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Now a Wall Street Journal bestseller. Learn a new talent, stay relevant, reinvent yourself, and adapt to whatever the workplace throws your way. Ultralearning offers nine principles to master hard skills quickly. This is the essential guide to future-proof your career and maximize your competitive advantage through self-education. In these tumultuous times of economic and technological change, staying ahead depends on continual self-education—a lifelong mastery of fresh ideas, subjects, and skills. If you want to accomplish more and stand apart from everyone else, you need to become an ultralearner. The challenge of learning new skills is that you think you already know how best to learn, as you did as a student, so you rerun old routines and old ways of solving problems. To counter that, Ultralearning offers powerful strategies to break you out of those mental ruts and introduces new training methods to help you push through to higher levels of retention. Scott H. Young incorporates the latest research about the most effective learning methods and the stories of other ultralearners like himself—among them Benjamin Franklin, chess grandmaster Judit Polgár, and Nobel laureate physicist Richard Feynman, as well as a host of others, such as little-known modern polymath Nigel Richards, who won the French World Scrabble Championship—without knowing French. Young documents the methods he and others have used to acquire knowledge and shows that, far from being an obscure skill limited to aggressive autodidacts, ultralearning is a powerful tool anyone can use to improve their career, studies, and life. Ultralearning explores this fascinating subculture, shares a proven framework for a successful ultralearning project, and offers

insights into how you can organize and execute a plan to learn anything deeply and quickly, without teachers or budget-busting tuition costs. Whether the goal is to be fluent in a language (or ten languages), earn the equivalent of a college degree in a fraction of the time, or master multiple tools to build a product or business from the ground up, the principles in Ultralearning will guide you to success. Book Description: Gilbert Strang's textbooks have changed the entire approach to learning linear algebra -- away from abstract vector spaces to specific examples of the four fundamental subspaces: the column space and nullspace of  $A$  and  $A'$ . Introduction to Linear Algebra, Fourth Edition includes challenge problems to complement the review problems that have been highly praised in previous editions. The basic course is followed by seven applications: differential equations, engineering, graph theory, statistics, Fourier methods and the FFT, linear programming, and computer graphics. Thousands of teachers in colleges and universities and now high schools are using this book, which truly explains this crucial subject. A classic textbook on the principles of Newtonian mechanics for undergraduate students, accompanied by numerous worked examples and problems. The first book to present the common mathematical foundations of big data analysis across a range of applications and technologies. Today, the volume, velocity, and variety of data are increasing rapidly across a range of fields, including Internet search, healthcare, finance, social media, wireless devices, and cybersecurity. Indeed, these data are growing at a rate beyond our capacity to analyze them. The tools—including spreadsheets, databases, matrices, and graphs—developed to address this challenge all reflect the need to store and operate on data as whole sets rather than as individual elements. This book presents the common mathematical foundations of these data sets that apply across many applications and technologies. Associative arrays unify and simplify data, allowing readers to look past the differences among the various tools

and leverage their mathematical similarities in order to solve the hardest big data challenges. The book first introduces the concept of the associative array in practical terms, presents the associative array manipulation system D4M (Dynamic Distributed Dimensional Data Model), and describes the application of associative arrays to graph analysis and machine learning. It provides a mathematically rigorous definition of associative arrays and describes the properties of associative arrays that arise from this definition. Finally, the book shows how concepts of linearity can be extended to encompass associative arrays. Mathematics of Big Data can be used as a textbook or reference by engineers, scientists, mathematicians, computer scientists, and software engineers who analyze big data. This book covers elementary discrete mathematics for computer science and engineering. It emphasizes mathematical definitions and proofs as well as applicable methods. Topics include formal logic notation, proof methods; induction, well-ordering; sets, relations; elementary graph theory; integer congruences; asymptotic notation and growth of functions; permutations and combinations, counting principles; discrete probability. Further selected topics may also be covered, such as recursive definition and structural induction; state machines and invariants; recurrences; generating functions. Written by one of the foremost experts in the field, Algebraic Combinatorics is a unique undergraduate textbook that will prepare the next generation of pure and applied mathematicians. The combination of the author's extensive knowledge of combinatorics and classical and practical tools from algebra will inspire motivated students to delve deeply into the fascinating interplay between algebra and combinatorics. Readers will be able to apply their newfound knowledge to mathematical, engineering, and business models. The text is primarily intended for use in a one-semester advanced undergraduate course in algebraic combinatorics, enumerative combinatorics, or graph theory. Prerequisites include a basic knowledge

of linear algebra over a field, existence of finite fields, and group theory. The topics in each chapter build on one another and include extensive problem sets as well as hints to selected exercises. Key topics include walks on graphs, cubes and the Radon transform, the Matrix-Tree Theorem, and the Sperner property. There are also three appendices on purely enumerative aspects of combinatorics related to the chapter material: the RSK algorithm, plane partitions, and the enumeration of labeled trees. Richard Stanley is currently professor of Applied Mathematics at the Massachusetts Institute of Technology. Stanley has received several awards including the George Polya Prize in applied combinatorics, the Guggenheim Fellowship, and the Leroy P. Steele Prize for mathematical exposition. Also by the author: *Combinatorics and Commutative Algebra*, Second Edition, © Birkhauser. An intuitive, yet precise introduction to probability theory, stochastic processes, statistical inference, and probabilistic models used in science, engineering, economics, and related fields. This is the currently used textbook for an introductory probability course at the Massachusetts Institute of Technology, attended by a large number of undergraduate and graduate students, and for a leading online class on the subject. The book covers the fundamentals of probability theory (probabilistic models, discrete and continuous random variables, multiple random variables, and limit theorems), which are typically part of a first course on the subject. It also contains a number of more advanced topics, including transforms, sums of random variables, a fairly detailed introduction to Bernoulli, Poisson, and Markov processes, Bayesian inference, and an introduction to classical statistics. The book strikes a balance between simplicity in exposition and sophistication in analytical reasoning. Some of the more mathematically rigorous analysis is explained intuitively in the main text, and then developed in detail (at the level of advanced calculus) in the numerous solved theoretical problems. Now you can clearly present even the most complex

computational theory topics to your students with Sipser's distinct, market-leading INTRODUCTION TO THE THEORY OF COMPUTATION, 3E. The number one choice for today's computational theory course, this highly anticipated revision retains the unmatched clarity and thorough coverage that make it a leading text for upper-level undergraduate and introductory graduate students. This edition continues author Michael Sipser's well-known, approachable style with timely revisions, additional exercises, and more memorable examples in key areas. A new first-of-its-kind theoretical treatment of deterministic context-free languages is ideal for a better understanding of parsing and LR(k) grammars. This edition's refined presentation ensures a trusted accuracy and clarity that make the challenging study of computational theory accessible and intuitive to students while maintaining the subject's rigor and formalism. Readers gain a solid understanding of the fundamental mathematical properties of computer hardware, software, and applications with a blend of practical and philosophical coverage and mathematical treatments, including advanced theorems and proofs. INTRODUCTION TO THE THEORY OF COMPUTATION, 3E's comprehensive coverage makes this an ideal ongoing reference tool for those studying theoretical computing. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. The new edition of an introduction to the art of computational problem solving using Python. This book introduces students with little or no prior programming experience to the art of computational problem solving using Python and various Python libraries, including numpy, matplotlib, random, pandas, and sklearn. It provides students with skills that will enable them to make productive use of computational techniques, including some of the tools and techniques of data science for using computation to model and interpret data as well as substantial material on machine learning. All of the code in the book and an errata sheet are available on the

book's web page on the MIT Press website. The William Lowell Putnam Mathematics Competition is the most prestigious undergraduate mathematics problem-solving contest in North America, with thousands of students taking part every year. This volume presents the contest problems for the years 2001–2016. The heart of the book is the solutions; these include multiple approaches, drawn from many sources, plus insights into navigating from the problem statement to a solution. There is also a section of hints, to encourage readers to engage deeply with the problems before consulting the solutions. The authors have a distinguished history of engagement with, and preparation of students for, the Putnam and other mathematical competitions. Collectively they have been named Putnam Fellow (top five finisher) ten times. Kiran Kedlaya also maintains the online Putnam Archive.

1. The book is designed to prepare for the IBPS Clerk pre examination
2. The guide is divided into 3 sections
3. More than 5500 MCQs are given for the revision of the concepts
4. Solved Papers are provided with detailed answers for better understanding

The Institute of Banking Personnel Selection (IBPS) is an autonomous body that recruits clerical cadre in multiple banks across the country. IBPS has recently announced 5830 clerical cadre posts that are to be recruited for the year 2021-22. Success Master IBPS CRP - XI Bank Clerk is a revised edition that is designed for the preparation of the IBPS Clerk Preliminary examination. Giving the complete coverage to the syllabus, this study guide is categorized under 3 segments; Numerical Ability, Reasoning Ability and English Language. Along with Chapterwise theories, more than 5500 MCQs are given for quick practice of the concepts. Last, but not least, this book is comprised with Solved Papers (2020-2016) giving insights to the exam pattern. Well detailed answers given to help students in clarifying all their doubts and exam-related fears. TOC IBPS Bank Clerk Pre. Exam 2020-2016, Numerical Ability, Reasoning Ability, English Language. The authors and their colleagues developed this text over

many years, teaching undergraduate and graduate courses in structural analysis courses at the Daniel Guggenheim School of Aerospace Engineering of the Georgia Institute of Technology. The emphasis is on clarity and unity in the presentation of basic structural analysis concepts and methods. The equations of linear elasticity and basic constitutive behaviour of isotropic and composite materials are reviewed. The text focuses on the analysis of practical structural components including bars, beams and plates. Particular attention is devoted to the analysis of thin-walled beams under bending shearing and torsion. Advanced topics such as warping, non-uniform torsion, shear deformations, thermal effect and plastic deformations are addressed. A unified treatment of work and energy principles is provided that naturally leads to an examination of approximate analysis methods including an introduction to matrix and finite element methods. This teaching tool based on practical situations and thorough methodology should prove valuable to both lecturers and students of structural analysis in engineering worldwide. This is a textbook for teaching structural analysis of aerospace structures. It can be used for 3rd and 4th year students in aerospace engineering, as well as for 1st and 2nd year graduate students in aerospace and mechanical engineering. A practice-based guide to applying the principles of human-centered design to real-world health challenges; updated and expanded with post-COVID-19 innovations. This book offers a practice-based guide to applying the principles of human-centered design to real-world health challenges that range from drug packaging to breast cancer detection. Written by pioneers in the field—Bon Ku, a physician leader in innovative health design, and Ellen Lupton, an award-winning graphic designer—the book outlines the fundamentals of design thinking and highlights important products, prototypes, and research in health design. This revised and expanded edition describes innovations developed in response to the COVID-19 crisis, including an intensive care unit



in a shipping container, a rolling cart with intubation equipment, and a mask brace that gives a surgical mask a tighter seal. The book explores the special overlap of health care and the creative process, describing the development of such products and services as a credit card-sized device that allows patients to generate their own electrocardiograms; a mask designed to be worn with a hijab; improved emergency room signage; and a map of racial disparities and COVID-19. It will be an essential volume for health care providers, educators, patients, and designers who seek to create better experiences and improved health outcomes for individuals and communities.

The operational amplifier ("op amp") is the most versatile and widely used type of analog IC, used in audio and voltage amplifiers, signal conditioners, signal converters, oscillators, and analog computing systems. Almost every electronic device uses at least one op amp. This book is Texas Instruments' complete professional-level tutorial and reference to operational amplifier theory and applications. Among the topics covered are basic op amp physics (including reviews of current and voltage division, Thevenin's theorem, and transistor models), idealized op amp operation and configuration, feedback theory and methods, single and dual supply operation, understanding op amp parameters, minimizing noise in op amp circuits, and practical applications such as instrumentation amplifiers, signal conditioning, oscillators, active filters, load and level conversions, and analog computing. There is also extensive coverage of circuit construction techniques, including circuit board design, grounding, input and output isolation, using decoupling capacitors, and frequency characteristics of passive components. The material in this book is applicable to all op amp ICs from all manufacturers, not just TI. Unlike textbook treatments of op amp theory that tend to focus on idealized op amp models and configuration, this title uses idealized models only when necessary to explain op amp theory. The bulk of this book is on real-world op amps and their applications; considerations such as

thermal effects, circuit noise, circuit buffering, selection of appropriate op amps for a given application, and unexpected effects in passive components are all discussed in detail. \*Published in conjunction with Texas Instruments \*A single volume, professional-level guide to op amp theory and applications \*Covers circuit board layout techniques for manufacturing op amp circuits. The book is intended as an advanced undergraduate or first-year graduate course for students from various disciplines, including applied mathematics, physics and engineering. It has evolved from courses offered on partial differential equations (PDEs) over the last several years at the Politecnico di Milano. These courses had a twofold purpose: on the one hand, to teach students to appreciate the interplay between theory and modeling in problems arising in the applied sciences, and on the other to provide them with a solid theoretical background in numerical methods, such as finite elements. Accordingly, this textbook is divided into two parts. The first part, chapters 2 to 5, is more elementary in nature and focuses on developing and studying basic problems from the macro-areas of diffusion, propagation and transport, waves and vibrations. In turn the second part, chapters 6 to 11, concentrates on the development of Hilbert spaces methods for the variational formulation and the analysis of (mainly) linear boundary and initial-boundary value problems. This book presents state-of-the-art lectures delivered by international academic and industrial experts in the field of computational science and its education, covering a wide spectrum from theory to practice. Topics include new developments in finite element method (FEM), finite volume method and Spline theory, such as Moving Mesh Methods, Galerkin and Discontinuous Galerkin Schemes, Shape Gradient Methods, Mixed FEMs, Superconvergence techniques and Fourier spectral approximations with applications in multidimensional fluid dynamics; Maxwell equations in discrepancy media; and phase-field equations. It also discusses some interesting topics related to Stokes equations,

Schrodinger equations, wavelet analysis and approximation theory. Contemporary teaching issues in curriculum reform also form an integral part of the book. This book will therefore be of significant interest and value to all graduates, research scientists and practitioners facing complex computational problems. Administrators and policymakers will find it is an addition to their mathematics curriculum reform libraries. The new edition of the cornerstone text on electrochemistry Spans all the areas of electrochemistry, from the basics of thermodynamics and electrode kinetics to transport phenomena in electrolytes, metals, and semiconductors. Newly updated and expanded, the Third Edition covers important new treatments, ideas, and technologies while also increasing the book's accessibility for readers in related fields. Rigorous and complete presentation of the fundamental concepts In-depth examples applying the concepts to real-life design problems Homework problems ranging from the reinforcing to the highly thought-provoking Extensive bibliography giving both the historical development of the field and references for the practicing electrochemist. The significantly expanded and updated new edition of a widely used text on reinforcement learning, one of the most active research areas in artificial intelligence. Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives while interacting with a complex, uncertain environment. In Reinforcement Learning, Richard Sutton and Andrew Barto provide a clear and simple account of the field's key ideas and algorithms. This second edition has been significantly expanded and updated, presenting new topics and updating coverage of other topics. Like the first edition, this second edition focuses on core online learning algorithms, with the more mathematical material set off in shaded boxes. Part I covers as much of reinforcement learning as possible without going beyond the tabular case for

which exact solutions can be found. Many algorithms presented in this part are new to the second edition, including UCB, Expected Sarsa, and Double Learning. Part II extends these ideas to function approximation, with new sections on such topics as artificial neural networks and the Fourier basis, and offers expanded treatment of off-policy learning and policy-gradient methods. Part III has new chapters on reinforcement learning's relationships to psychology and neuroscience, as well as an updated case-studies chapter including AlphaGo and AlphaGo Zero, Atari game playing, and IBM Watson's wagering strategy. The final chapter discusses the future societal impacts of reinforcement learning.

PMBOK® Guide is the go-to resource for project management practitioners. The project management profession has significantly evolved due to emerging technology, new approaches and rapid market changes. Reflecting this evolution, The Standard for Project Management enumerates 12 principles of project management and the PMBOK® Guide - Seventh Edition is structured around eight project performance domains. This edition is designed to address practitioners' current and future needs and to help them be more proactive, innovative and nimble in enabling desired project outcomes. This edition of the PMBOK® Guide: Reflects the full range of development approaches (predictive, adaptive, hybrid, etc.); Provides an entire section devoted to tailoring the development approach and processes; Includes an expanded list of models, methods, and artifacts; Focuses on not just delivering project outputs but also enabling outcomes; and Integrates with PMIStandards+™ for information and standards application content based on project type, development approach, and industry sector.

A surprisingly simple way for students to master any subject--based on one of the world's most popular online courses and the bestselling book *A Mind for Numbers* *A Mind for Numbers* and its wildly popular online companion course "Learning How to Learn" have empowered more than two million learners of all ages from around the world to master subjects that they once

struggled with. Fans often wish they'd discovered these learning strategies earlier and ask how they can help their kids master these skills as well. Now in this new book for kids and teens, the authors reveal how to make the most of time spent studying. We all have the tools to learn what might not seem to come naturally to us at first--the secret is to understand how the brain works so we can unlock its power. This book explains: Why sometimes letting your mind wander is an important part of the learning process How to avoid "rut think" in order to think outside the box Why having a poor memory can be a good thing The value of metaphors in developing understanding A simple, yet powerful, way to stop procrastinating Filled with illustrations, application questions, and exercises, this book makes learning easy and fun. The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site. Fresh, lively text serves as a modern introduction to the subject, with applications to the mechanics of systems with a finite number of degrees of freedom. Ideal for math and physics students. Linear

algebra is something all mathematics undergraduates and many other students, in subjects ranging from engineering to economics, have to learn. The fifth edition of this hugely successful textbook retains all the qualities of earlier editions, while at the same time seeing numerous minor improvements and major additions. The latter include:

- A new chapter on singular values and singular vectors, including ways to analyze a matrix of data
- A revised chapter on computing in linear algebra, with professional-level algorithms and code that can be downloaded for a variety of languages
- A new section on linear algebra and cryptography
- A new chapter on linear algebra in probability and statistics.

A dedicated and active website also offers solutions to exercises as well as new exercises from many different sources (including practice problems, exams, and development of textbook examples), plus codes in MATLAB®, Julia, and Python.

Introduction to concepts of category theory — categories, functors, natural transformations, the Yoneda lemma, limits and colimits, adjunctions, monads — revisits a broad range of mathematical examples from the categorical perspective.

2016 edition. An engaging introduction to human and animal movement seen through the lens of mechanics. How do Olympic sprinters run so fast? Why do astronauts adopt a bounding gait on the moon? How do running shoes improve performance while preventing injuries? This engaging and generously illustrated book answers these questions by examining human and animal movement through the lens of mechanics. The authors present simple conceptual models to study walking and running and apply mechanical principles to a range of interesting examples. They explore the biology of how movement is produced, examining the structure of a muscle down to its microscopic force-generating motors. Drawing on their deep expertise, the authors describe how to create simulations that provide insight into muscle coordination during walking and running, suggest treatments to improve function following injury, and help design devices that enhance

human performance. Too often, finance courses stop short of making a connection between textbook finance and the problems of real-world business. "Financial Modeling" bridges this gap between theory and practice by providing a nuts-and-bolts guide to solving common financial problems with spreadsheets. The CD-ROM contains Excel\* worksheets and solutions to end-of-chapter exercises. 634 illustrations. The calculus of variations, whose origins can be traced to the works of Aristotle and Zenodoros, is now the vast repository supplying fundamental tools of exploration not only to the mathematician, but-as evidenced by current literature-also to those in most branches of science in which mathematics is applied. (Indeed, the macroscopic statements afforded by variational principles may provide the only valid mathematical formulation of many physical laws. ) As such, it retains the spirit of natural philosophy common to most mathematical investigations prior to this century. However, it is a discipline in which a single symbol ( $b$ ) has at times been assigned almost mystical powers of operation and discernment, not readily subsumed into the formal structures of modern mathematics. And it is a field for which it is generally supposed that most questions motivating interest in the subject will probably not be answerable at the introductory level of their formulation. In earlier articles,<sup>1,2</sup> it was shown through several examples that a complete characterization of the solution of optimization problems may be available by elementary methods, and it is the purpose of this work to explore further the convexity which underlay these individual successes in the context of a full introductory treatment of the theory of the variational calculus. The required convexity is that determined through Gateaux variations, which can be defined in any real linear space and which provide an unambiguous foundation for the theory. An introduction to game theory that offers not only theoretical tools but also the intuition and behavioral insights to apply these tools to real-world situations. This introductory text on game theory provides students with

both the theoretical tools to analyze situations through the logic of game theory and the intuition and behavioral insights to apply these tools to real-world situations. It is unique among game theory texts in offering a clear, formal introduction to standard game theory while incorporating evidence from experimental data and introducing recent behavioral models. Students will not only learn about incentives, how to represent situations as games, and what agents “should” do in these situations, but they will also be presented with evidence that either confirms the theoretical assumptions or suggests a way in which the theory might be updated. Features: Each chapter begins with a motivating example that can be run as an experiment and ends with a discussion of the behavior in the example. Parts I-IV cover the fundamental “nuts and bolts” of any introductory game theory course, including the theory of games, simple games with simultaneous decision making by players, sequential move games, and incomplete information in simultaneous and sequential move games. Parts V-VII apply the tools developed in previous sections to bargaining, cooperative game theory, market design, social dilemmas, and social choice and voting. Part VIII offers a more in-depth discussion of behavioral game theory models including evolutionary and psychological game theory. Supplemental material on the book’s website include solutions to end-of-chapter exercises, a manual for running each chapter’s experimental games using pencil and paper, and the oTree codes for running the games online. The fourth edition of PRINCIPLES OF MODERN CHEMISTRY, which has dominated the honors and high mainstream general chemistry courses, is a substantial revision that maintains the rigor of previous editions but reflects the exciting modern developments taking place in chemistry today. The text provides a unique approach to learning chemical principles that emphasizes the total scientific process--from observation to application--placing general chemistry into a complete perspective for serious-minded science and engineering students. Chemical



principles are illustrated by the use of modern materials, comparable to equipment found in the scientific industry. Students are therefore exposed to chemistry and its applications beyond the classroom. This text is perfect for those instructors who are looking for a more advanced general chemistry textbook. The first half of the book walks the reader through methods of counting, both direct elementary methods and the more advanced method of generating functions. Then, in the second half of the book, the reader learns how to apply these methods to fascinating objects, such as graphs, designs, random variables, partially ordered sets, and algorithms. In short, the first half emphasizes depth by discussing counting methods at length; the second half aims for breadth, by showing how numerous the applications of our methods are. New to this fifth edition of *A Walk Through Combinatorics* is the addition of Instant Check exercises — more than a hundred in total — which are located at the end of most subsections. As was the case for all previous editions, the exercises sometimes contain new material that was not discussed in the text, allowing instructors to spend more time on a given topic if they wish to do so. With a thorough introduction into enumeration and graph theory, as well as a chapter on permutation patterns (not often covered in other textbooks), this book is well suited for any undergraduate introductory combinatorics class. An assessment of human thought and behavior explores conundrums from the mind's ability to perceive three dimensions to the nature of consciousness, in an account that draws on beliefs in cognitive science and evolutionary biology. The M.I.T. Introductory Physics Series is the result of a program of careful study, planning, and development that began in 1960. The Education Research Center at the Massachusetts Institute of Technology (formerly the Science Teaching Center) was established to study the process of instruction, aids thereto, and the learning process itself, with special reference to science teaching at the university level. Generous support from a number of foundations provided

the means for assembling and maintaining an experienced staff to co-operate with members of the Institute's Physics Department in the examination, improvement, and development of physics curriculum materials for students planning careers in the sciences. After careful analysis of objectives and the problems involved, preliminary versions of textbooks were prepared, tested through classroom use at M.I.T. and other institutions, re-evaluated, rewritten, and tried again. Only then were the final manuscripts undertaken. Methods by which robots can learn control laws that enable real-time reactivity using dynamical systems; with applications and exercises. This book presents a wealth of machine learning techniques to make the control of robots more flexible and safe when interacting with humans. It introduces a set of control laws that enable reactivity using dynamical systems, a widely used method for solving motion-planning problems in robotics. These control approaches can replan in milliseconds to adapt to new environmental constraints and offer safe and compliant control of forces in contact. The techniques offer theoretical advantages, including convergence to a goal, non-penetration of obstacles, and passivity. The coverage of learning begins with low-level control parameters and progresses to higher-level competencies composed of combinations of skills. Learning for Adaptive and Reactive Robot Control is designed for graduate-level courses in robotics, with chapters that proceed from fundamentals to more advanced content. Techniques covered include learning from demonstration, optimization, and reinforcement learning, and using dynamical systems in learning control laws, trajectory planning, and methods for compliant and force control . Features for teaching in each chapter: applications, which range from arm manipulators to whole-body control of humanoid robots; pencil-and-paper and programming exercises; lecture videos, slides, and MATLAB code examples available on the author's website . an eTextbook platform website offering protected material[EPS2] for instructors including

solutions. 2018 Nautilus Book Awards Silver Winner What if you could unlock a better answer to your most vexing problem—in your workplace, community, or home life—just by changing the question? Talk to creative problem-solvers and they will often tell you, the key to their success is asking a different question. Take Debbie Sterling, the social entrepreneur who created GoldieBlox. The idea came when a friend complained about too few women in engineering and Sterling wondered aloud: "why are all the great building toys made for boys?" Or consider Nobel laureate Richard Thaler, who asked: "would it change economic theory if we stopped pretending people were rational?" Or listen to Jeff Bezos whose relentless approach to problem solving has fueled Amazon's exponential growth: "Getting the right question is key to getting the right answer." Great questions like these have a catalytic quality—that is, they dissolve barriers to creative thinking and channel the pursuit of solutions into new, accelerated pathways. Often, the moment they are voiced, they have the paradoxical effect of being utterly surprising yet instantly obvious. For innovation and leadership guru Hal Gregersen, the power of questions has always been clear—but it took some years for the follow-on question to hit him: If so much depends on fresh questions, shouldn't we know more about how to arrive at them? That sent him on a research quest ultimately including over two hundred interviews with creative thinkers. Questions Are the Answer delivers the insights Gregersen gained about the conditions that give rise to catalytic questions—and breakthrough insights—and how anyone can create them. A substantially updated new edition of the essential text on financial modeling, with revised material, new data, and implementations shown in Excel, R, and Python. Financial Modeling has become the gold-standard text in its field, an essential guide for students, researchers, and practitioners that provides the computational tools needed for modeling finance fundamentals. This fifth edition has been substantially updated but maintains the straightforward,

hands-on approach, with an optimal mix of explanation and implementation, that made the previous editions so popular. Using detailed Excel spreadsheets, it explains basic and advanced models in the areas of corporate finance, portfolio management, options, and bonds. This new edition offers revised material on valuation, second-order and third-order Greeks for options, value at risk (VaR), Monte Carlo methods, and implementation in R. The examples and implementation use up-to-date and relevant data. Parts I to V cover corporate finance topics, bond and yield curve models, portfolio theory, options and derivatives, and Monte Carlo methods and their implementation in finance. Parts VI and VII treat technical topics, with part VI covering Excel and R issues and part VII (now on the book's auxiliary website) covering Excel's programming language, Visual Basic for Applications (VBA), and Python implementations. Knowledge of technical chapters on VBA and R is not necessary for understanding the material in the first five parts. The book is suitable for use in advanced finance classes that emphasize the need to combine modeling skills with a deeper knowledge of the underlying financial models. A new version of the classic and widely used text adapted for the JavaScript programming language. Since the publication of its first edition in 1984 and its second edition in 1996, *Structure and Interpretation of Computer Programs (SICP)* has influenced computer science curricula around the world. Widely adopted as a textbook, the book has its origins in a popular entry-level computer science course taught by Harold Abelson and Gerald Jay Sussman at MIT. SICP introduces the reader to central ideas of computation by establishing a series of mental models for computation. Earlier editions used the programming language Scheme in their program examples. This new version of the second edition has been adapted for JavaScript. The first three chapters of SICP cover programming concepts that are common to all modern high-level programming languages. Chapters four and five, which used Scheme to formulate language

processors for Scheme, required significant revision. Chapter four offers new material, in particular an introduction to the notion of program parsing. The evaluator and compiler in chapter five introduce a subtle stack discipline to support return statements (a prominent feature of statement-oriented languages) without sacrificing tail recursion. The JavaScript programs included in the book run in any implementation of the language that complies with the ECMAScript 2020 specification, using the JavaScript package sisp provided by the MIT Press website. This book constitutes the thoroughly refereed post-workshop proceedings and the doctoral symposium of the 12th International Conference on Web Engineering, ICWE 2012, held in Berlin, Germany, in July 2012. The volume contains four workshops and a doctoral consortium, each focusing on specific research issues that contribute to the main themes of the ICWE conference: MDWE 2012: Eighth International Workshop on Model-Driven and Agile Engineering for the Web, ComposableWeb 2012: Fourth International Workshop on Lightweight Integration on the Web, WeRE 2012: Third Workshop on the Web and Requirements Engineering, QWE 2012: Third International Workshop on Quality in Web Engineering.

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