thermodynamics and Molecular Physics. For all the aspirants of Engineering Entrances (IIT JEE, etc.), this classic book is a great source to build up the confidence and those who are seeking to participate in Physics Olympiad, this book equally serves best to them as well. Table of Contents Part I Mechanics: Kinematics, The Fundamental Equation of Dynamics, Laws of Conservation of Energy, Momentum and Angular Momentum, Universal Gravitation, Dynamics of a Solid Body, Elastic Deformation of a Solid Body, Hydrodynamics, Relativistic Mechanism, Part II Thermodynamics and Molecular Physics, Equation of the Gas State, Processes, The First Law of Thermodynamics: Heat Capacity, Kinetic Theory of Gases: Boltzmann's Law and Maxwell's Distribution, The Second Law of Thermodynamics, Entropy, Liquids, Capillary Effects, Phase Transformations, Transport Phenomena

Introduction to Probability Models, Tenth Edition, provides an introduction to elementary probability theory and stochastic processes. There are two approaches to the study of probability theory. One is heuristic and nonrigorous, and attempts to develop in students an intuitive feel for the subject that enables him or her to think probabilistically. The other approach attempts a rigorous development of probability by using the tools of measure theory. The first approach is employed in this text. The book begins by introducing basic concepts of probability theory, such as the random variable, conditional probability, and conditional expectation. This is followed by discussions of stochastic processes, including Markov chains and Poison processes. The remaining chapters cover queuing, reliability theory, Brownian motion, and simulation. Many examples are worked out throughout the text, along with exercises to be solved by students. This book will be particularly useful to those interested in learning how probability theory can be applied to the study of phenomena in fields such as engineering, computer science, management science, the physical and social sciences, and operations research. Ideally, this text would be used in a one-year course in probability models, or a one-semester course in introductory probability theory or a course in elementary stochastic processes. New to this Edition: 65% new chapter material including coverage of finite capacity queues, insurance risk models and Markov chains Contains compulsory material for new Exam 3 of the Society of Actuaries containing several sections in the new exams Updated data, and a list of commonly used notations and equations, a robust ancillary package, including a ISM, SSM, and test bank Includes SPSS PASW Modeler and SAS JMP software packages which are widely used in the field Hallmark features: Superior writing style Excellent exercises and examples covering the wide breadth of coverage of probability topics Real-world applications in engineering, science, business and economics

"Mobile Speech and Advanced Natural Language Solutions" presents the discussion of the most recent advances in intelligent human-computer interaction, including fascinating new study findings on talk-in-interaction, which is the province of conversation analysis, a subfield in sociology/sociolinguistics, a new and emerging area in natural language understanding. Editors Amy Neustein and Judith A. Markowitz have recruited a talented group of contributors to introduce the next generation natural language technologies for practical speech processing applications that serve the consumer's need for well-functioning natural language-driven personal assistants and other mobile devices, while also addressing business' need for better functioning IVR-driven call centers that yield a more satisfying experience for the caller. This anthology is aimed at two distinct audiences: one consisting of speech engineers and system developers; the other comprised of linguists and cognitive scientists. The text builds on the experience and knowledge of each of these audiences by exposing them to the work of the other.

The definitive introduction to game theory This comprehensive textbook introduces readers to the principal ideas and applications of game theory, in a style that combines rigor with accessibility. Steven Tadelis begins with a concise description of rational decision making, and goes on to discuss strategic and extensive form games with complete information, Bayesian games, and extensive form games with imperfect information. He covers a host of topics, including multistage and repeated games, bargaining theory, auctions, rent-seeking games, mechanism design, signaling games, reputation building, and information transmission games. Unlike other books on game theory, this one begins with the idea of rationality and explores its implications for multiperson decision problems through concepts like dominated strategies and rationalizability. Only then does it present the subject of Nash equilibrium and its derivatives. Game Theory is the ideal textbook for advanced undergraduate and beginning graduate students. Throughout, concepts and methods are explained using real-world examples backed by precise analytic material. The book features many important applications to economics and political science, as well as numerous exercises that focus on how to formalize informal situations and then analyze them. Introduces the core ideas and applications of game theory Covers static and dynamic games, with complete and incomplete information Features a variety of examples, applications, and exercises Topics include repeated games, bargaining, auctions, signaling, reputation, and information transmission Ideal for advanced undergraduate and beginning graduate students Complete solutions available to teachers and selected solutions available to students

Parallel Metaheuristics

Numerical Solution of Stochastic Differential Equations

Microeconomic Theory

Handbook of Metaheuristics

A Didactic Introduction

This book constitutes the refereed post-proceedings of the 10th European Performance Engineering Workshop, EPEW 2013, held in Venice, Italy, in September 2013. The 16 regular papers presented together with 8 short papers and 2 invited talks were carefully reviewed and selected from 33 submissions. The Workshop aims to gather academic and industrial researchers working on all aspects of performance engineering. Original papers related to theoretical and methodological issues as well as case studies and automated tool support are solicited in the following areas: performance modeling and evaluation, system and network performance engineering, and software performance engineering.

The numerical analysis of stochastic differential equations (SDEs) differs significantly from that of ordinary differential equations. This book provides an easily accessible introduction to SDEs, their applications and the numerical methods to solve such equations. From the reviews: "The authors draw upon their own research and experiences in obviously many disciplines... considerable time has obviously been spent writing this in the simplest language possible." --ZAMP

Remarkable puzzlers, graded in difficulty, illustrate elementary and advanced aspects of probability. These problems were selected for originality, general interest, or because they demonstrate valuable techniques. Also includes detailed solutions.

This book covers microeconomic theory at the Master's and Ph.D levels for students in business schools and economics departments. It concisely covers major mainstream microeconomic theories today, including neoclassical microeconomics, game theory, information economics, and contract theory. The revamped, 3rd edition of "Microeconomic Theory" offers faculty, graduate and upper undergraduate students with a comprehensive curriculum solution.

General Technical Report RM.

A Modern Introduction to Probability and Statistics

22nd International Conference, DEXA 2011, Bilbao, Spain, August 29 - September 2, 2011, Proceedings, Part II

Cognitive Electronic Warfare: An Artificial Intelligence Approach

Scientific Papers and Essays Dedicated to Paul G. Spirakis on the Occasion of His 60th Birthday

This book constitutes the refereed proceedings of the 22 International Conference on Database and Expert Systems Applications, DEXA 2011, held in Toulouse, France, August 29 - September 2, 2011. The 52 revised full papers and 40 short papers presented were carefully reviewed and selected from 207 submissions. The papers are organized in topical sections on XML querying and views; data mining; queries and search; semantic web; information retrieval; business applications; user support; indexing; queries, views and data warehouses; ontologies; physical aspects of databases; Design; distribution; miscellaneous topics.

Suitable for self study Use real examples and real data sets that will be familiar to the audience Introduction to the bootstrap is included – this is a modern method missing in many other books

This two-volume set LNCS 12861 and LNCS 12862 constitutes the refereed proceedings of the 16th International Work-Conference on Artificial Neural Networks, IWANN 2021, held virtually, in June 2021. The 85 full papers presented in this two-volume set were carefully reviewed and selected from 134 submissions. The papers are organized in topical sections on Deep Learning for Biomedicine, Intelligent Computing Solutions for SARS-CoV-2 Covid-19, Advanced Topics in Computational Intelligence, Biosignals Processing, Neuro-Engineering and much more.

The aim of this book is to expand and improve upon the existing knowledge on discrete-time 1-bit look-ahead sigma-delta modulation in general, and to come to a solution for the above mentioned specific issues arising from 1-bit sigma-delta modulation for SA-CD. In order to achieve this objective an analysis is made of the possibilities for improving the performance of digital noise-shaping look-ahead solutions. On the basis of the insights obtained from the analysis, several novel generic 1-bit look-ahead solutions that improve upon the state-of-the-art will be derived and their performance will be evaluated and compared. Finally, all the insights are combined with the knowledge of the SA-CD lossless data compression algorithm to come to a specifically for SA-CD optimized look-ahead design.

16th International Work-Conference on Artificial Neural Networks, IWANN 2021, Virtual Event, June 16–18, 2021, Proceedings, Part I

Computer Performance Engineering

Introduction to Probability Models, Student Solutions Manual (e-only)

A Probability Path

Advances in Pattern Recognition ICAPR2003

This book is a compilation of a selected subset of research articles presented at the Eighth INFORMS Computing Society Conference, held in Chandler, Arizona, from January 8 to 10, 2003. The articles in this book represent the diversity and depth of the interface between ORiMS (operations research and the management sciences) and CS/AI (computer science and artificial intelligence). This volume starts with two papers that represent the reflective and integrative thinking that is critical to any scientific discipline. These two articles present philosophical perspectives on computation, covering a variety of traditional and newer methods for modeling, solving, and explaining mathematical models. The next set includes articles that study machine learning and computational heuristics, and is followed by articles that address issues in performance testing of solution algorithms and heuristics. These two sets of papers demonstrate the richness of thought that takes place at the ORiMS and CSI AI interface. The final set of articles demonstrates the usefulness of these and other methods at the interface towards solving problems in the real world, covering e-commerce, workflow, electronic negotiation, music, parallel computation, and telecommunications. The articles in this collection represent the results of cross-fertilization between ORiMS and CSI AI, making possible advances that could have not been achieved in isolation. The continuing aim ofthe INFORMS Computing Society and this research conference is to invigorate and further develop this interface.

This second edition of the popular textbook contains a comprehensive course in modern probability theory, covering a wide variety of topics which are not usually found in introductory textbooks, including: • limit theorems for sums of random variables • martingales • percolation • Markov chains and electrical networks • construction of stochastic processes • Poisson point process and infinite divisibility • large deviation principles and statistical physics • Brownian motion • stochastic integral and stochastic differential equations. The theory is developed rigorously and in a self-contained way, with the chapters on measure theory interlaced with the probabilistic chapters in order to display the power of the abstract concepts in probability theory. This second edition has been carefully extended and includes many new features. It contains updated figures (over 50), computer simulations and some difficult proofs have been made more accessible. A wealth of examples and more than 270 exercises as well as biographic details of key mathematicians support and enliven the presentation. It will be of use to students and researchers in mathematics and statistics in physics, computer science, economics and biology.

This Festschrift volume is published in honor of Professor Paul G. Spirakis on the occasion of his 60th birthday. It celebrates his significant contributions to computer science as an eminent, talented, and influential researcher and most visionary thought leader, with a great talent in inspiring and guiding young researchers. The book is a reflection of his main research activities in the fields of algorithms, probability, networks, and games, and contains a biographical sketch as well as essays and research contributions from close collaborators and former PhD students.

Probability: An Introduction provides the fundamentals, requiring minimal algebraic skills from the student. It begins with an introduction to sets and set operations, progresses to counting techniques, and then presents probability in an axiomatic way, never losing sight of elucidating the subject through concrete examples. The book contains numerous examples and solved exercises taken from various fields, and includes computer explorations using Maple.

Probability and Statistics

Introduction to Probability Models 10th Edition

The Numerical Solution of Systems of Polynomials Arising in Engineering and Science

Probability and Stochastic Processes

Noise-Induced Phenomena in Slow-Fast Dynamical Systems

This book is the first of its kind to provide a large collection of bioinformatics problems with accompanying solutions. Notably, the problem set includes all of the problems offered in Biological Sequence Analysis (BSA), by Durbin et al., widely adopted as a required text for bioinformatics courses at leading universities worldwide. Although many of the problems included in BSA as exercises for its readers have been repeatedly used for homework and tests, no detailed solutions for the problems were available. Bioinformatics instructors had therefore frequently expressed a need for fully worked solutions and a larger set of problems for use on courses. This book provides just that: following the same structure as BSA and significantly extending the set of workable problems, it will facilitate a better understanding of the contents of the chapters in BSA and will help its readers develop problem-solving skills that are vitally important for conducting successful research in the growing field of bioinformatics. All of the material has been class-tested by the authors at Georgia Tech, where the first ever M.Sc. degree program in Bioinformatics was held.

This market-leading introduction to probability features exceptionally clear explanations of the mathematics of probability theory and explores its many diverse applications through numerous interesting and motivational examples. The outstanding problem sets are a hallmark feature of this book. Provides clear, complete explanations to fully explain mathematical concepts. Features subsections on the probabilistic method and the maximum-minimums identity. Includes many new examples relating to DNA matching, utility, finance, and applications of the probabilistic method. Features an intuitive treatment of probability—intuitive explanations follow many examples. The Probability Models Disk included with each copy of the book, contains six probability models that are referenced in the book and allow readers to quickly and easily perform calculations and simulations.

' Written by the founders of the new and expanding field of numerical algebraic geometry, this is the first book that uses an algebraic-geometric approach to the numerical solution of polynomial systems and also the first one to treat numerical methods for finding positive dimensional solution sets. The text covers the full theory from methods developed for isolated solutions in the 1980's to the most recent research on positive dimensional sets. Contents:Background;Polynomial SystemsHomotopy ContinuationProjective SpacesGenericity and Probability OnePolynomials of One VariableOther MethodsIsolated Solutions:Coefficient-Parameter HomotopyPolynomial StructuresCase StudiesEndpoint EstimationChecking Results and Other Implementation TipsPositive Dimensional Solutions:Basic Algebraic GeometryBasic Numerical Algebraic GeometryA Cascade Algorithm for Witness SupersetsThe Numerical Irreducible DecompositionThe Intersection of Algebraic SetsAppendices:Algebraic GeometrySoftware for Polynomial ContinuationHomLab User's Guide Readership: Graduate students and researchers in applied mathematics and mechanical engineering. Keywords:Polynomial Systems;Numerical Methods;Homotopy Methods;Mechanical Engineering;Numerical Algebraic Geometry;Kinematics;RoboticsKey Features:Useful introduction to the field for graduate students and researchers in related areasIncludes exercises suitable for classroom use and self-studyIncludes Matlab software to illustrate the methodIncludes many graphical illustrationsIncludes a detailed summary of useful results from algebraic geometryReviews:"The text is written in a very smooth and intelligent form, yielding a readable book whose contents are accessible to a wide class of readers, even to undergraduate students, provided that they accept that some delicate points of some of the proofs could be omitted. Its readability and fast access to the core of the book makes it recommendable as a pleasant read."Mathematical Reviews "This is an excellent book on numerical solutions of polynomials systems for engineers, scientists and numerical analysts. As pioneers of the field of numerical algebraic geometry, the authors have provided a comprehensive summary of ideas, methods, problems of numerical algebraic geometry and applications to solving polynomial systems. Through the book readers will experience the authors' original ideas, contributions and their techniques in handling practical problems ... Many interesting examples from engineering and science have been used throughout the book. Also the exercises are well designed in line with the content, along with the algorithms, sample programs in Matlab and author's own software 'HOMLAB' for polynomial continuation. This is a remarkable book that I recommend to engineers, scientists, researchers, professionals and students, and particularly numerical analysts who will benefit from the rapid development of numerical algebraic geometry."Zentralblatt MATH '

An understanding of statistical thermodynamic molecular theory is fundamental to the appreciation of molecular solutions. This complex subject has been simplified by the authors with down-to-earth presentations of molecular theory. Using the potential distribution theorem (PDT) as the basis, the text provides a discussion of practical theories in conjunction with simulation results. The authors discuss the field in a concise and simple manner, illustrating the text with useful models of solution thermodynamics and numerous exercises. Modern quasi-chemical theories that permit statistical thermodynamic properties to be studied on the basis of electronic structure calculations are given extended development, as is the testing of those theoretical results with ab initio molecular dynamics simulations. The book is intended for students taking up research problems of molecular science in chemistry, chemical engineering, biochemistry, pharmaceutical chemistry, nanotechnology and biotechnology.

A Friendly Introduction for Electrical and Computer Engineers

Introduction to Probability Models

Introduction to Probability

Probability

Fifty Challenging Problems in Probability with Solutions

The third edition of this handbook is designed to provide a broad coverage of the concepts, implementations, and applications in metaheuristics. The book's chapters serve as stand-alone presentations giving both the necessary underpinnings as well as practical guides for implementation. The nature of metaheuristics invites an analyst to modify basic methods in response to problem characteristics, past experiences, and personal preferences, and the chapters in this handbook are designed to facilitate this process as well. This new edition has been fully revised and features new chapters on swarm intelligence and automated design of metaheuristics from flexible algorithm frameworks. The authors who have contributed to this volume represent leading figures from the metaheuristic community and are responsible for pioneering contributions to the fields they write about. Their collective work has significantly enriched the field of optimization in general and combinatorial optimization in particular.Metaheuristics are solution methods that orchestrate an interaction between local improvement procedures and higher level strategies to create a process capable of escaping from local optima and performing a robust search of a solution space. In addition, many new and exciting developments and extensions have been observed in the last few years. Hybrids of metaheuristics with other optimization techniques, like branch-and-bound, mathematical programming or constraint programming are also increasingly popular. On the front of applications, metaheuristics are now used to find high-quality solutions to an ever-growing number of complex, ill-defined real-world problems, in particular combinatorial ones. This handbook should continue to be a great reference for researchers, graduate students, as well as practitioners interested in metaheuristics.

Many probability books are written by mathematicians and have the built-in bias that the reader is assumed to be a mathematician coming to the material for its beauty. This textbook is geared towards beginning graduate students from a variety of disciplines whose primary focus is not necessarily mathematics for its own sake. Instead, A Probability Path is designed for those requiring a deep understanding of advanced probability for their research in statistics, applied probability, biology, operations research, mathematical finance and engineering. A one-semester course is laid out in an efficient and readable manner covering the core material. The first three chapters provide a functioning knowledge of measure theory. Chapter 4 discusses independence, with expectation and integration covered in Chapter 5, followed by topics on different modes of convergence, laws of large numbers with applications to statistics (quantile and distribution function estimation) and applied probability. Two subsequent chapters offer a careful treatment of convergence in distribution and the central limit theorem. The final chapter treats conditional expectation and martingales, closing with a discussion of two fundamental theorems of mathematical finance. Like Adventures in Stochastic Processes, Resnick's related and very successful textbook, A Probability Path is rich in appropriate examples, illustrations and problems and is suitable for classroom use or self-study. The present uncorrected, softcover reprint is designed to make this classic textbook available to a wider audience. This book is different from the classical textbooks on probability theory in that it treats the measure theoretic background not as a prerequisite but as an integral part of probability theory. The result is that the reader gets a thorough and well-structured framework needed to understand the deeper concepts of current day advanced probability as it is used in statistics, engineering, biology and finance.... The pace of the book is quick and disciplined. Yet there are ample examples sprinkled over the entire book and each chapter finishes with a wealthy section of inspiring problems. —Publications of the International Statistical Institute This textbook offers material for a one-semester course in probability, addressed to students whose primary focus is not necessarily mathematics... Each chapter is completed by an exercises section. Carefully selected examples enlighten the reader in many situations. The book is an excellent introduction to probability and its applications. —Revue Roumaine de Mathématiques Pures et Appliquées

With contributions by leaders in the field, this book provides a comprehensive introduction to the foundations of probability and statistics. Each of the chapters covers a major topic and offers an intuitive view of the subject matter, methodologies, concepts, terms, and related applications. The book is suitable for use for entry level courses in first year university studies of Science and Engineering, higher level courses, postgraduate university studies and for the research community.

Algorithms, Probability, Networks, and Games

Database and Expert Systems Applications
Look-Ahead Based Sigma-Delta Modulation
A Sample-Paths Approach
Game Theory