

Ebook A Gentle Introduction To Apache Spark Tm

An Introduction to Data Science is an easy-to-read data science textbook for those with no prior coding knowledge. It features exercises at the end of each chapter, author-generated tables and visualizations, and R code examples throughout.

Dread yourself to a lively, intuitive, and easy-to-follow introduction to computer programming in Python. The book was written specifically for biologists with little or no prior experience of writing code - with the goal of giving them not only a foundation in Python programming, but also the confidence and inspiration to start using Python in their own research. Virtually all of the examples in the book are drawn from across a wide spectrum of life science research, from simple biochemical calculations and sequence analysis, to modelling the dynamic interactions of genes and proteins in cells, or the drift of genes in an evolving population. Best of all, Python for the Life Sciences shows you how to implement all of these projects in Python, one of the most popular programming languages for scientific computing. If you are a life scientist interested in learning Python to jump-start your research, this is the book for you. What You'll Learn Write Python scripts to automate your lab calculations Search for important motifs in genome sequences Use object-oriented programming with Python Study mining interaction network data for patterns Review dynamic modeling of biochemical switches Who This Book Is For Life scientists with little or no programming experience, including undergraduate and graduate students, postdoctoral researchers in academia and industry, medical professionals, and teachers/lecturers. A comprehensive introduction to using Python for computational biology... A lovely book with humor and perspective! -- John Novembre, Associate Professor of Human Genetics, University of Chicago and MacArthur Fellow "Fun, entertaining, witty and darn useful. A magical portal to the big data revolution! -- Sandro Santagata, Assistant Professor in Pathology, Harvard Medical School "Alex and Gordon's enthusiasm for Python is contagious! -- Glensy Thompson Professor of Integrative Biology, University of California, Berkeley

A straightforward, enjoyable guide to the mathematics of Einstein's relativity To really understand Einstein's theory of relativity – one of the cornerstones of modern physics – you have to get to grips with the underlying mathematics. This self-study guide is aimed at the general reader who is motivated to tackle that not insignificant challenge. With a user-friendly style, clear step-by-step mathematical derivations, many fully solved problems and numerous diagrams, this book provides a comprehensive introduction to a fascinating but complex subject. For those with minimal mathematical background, the first chapter gives a crash course in foundation mathematics. The reader is then taken gently by the hand and guided through a wide range of fundamental topics, including Newtonian mechanics; the Lorentz transformations; tensor calculus; the Einstein field equations; the Schwarzschild solution (which gives a good approximation of the spacetime of our Solar System); simple black holes, relativistic cosmology and gravitational waves. Special relativity helps explain a huge range of non-gravitational physical phenomena and has some strangely counter-intuitive consequences. These include time dilation, length contraction, the relativity of simultaneity, mass-energy equivalence and an absolute speed limit. General relativity, the leading theory of gravity, is at the heart of our understanding of cosmology and black holes. "I must observe that the theory of relativity resembles a building consisting of two separate stories, the special theory and the general theory. The special theory, on which the general theory rests, applies to all physical phenomena with the exception of gravitation; the general theory provides the law of gravitation and its relations to the other forces of nature." – Albert Einstein, 1919 Understand even the basics of Einstein's amazing theory and the world will never seem the same again. Contents: Preface Introduction 1 Foundation mathematics 2

Newtonian mechanics 3 Special relativity 4 Introducing the manifold 5 Scalars, vectors, one-forms and tensors 6 More on curvature 7 General relativity 8 The Newtonian limit 9 The Schwarzschild metric 10 Schwarzschild black holes 11 Cosmology 12 Gravitational waves Appendix: The Riemann curvature tensor Bibliography Acknowledgements January 2019. This third edition has been revised to make the material even more accessible to the enthusiastic general reader who seeks to understand the mathematics of relativity.

Dive into Systems is a vivid introduction to computer organization, architecture, and operating systems that is already being used as a classroom textbook at more than 25 universities. This textbook is a crash course in the major hardware and software components of a modern computer system. Designed for use in a wide range of introductory-level computer science classes, it guides readers through the vertical slice of a computer so they can develop an understanding of the machine at various layers of abstraction. Early chapters begin with the basics of the C programming language often used in systems programming. Other topics explore the architecture of modern computers, the inner workings of operating systems, and the assembly languages that translate human-readable instructions into a binary representation that the computer understands. Later chapters explain how to optimize code for various architectures, how to implement parallel computing with shared memory, and how memory management works in multi-core CPUs. Accessible and easy to follow, the book uses images and hands-on exercise to break down complicated topics, including code examples that can be modified and executed.

A Gentle Introduction to Scientific Computing
A Gentle Introduction to Computational Astronomy
A Gentle Introduction To Knots, Links And Braids
A Gentle Introduction

Nanotechnology

With a Gentle Introduction to Forcing

The Fourth Edition of Statistics: A Gentle Introduction shows students that an introductory statistics class doesn't need to be difficult or dull. This text minimizes students' anxieties about math by explaining the concepts of statistics in plain language first, before addressing the math. Each formula within the text has a step-by-step example to demonstrate the calculation so students can follow along. Only those formulas that are important for final calculations are included in the text so students can focus on the concepts, not the numbers. A wealth of real-world examples and applications gives a context for statistics in the real world and how it helps us solve problems and make informed choices. New to the Fourth Edition are sections on working with big data, new coverage of alternative non-parametric tests, beta coefficients, and the "nocebo effect," discussions of p values in the context of research, an expanded discussion of confidence intervals, and more exercises and homework options under the new feature "Test Yourself." Included with this title: The password-protected Instructor Resource Site (formally known as SAGE Edge) offers access to all text-specific resources, including a test bank and editable, chapter-specific PowerPoint® slides. Learn more.

An introduction to statistics covers the concepts measurement theory, descriptive statistics, knowledge representation, probability theory, correlations, and parametric statistics.

Abstract Algebra: A Gentle Introduction advantages a trend in mathematics textbook publishing towards smaller, less expensive and brief introductions to primary courses. The authors move away from the "everything for everyone" approach so common in textbooks. Instead, they provide the reader with coverage of numerous algebraic topics to cover the most important areas of abstract algebra. Through a careful selection of topics, supported by interesting applications, the authors intend the book to be used for a one-semester course in abstract algebra. It is suitable for an introductory course in for mathematics majors. The text is also very suitable for education majors who need to have an introduction to the topic. As textbooks go through various editions and authors employ the suggestions of numerous well-intentioned reviewers, these book become larger and larger and subsequently more expensive. This book is meant to counter that process. Here students are given a "gentle introduction," meant to provide enough for a course, yet also enough to encourage them toward future study of the topic. Features Groups before rings approach Interesting modern applications Appendix includes mathematical induction, the well-ordering principle, sets, functions, permutations, matrices, and complex numbers. Numerous exercises at the end of each section Chapter "Hint and Partial Solutions" offers built in solutions manual

Highly accessible treatment covers cons cell structures, evaluation rules, programs as data, recursive and applicable programming styles. Nearly 400 illustrations, answers to exercises, "toolkit" sections, and a variety of complete programs. 1990 edition.

A Gentle Introduction to Stats, Second Edition

Celestial Calculations

Interfacial Science: An Introduction

Abstract Algebra

Logical Foundations of Mathematics and Computational Complexity

A Gentle Introduction to Stata

James Burnham describes in details the history of Machiavelli and the modern Machiavellians who have been using his ideas to influence modern political liberty.

Appropriate for upper division undergraduate and graduate level courses in Computer Science Theory, Theory of Computation, and Automata and Formal Language Theory. This book focuses on fundamental issues of computation. The readers can master the content and gain lasting perspective from which to understand computers by carefully worked out examples, illustrations, and algorithmic proofs. It is especially appropriate for one-term courses.

This book is published open access under a CC BY 4.0 license. This book presents computer programming as a key method for solving mathematical problems. This second edition of the well-received book has been extensively revised: All code is now written in Python version 3.6 (no longer version 2.7). In addition, the two first chapters of the previous edition have been extended and split up into five new chapters, thus expanding the introduction to programming from 50 to 150 pages. Throughout the book, the explanations provided are now more detailed, previous examples have been modified, and new sections, examples and exercises have been added. Also, a number of small errors have been corrected. The book was inspired by the Springer book TCSE 6: A Primer on Scientific Programming with Python (by Langtangen), but the style employed is more accessible and concise, in keeping with the needs of engineering students. The book outlines the shortest possible path from no previous experience with programming to a set of skills that allows students to write simple programs for solving common mathematical problems with numerical methods in the context of engineering and science courses. The emphasis is on generic algorithms, clean program design, the use of functions, and automatic tests for verification.

Starting out from humankind's earliest ideas about the cosmos, this book gives the reader a clear overview of our current understanding of the universe, including big bang theories and the formation of stars and galaxies, as well as addressing open questions. The author shows how our present view gradually developed from observations, and also how the outcome of ongoing research may still change this view. The book brings together concepts in physics and astronomy, including some history in both cases. The text is descriptive rather than technical: the goal is to present things rigorously and without oversimplification, by highlighting the crucial physical concepts. The only prerequisite is a qualitative knowledge of basic physics concepts at high-school level.

A Gentle Guide

What Every Research Assistant Should Know

Statistics

A Rigorous but Gentle Introduction for Economists

The Universe Today

Notes Towards a Very Gentle Introduction to the Mathematics of Relativity

"A Gentle Introduction to Stata, Second Edition is aimed at new Stata users who want to become proficient in Stata. After reading this introductory text, new users will not only be able to use Stata well but also learn new aspects of Stata easily. Acocck assumes that the user is not familiar with any statistical software. This assumption of a blank slate is central to the structure and contents of the book. The book that deals with data management begins with a careful and detailed example of turning survey data on paper into a Stata-ready dataset on the computer. When explaining how to go about basic exploratory statistical procedures, Acocck includes notes that should help the reader develop good work habits. This mixture of explaining good Stata habits and good statistical habit is careful to teach the reader all aspects of using Stata. He covers data management, good work habits (including the use of basic do-files), basic exploratory statistics (including graphical displays), and analyses using the standard array of basic statistical tools (correlation, linear and logistic regression, and parametric and nonparametric tests of location and dispersion). Acocck teaches Stata coming stressing the value of do-files. In this way, he ensures that all types of users can build good work habits. Each chapter has exercises that the motivated reader can use to reinforce the material. The tone of the book is friendly and conversational without ever being glib or condescending. Important asides and notes about terminology are set off in boxes, which makes the text easy to read without than splitting topics by their Stata implementation. Acocck chose to arrange the topics as they would be in a basic statistics textbook: graphics and postestimation are woven into the material in a natural fashion. Real datasets, such as the General Social Surveys from 2002 and 2006, are used throughout the book. The focus of the book is especially helpful for those in psychology and the social modeling is supplemented with discussions of effect sizes and standardized coefficients. Various selection criteria, such as semipartial correlations, are discussed for model selection. The second edition of the book has been updated to reflect new features in Stata 10 and includes a new chapter on the use of factor analysis to develop valid, reliable scale measures."--Publisher's website.

Lisp has been hailed as the world's most powerful programming language, but its cryptic syntax and academic reputation can be enough to scare off even experienced programmers. Those dark days are finally over—Land of Lisp brings the power of functional programming to the people! With his brilliantly quirky comics and out-of-this-world games, longtime Lisper Conrad Barski teaches you the ropes of Lisp, from I/O and recursion, then moves on to more complex topics like macros, higher order programming, and domain-specific languages. Then, when your brain overheats, you can kick back with an action-packed comic book interlude! Along the way you'll create (and play) games like Wizard Adventure, a text adventure with a whiskey-soaked twist, and Grand Theft Lisp, the world's first text-based game. You'll learn how to—Master the quirks of Lisp's syntax and semantics—Write concise and elegant functional programs—Use macros, create domain-specific languages, and learn other advanced Lisp techniques—Create your own web server, and use it to play browser-based games—Put your Lisp skills to the test by writing brain-melting games like Dice of Doom and Grand Theft Lisp.

functional programming is yours to wield. "I loved the book! This book is not just interesting, it is exciting. I have probably read every significant book in the field, and this is the strongest and most convincing one yet. It is also one of the most comprehensive in its explanations. I shall most certainly recommend the book to colleagues." --Richard G. Petty, MD "a very good introduction to the basic theory of quantum systems... Dr. Gordon's whatever might be in store later." --from the Foreword by Prof. James F. Glazebrook, Eastern Illinois University This book addresses the fascinating cross-disciplinary field of quantum information theory applied to the study of brain function. It offers a self-study guide to probe the problems of consciousness, including a concise but rigorous introduction to classical and quantum information theory and quantum computing. It aims to address long-standing problems related to consciousness within the framework of modern theoretical physics in a comprehensible manner that elucidates the nature of the mind-body relationship. The reader also gains an overview of methods for constructing and testing quantum informational theories of consciousness.

Interfacial Science: An Introduction is an accessible text introducing readers to the chemistry of interfaces, a subject of increasing relevance and popularity due to the emergence of nanoscience.

The Brownian Motion

A Gentle Introduction to Optimization

A Gentle Introduction to ROS

Quantum Information and Consciousness

Learn to Program in Lisp, One Game at a Time!

Theory of Computing

A thorough exposition of quantum computing and the underlying concepts of quantum physics, with explanations of the relevant mathematics and numerous examples. The combination of two of the twentieth century's most influential and revolutionary scientific theories, information theory and quantum mechanics, gave rise to a radically new view of computing and information. Quantum information processing explores the implications of using quantum mechanics instead of classical mechanics to model information and its processing. Quantum computing is not about changing the physical substrate on which computation is done from classical to quantum but about changing the notion of computation itself, at the most basic level. The fundamental unit of computation is no longer the bit but the quantum bit or qubit. This comprehensive introduction to the field offers a thorough exposition of quantum computing and the underlying concepts of quantum physics, explaining all the relevant mathematics and offering numerous examples. With its careful development of concepts and thorough explanations, the book makes quantum computing accessible to students and professionals in mathematics, computer science, and engineering. A reader with no prior knowledge of quantum physics (but with sufficient knowledge of linear algebra) will be able to gain a fluent understanding by working through the book.

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A practical guide to using modern software effectively in quantitative research in the social and natural sciences. This book offers a practical guide to the computational methods at the heart of most modern quantitative research. It will be essential reading for research assistants needing hands-on experience: students entering PhD programs in business, economics, and other social or natural sciences; and those seeking quantitative jobs in industry. No background in computer science is assumed; a learner need only have a computer with access to the Internet. Using the example as its principal pedagogical device, the book offers tried-and-true prototypes that illustrate many important computational tasks required in quantitative research. The best way to use the book is to read it at the computer keyboard and learn by doing. The book begins by introducing basic skills: how to use the operating system, how to organize data, and how to complete simple programming tasks. For its demonstrations, the book uses a UNIX-based operating system and a set of free software tools: the scripting language Python for programming tasks; the database management system SQLite; and the freely available R for statistical computing and graphics. The book goes on to describe particular tasks: analyzing data, implementing commonly used numerical and simulation methods, and creating extensions to Python to reduce cycle time. Finally, the book describes the use of LaTeX, a document markup language and preparation system.

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